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HUMAN NATURE AND THE SOCIAL ORDER

By

E. L. THORNDIKE

1942

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To

Frederick Paul Keppel
a cherished friend
for nearly fifty years

PREFACE

This book presents certain facts and principles of psychology which students of sociology, economics, government, law, and other sciences of human affairs need to know. Psychology cannot as yet claim to be an adequate science of human thought, feeling, and action, upon which all the social sciences rest and with which they must agree. Indeed it probably has much more to learn from them, especially from anthropology and history, than they from it. But human biology and psychology make a substantial contribution. They settle certain questions outright and turn the balance for others.

The welfare of mankind now depends upon the sciences of man. The sciences of things will, unless civilization collapses, progress, extend man's control over nature, and guide technology, agriculture, medicine, and other arts effectively. They will protect man against dangers and disasters except such as he himself causes. He is now his own worst enemy. Knowledge of psychology and of its applications to welfare should prevent, or at least diminish, some of the errors and calamities for which the well-intentioned have been and are responsible. It should reduce greatly the harm done by the stupid and vicious.

I hope that this book will be useful not only to college students of the social sciences, but also to thinking men and women. If they find Part I too hard and technical, it may be worth their while to read Part II, taking on trust what has been demonstrated in Part I.

In presenting certain facts of sociology, criminology, economics, political science, and law which the reader needs to have in mind in connection with the psychology of the matters in question, I have made much use of quotations. Where it seemed better to express the fact or principle in my own words I hope that the science in question has been nowise misrepresented.

I acknowledge with gratitude the courtesies of the authors and publishers of the books and articles in question. A list of the authors will be found at the end of the book, where a list of the publishers follows.

I am indebted to the trustees of Teachers College, Columbia University, and to the Carnegie Corporation for the freedom from routine duties which made the writing of this book possible.

E. L. THORNDIKE,
New York, August, 1939

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PART I

GENERAL FACTS AND PRINCIPLES

Chapter 1

INTRODUCTION

Competent thinkers agree about the importance of improving man's knowledge and control of human nature. We obviously need to understand persons and institutions so as to predict and direct their activities. It is the purpose of this volume to present to students of government, law, economics, business, social work, and education some facts and principles of the basic sciences of man, especially of psychology, which may help them to advance knowledge and avoid error in their several fields. These facts and principles should help all thinking men and women to choose more wisely among doctrines and policies for the management of human affairs.

Psychology, as the science of the fundamentals of human nature, is concerned with the mind, or what used to be called the intellect, emotions, and will, but also with the movements of man's muscles and with many other events in his bodily organs outside the brain. (The word behavior is convenient to cover sensing, thinking, feeling, willing, acting, and anything else of which a person is capable, or which science has in view when it studies intellect, character, skill, temperament, desires, interests, conduct, or other facts of human nature.)

(The social sciences need knowledge of (1) how the human animal behaves, of what he thinks, feels, and does. "Given a certain situation or stimulus, how will the creature respond?" is a question which must be answered for men in general, for persons of a specified sort, or even for individuals, in the case of all the important stimuli which the world contains and all the important situations which life offers.)

(The social sciences need also knowledge of (2) what behavior persons are able to manifest, what they *can* be and do

and of (3) what they *want* to be and do and experience.) The abilities which condition and limit human behavior, and the desires and aversions, likes and dislikes, which instigate and direct it, are indeed often more important and instructive than the actual behavior observed. We often observe it, not for its own sake to know that such and such creatures will in fact respond thus and so to such and such events in nature, but to infer what they could do if they wished, or what wants, cravings, urges, drives, or whatever one chooses to call them, rule their lives.

Much of the work of improving the world consists in using the abilities of men to gratify their good wants; and many of the problems which economics, government, law, business, philanthropy, and education refer to psychology concern the nature, causation, and modification of either abilities or wants. A large fraction of this volume will consequently be devoted to them.

Chapter 2

THE A B C OF HUMAN BEHAVIOR

A man is a physical mass and, as such, behaves in accordance with gravitation, electrical attraction and repulsion, and other physical laws. He is a factory and storehouse of chemicals and displays chemical reactions determined by his constituents. He is a living animal, capable of absorption, metabolism, secretion, excretion, movement, reproduction, and other biological activities. Some of these are psychobiological or mental, such as thought, emotion, desire, and choice. A man's life would be described by a list of all the situations which he encountered and the responses which he made to them, including among the latter every detail of his sensations, percepts, memories, mental images, ideas, judgments, emotions, desires, choices, and other so-called mental facts.

Using S and R as symbols for 'situation or state of affairs encountered by the man' and 'response made by him,' and using $\rightarrow$ as a symbol for 'evokes,' 'evoked,' 'leads to,' or 'led to,' a man's life would be expressed as a list of millions of events like

$S_1 \rightarrow R_{146}$, $S_{29504} \rightarrow R_{17361}$, $S_{104618} \rightarrow R_{3184}$, $S_{21} \rightarrow R_{269}$, etc., etc.

A man's nature at any given stage would be expressed by a list of the R's which he would make to whatever S's could happen to him, somewhat as the nature of a molecule of sugar might be expressed by a list of all the reactions that would take place between it and every substance which it might encounter.

There would be one important difference, however. If each $\rightarrow$ had attached to it a number expressing the probability that the S in question would evoke the R in question, most of these probabilities would be near 0 or near 1.00 for the behavior of the molecule of sugar; but in the case of the behavior of a man our

knowledge would not often suffice for that. In human behavior our ignorance often requires the acknowledgment of the principle of *multiple response* or *varied reaction* to the same S by a person who is, so far as we can tell, the same person. Instead of $S_{79} \rightarrow R_{261}$ with a probability of 1.00 and $S_{79} \rightarrow$ any other R than R_{261} with a probability of 0, we often have to expect something like

$S_{79} \rightarrow R_{261}$	with	a	probability	of	.80
$S_{79} \rightarrow R_{2611}$	"	"	"	"	.06
$S_{79} \rightarrow R_{2612}$	"	"	"	"	.04
$S_{79} \rightarrow R_{2613}$	"	"	"	"	.03
$S_{79} \rightarrow R_{2614}$	"	"	"	"	.02
$S_{79} \rightarrow R_{2615}$	"	"	"	"	.03
$S_{79} \rightarrow$ all other R's	"	"	"	"	.02

(If John Doe were really the same person in every particular on the hundred occasions he would always respond to S in one same way at each of its hundred occurrences, but he will not be. Even when we can detect no differences in him there will be subtle variations in metabolism, blood supply, etc.)

If a man's nature at two dates, say at age 20 years, 0 days and at 20 years 100 days, were expressed by two S → R lists, changes in the man during the 100 days would be shown and measured by the changes in the R's evoked by the same S's, or in the probabilities attached to the →'s connecting the same R to the same S.

Important sorts of change are the strengthening of previously existing tendencies, the growth of new tendencies, the weakening and the abolition of previously existing tendencies. All four sorts are best thought of in terms of S, R, and →. When S → R with a probability of K changes to S → R with a probability greater than K, a previously existing tendency has become stronger. When S → R with a probability of 0 or near 0 acquires an appreciable probability, a new tendency has appeared. When S → R decreases its probability, there is weakening. When the decrease is to 0, the tendency has been abolished.*

* S → R with a probability of 1.00 may become still stronger in the sense that it will still occur under more and more adverse conditions and will remain after longer and longer periods of lack of exercise.

The number of different situations which life can offer a man in a modern civilized community is practically infinite. To these he can make millions of different responses. Millions of pages would be needed to state which will be connected with which and how strongly, if we knew the facts. We know them fully for no man. The nearest approach to complete knowledge and prophecy for an adult would probably be in the case of an idiot who had been under observation in a known environment for some years.

The sciences of man are far below complete knowledge and prophecy but far above complete ignorance and guess work. A psychologist who knew the life history of a man to age twenty-five and observed his reactions in ten or twelve hours of testing could make prophecies of the R's he would make to any thousand important S's which would on the average be enormously better than prophecies made by chance. It is as correct to say that human behavior is often predictable as to say that it is often unpredictable. A teacher can predict with few errors which of his students will pass and which will fail in a state examination, but will make large errors in predicting their vocational status at age 50. Economists and business men can predict closely the amount of wheat or sugar that the world will consume in a year at a given price, but can predict changes in the fashions of women's clothes much less safely. Students of history and politics could profitably bet a thousand to one that Mussolini will not do such and such things within ten days—for example, abdicate, enter a monastery, attend the Comintern, or apply for a professorship in Oxford University, though they could not tell which decision he would make among several all of which would be fairly consistent with his nature and the given circumstances. The man in the street is constantly assuming that certain persons will do so and so, and is right perhaps ninety-nine times out of a hundred, namely in those cases where habitual routines and ordinary motives are usually decisive.

Very important among a man's responses are liking, satisfaction, welcoming, or whatever one chooses to call his favoring feelings, acts, and attitudes, and on the other hand, dislike, discomfort, annoyance, rejection, or whatever one chooses to call

his objecting, avoiding, disfavoring feelings, acts, and attitudes. He is born with certain wants and proclivities (called "drives," by many psychologists) and acquires more by growth and experience. These determine in large measure what he does and what he becomes. A man is an organization of S → R connections operating in the service of a group of such wants, "drives" or proclivities.

THE PERSON WHO RESPONDS

A person is at the start a fertilized human egg and especially the genes contained therein, which are the product of the combined genes of the father and mother. The egg develops into the embryo, the infant, the adolescent, and the adult, partly by forces residing in it, partly by forces acting upon it from outside. The situations which it experiences and the responses which it makes register themselves by preserving or changing its nature, sometimes in infinitesimal amounts, as in the casual sounds of an hour devoted primarily to sleep, sometimes in impressive amounts, as when one reads a stimulating book, falls in love, marries, joins the church, is wronged by a close friend, or inherits a fortune. S → R connections made in him attain increasing strength and cooperate as knowledge, habits, prejudices, and ideals. Nurture acting on inborn nature thus forms the genes into a person whose probabilities of behavior (intellect, character, and soul, if you prefer) are as describable as his external bodily form and features.

It used to be customary to divide a person into a unitary mind or soul and the multifarious knowledges, habits, interests, skills, etc., which it had and used. There is no great harm in this. But it is better to hold to the truth, that no clear line can be drawn between the unified organization which we call a person's nature or self and the knowledge, habits, wants, etc. which it possesses, or the acts which it does. What a person is really means what he will think and feel and do in response to the various situations of life. He has become what he is by the original constitution of his genes and what he has thought and felt and done. Certain parts of him are more or less regnant over other parts, certain parts are more or less tools in the hands of other parts, certain

parts are more or less permanent features whereas certain parts easily vanish or change. But it is unnecessary, and may be misleading, to separate off the ruling, purposive, permanent parts into a unitary being and call it the soul, mind, self, or personality. Such a separation does not parallel reality. Biologically all are organized in man's brain, which has no such clear separation, and in the history of any person there is constant interplay and cooperation.

ELEMENTS OF SITUATIONS, PERSONS, AND RESPONSES; PARTIAL AND PREPOTENT ACTIVITY

A situation often acts unevenly upon a person, parts of it being prepotent because he is more sensitive, attentive, or responsive to them. So we may be able to predict that a certain element will, no matter what accompanies it in the total situation, evoke a certain response. (A thirsty man will tend to respond to water in a glass, water in a cup, and water in a bottle by drinking the water. So, in general, situations ABCD, MBNO, and VBWX may all evoke response 7293 because there is a tendency B → 7293. Furthermore they may do this in persons who are unlike in every thing save the ability and desire to respond to the element B by the act 7293.

Both common practice and science have been more interested in what responses the elements of situations will evoke than in what total situations will evoke. They analyze the situations of life into such and such things, plants, animals and people—or further into such and such looks, acts, attitudes, etc., or still further into such and such masses, chemical compounds, light waves, etc. present in such and such arrangements. So we have such statements as "In person A blame → strong resentment" or "In person B (who is color blind) red light and green light of equal intensities → the same response."

A person almost always acts unevenly, parts of him being especially aroused to action by the situation in question. In his response to foods on the breakfast table, his knowledge of Greek and his fear of thunderstorms count for little or nothing. Both common practice and science treat persons not only as units whose behavior as totals we may predict, but also as containing

elements, features, qualities, characteristics, etc. whose behavior we may predict more or less irrespective of the rest of the person. So we expect that hunger and purchasing power will make a traveler buy food regardless of whether he is a Republican or a Democrat, an optimist or a pessimist, a scholar or a dunce.

The total response of a human organism in even a very brief unit of time is usually very elaborate. When a man casts his vote, or signs a contract, or robs a till, he may also be happy or sad, calm or excited, reminiscent or anticipative, energetic or fatigued; and the state of his digestion, circulation, etc. may be this, that or the other. The sciences of government, economics, and criminology concern themselves with certain parts or features of the total responses.

Elements or features of situations, persons, and responses are so much studied in psychology that it is customary to make them primary in certain statements about behavior so that $S_{2194} \rightarrow R_{3265}$ is intended to mean that situation-element 2194 → response-element 3265 in so far as only elements $\alpha\beta\gamma$ of the person are concerned. Such statements are then subject to three limitations. Other features of the total situations of which the element S_{2194} is a part may cause the response to vary. Other features of the person may cause the response to vary.* There may be other features of the response than the element 3265.

We may summarize this section in a principle of partial activity or prepotency: that—

The interminable flow of complex total situations evokes in a changing person who has, or rather is, an organization of multifarious abilities, interests, and wants, a flow of elaborate responses. Certain parts of the situation-flow evoke chiefly certain parts of the response-flow because chiefly of certain parts of the person.

VARIATIONS IN RESPONSES DUE TO MINOR AND UNKNOWN VARIATIONS IN THE PERSON

To any situation the same person will always make the same response. But a person so commonly varies in ways hidden from

* This is the gist of the law of mental "set": that the result of any stimulus depends not only upon it but also upon the temporary set or adjustment of the mind, and also upon its permanent set or bias.

us, even within the same day or hour, that we must, as was stated earlier, accept the principle of varied reaction or multiple response to the same situation by a person who is the same so far as we know. Of the millions of responses which the person might make he makes in fact not one but a dozen or a score. The picture so far as our knowledge goes is not "S in person P evokes R," but "S in person P evokes R_a or R_b or R_c. . . . . R_n." It is largely by selection from among these varied reactions to the same stimulus that human learning occurs, from the baby's acquisition of skill with his spoon to the discoveries and inventions of the genius.

INTERNAL SITUATIONS

All the general principles which hold good for the responses of a person to external situations hold also for responses to states of affairs within the person. Connections leading from ideas, desires, delusions, hates, and fears vary in strength, exhibit multiple response, and involve parts as well as totals. "9×7, how many?" as an inner question put by a person to himself may call up "the idea of 63" as surely as when spoken by another or seen in a book.

PURPOSES AND MECHANISMS

Of very great importance are the connections between a situation and chains of responses of one sort or another *until a certain result is attained.* So the sight of the hit ball evokes (in the fielder) a series of movements until his hands grasp the ball. These may differ on different occasions. So a line of print to be read leads a reader to move his line of regard along it in a series of jerks and stops with possible regressive movements until he has got the words, but the number and location of the stops may vary. Much of human behavior is purposive, and guided almost incessantly, even from second to second, by its consequences in the form of the satisfyingness of the person's status or progress step by step. If one response to a situation does not satisfy the person it is often abandoned quickly in favor of another, there being a strong → from that S toward "doing what is in one's repertory until goal X is attained."

This is not to say that human behavior is ruled arbitrarily or mystically by forces which transcend ordinary knowledge and control. On the contrary, we know perhaps more about the biological processes by which purposes influence behavior than about those by which sheer habit influences behavior. The conflict of opinion concerning the role of "mechanical causation" and that of teleology in human behavior is reconciled and explained by the facts concerning the back-action of the consequences of a connection upon it. These will be presented in a later section.

INDIVIDUALS, GROUPS, AND HOMO SAPIENS

Common practice to some extent, and science to a very large extent, is concerned with S → R probabilities for all persons, or for women, or for insane persons, or for children learning to read, or for other groups of more than a single person. So we have such statements as "A solar eclipse frightens those who do not understand its cause," or "Other things being equal, in all normal persons approving smiles arouse satisfaction and scornful smiles arouse annoyance," or "In all save the color-blind, light with a wave length of 70 microns and light with a wave length of 53 microns evoke very different sensations."

Facts and principles true of all humans are, of course, of special importance. There are such in the psycho-biology of man as well as in his anatomy and physiology, but great caution is required in attributing this, that and the other mental trait to all members of the species. The early students of morals, economics, government, and other sciences of man erred often by imputing to mankind as universal mental equipment traits which were largely caused by the civilizations with which they themselves were familiar, and which men in different circumstances lack.

Equal caution is desirable in attributing or denying a mental trait to one sex or age or race. Each individual's behavior is caused in part by certain tendencies which he has in common with all members of the species (or in common with all save certain special eccentrics or monstrosities), in part by tendencies peculiar to his sex, in part by tendencies peculiar to his ancestry, in part by the stage of development or maturation which he has reached, in part by tendencies peculiar to the general ways of

life or "culture" of his land and time, and in part by the circumstances which characterize his own peculiar life-history. The →'s which characterized the reader's behavior in even so simple a routine as his breakfast this morning, would doubtless, if we could trace their causations completely, involve humanity, age, western civilization, and personal experiences.

CHANGES IN A PERSON'S BEHAVIOR

It is convenient to have a word or words to use in place of the symbol → or the phrase "has a certain probability of evoking"; and the words *connect* and *connection* are so used.* So we say that in a person who knows French there is a connection between "roi" and "king," or that the connection between an object approaching the eyes rapidly and the act of closing the eyelids does not require learning, but is a part of man's original nature.

We may then say that a person's thought, feeling, and action, i.e. his behavior, depends upon a system of connections between situations and his responses, between what can happen to him and what he will do in return. Parts or features of situations and parts or features of responses enter into connections or have the → potency. The strength of a connection means the amount of the probability that the S will evoke the R. The permanence of a connection means the maintenance of its strength over a period of time. The formation of a new connection is the increase of the S → R probability in question from zero or some inappreci-

* The use of *connect* and *connection* and the like to express the fact that there is a certain probability that the person in question will behave in a certain way to a certain stimulus, situation, or state of affairs is useful whatever the physiology of the process may be. They are specially appropriate words because the brain is a system of neurones which do connect sensitive surfaces of the body with muscles and glands, and which have billions of interconnections among themselves. But the words would still be useful regardless of that fact. They do not involve adherence to an associationist psychology or physiology. They mean no more than the symbol → when its meaning has been extended to include "evokes," "evoked," "tends to evoke," and "has a certain probability of evoking." The words "evoke" or "connect with" and the symbol → designate the basic fact of living behavior. The word "cause" could be used in the form, "This situation plus the person (or animal) in question caused this condition of the response." But this is too long for convenience. The word "connection" is used occasionally not only to equal →, but also as a name for the entire S → R.

able amount to some considerable amount. Changes in a person's nature are changes in his repertory of connections.

A S → R in a person may change by the mere growth or maturation of the person or some part of him. So at a certain stage an infant laid on its back will stay so, whereas at a later stage it will often roll over, and still later will often roll over and creep away. The influence of maturation appears most strikingly in the life of sex, but it is potent in many other abilities and proclivities.

Every occurrence of a modifiable S → R in a person will, other things being equal, increase the probability of that →. If saying "dog" occurs as a response to seeing *d o g*, by accident or by design, with interest or without, to the person's satisfaction or to his discomfort, in accord with or against his wishes, the probability that *d o g* will evoke "dog" will be increased. Interest and satisfaction will increase the amount of increase, but the sheer occurrence of a modifiable connection strengthens it. Unless some force acts upon him in a contrary direction a man will continue increasingly to think and act as he has thought and acted. If by hook or by crook a person can be led to do R as a response to S, he will, in so far forth, be more likely in the future to do R as a response to S. The occurrence of S → R increases the strength of the connection.

Mere frequency of occurrence is, however, a relatively weak strengthener of connections. A more important factor is their accompaniments or immediate after-effects. A child who puts lumps of sugar and lumps of coal into his mouth equally often will strengthen the connection with "sugar → put in mouth" more than the connection "coal → put in mouth." Man's adaptations to his environment are largely caused by the consequences of his behavior. In typical experiments one rewarded occurrence adds six times as much strength to connections as a non-rewarded occurrence.

A THEORY OF THE OPERATION OF AFTER-EFFECTS

What evidence is available all goes to show that the strengthening or confirming influence of a relevant satisfying after-effect is as natural or biological a fact as facilitation, inhibition, diffusion, the refractory period, or any other fact of nerve physiol-

ogy. The physiological processes constituting it and them are equally unknown, but it does not depend on interaction or any other doctrine of the relation of mind to matter any more than they do. It does not act logically or teleologically any more than they do. Its influence does not pick out the "right" or "essential" or "useful" connection by any mystical or logical potency. It is, on the contrary, as natural in its action as a falling stone, a ray of light, a line of force, a discharge of buckshot, a stream of water, or a hormone in the blood. It will strengthen not only the connection which is the most preferred, according to the principles stated above, but also to some extent connections which are wrong, irrelevant, or useless, provided they are close enough to the satisfier in the succession of connections.

This unknown reaction of neurones which is aroused by the satisfier and which strengthens connections upon which it impinges may be called the *confirming reaction*. Though its intimate histological basis and physiological nature are no better known than those of facilitation, inhibition, fatigue, strengthening by repetition, or any other forces causing temporary or permanent modifications in the brain, certain facts about it are known in addition to those already stated concerning its causes and results.

The confirming reaction is independent of sensory pleasures; indeed, a pain may set it in action. The confirming reaction, though far from logical or inerrant, is highly selective. It may pick out and act upon the words one is saying, leaving uninfluenced one's posture and gross bodily movements and all that one is seeing. The confirming reaction seems often to issue from some overhead control in the brain, the neural basis of some want or "drive" or purpose or then active self of the animal. This overhead control may be rather narrow and specific, as when a swallow of liquid satisfies thirst and the satisfaction confirms the connection which caused the swallowing and makes the animal continue or repeat that connection. This may happen while the main flow of his purposes concerns the work he is doing or the game he is playing or the book he is reading. It may be very broad and general, as when the purpose is to do well and win a game or to pass the time pleasantly, and is satisfied by any one

of many movements in response to some play of one's adversary or by attentiveness to any one of many sights and sounds. It may be stimulated to send forth its confirming reaction by a rich sensory satisfier, such as freedom, food, and companionship for an animal escaping from a cage, or by a symbolic satisfier, such as the announcement "Right" in an experiment in learning. If what the overhead control wants is the announcement "Right," that is what will most surely lead it to make the confirming reaction.*

If a connection has a satisfying after-effect which causes some control in the brain to send forth a confirming reaction, and if the S continues, the confirming reaction tends to cause a continuance or continued repetition of the R then and there, and often with more vigor and shorter latency. If the situation has vanished, the strengthening of the connection can only manifest itself when S recurs, which may be in a few seconds or only after months. There will then be an increased probability of repetition over what there would have been if no confirming reaction had affected the connection in question.

The potency of a confirming reaction may bear little relation to the intensity of the satisfier. A "want" or "purpose" or "self" may be as well satisfied, and so issue as full and adequate a confirming reaction, by a moderate reward as by one much larger. There seems to be an upper point beyond which increases in a reward add only excitement. Toward the low end there is a range where the reward fails more and more frequently to arouse an adequate confirming reaction. There seems to be a point below which a confirming reaction is not evoked. A state of affairs below this degree of satisfyingness is satisfying to the extent of being tolerated, and nothing is done to abolish or evade it, or to replace the connection which caused it by some other connection; but also nothing is done to strengthen the connection and continue it longer than it would otherwise have been continued, or to repeat it in the future more frequently than it would otherwise have been repeated.

* Arrangements may be made whereby certain events acquire power to cause the confirming reaction in the absence of anything that would ordinarily be called an overhead control. The reward or satisfier may then exert the confirming reaction directly upon the connection.

At the other end of this neutral zone begin states of affairs which are annoying to the animal and stimulate him to do whatever his repertory provides as responses to the annoyance in question.

What sort of force acting through what sort of process or mechanism can be and do what the confirming reaction is and does? The answer which seems to me to fit all or nearly all the facts is that the force and mechanism of the confirming reaction are the force and mechanism of reinforcement, applied to a connection. All explanations of reinforcement agree that one part of the brain can exert a force to intensify activities elsewhere in it and that processes or mechanisms exist whereby this force can be directed or attracted to one activity rather than promiscuously; and that is all that is required to explain the fundamental physiology of the confirming reaction. It is distinguished from other sorts of reinforcement by the fact that satisfaction sets the force in action and that the force acts on the connection which was just active in intimate functional association with the production of the satisfier, or on its near neighbors.

The confirming reaction solves the conflict between commonsense teleology, which asserts that we do as we do largely because we thereby fulfill our purposes or get what we want, and mechanistic science, which asserts that the mind is a part of nature as truly determined by natural forces as a dynamo or a radio set. Our purposes, though teleological, are a part of nature; they exist as parts of what I have called the overhead control or ruling set of the mind; they act by the natural force of the confirming reaction; this is as truly a mechanism as the knee-jerk or lid-reflex or strengthening influence of sheer repetition, but it has the special property of working back upon connections to strengthen those which are satisfying to a man's purposes. It is teleological in the sense that it enables the purposes to modify behavior. Through it consequences as well as antecedents determine thought and action. The simple biological fact that, in $S \rightarrow R \rightarrow E$, $S \rightarrow R$ is especially strengthened by the confirming reaction when E is satisfying supplies the practical teleology which the social sciences have assumed or longed for since Aristotle.

Occurrences and after-effects (or connections and consequences, or repetition and reward) are two real and potent forces changing a person's behavior by strengthening $S \rightarrow R$'s. Other forces such as imitation, "telescoping" (the omission of intermediate links so that $S_1 \rightarrow R_1 \rightarrow S_2 \rightarrow R_2 \rightarrow S_3 \rightarrow R_3$ becomes $S_1 \rightarrow R_3$), and movement toward a mental equilibrium of some sort, have been suggested by certain psychologists, but these are probably secondary results of repetition and the confirming reaction. We shall not invoke them until these two simple biological facts are found inadequate.

THE MODIFICATION OF BEHAVIOR BY ASSOCIATIVE SHIFT AND THE CONDITIONED REFLEX

In much human learning there is multiple response or varied reaction to a situation with strengthening of one response and relative weakening of the others. But in some there is only one response, the learning consisting in shifting this response from one situation to another. Let the response R_x be at the outset attached to S_{abc}. If we then present $S_{abc} + S_d$, this compound situation may still evoke R_x. After a number of occurrences of $S_{abc} + S_d \rightarrow R_x$, $S_{ab} + S_d$ may evoke R_x. After a number of occurrences of $S_{ab} + S_d \rightarrow R_x$, $S_a + S_d$ may evoke R_x. Finally all of what was originally required to evoke R_x may be omitted; and S_d, which originally had no power to evoke R_x, will do so. So we say "Whoa!" and pull the horse's head back hard. He stops as a response to the pull. We repeat, gradually decreasing the force of the pull until eventually he stops at the mere "Whoa!" This is the general principle of *associative shifting.*

The phenomenon of the *conditioned reflex* as discovered by Pavlov and studied by his followers is the special case of associative shifting where the R is a reflex (such as the flow of saliva, or the dilation of the pupil of the eye in darkness and its contraction in a bright light, or the jerk of an arm or a leg at an electric shock) and where the shift is made from the situation S_u, which normally evokes the reflex, to a different one, S_c, by presenting S_c along with S_u. This special case of associative shifting has certain peculiar characteristics, notably *experimental extinction* and *disinhibition.* Experimental extinction is the fact

that, after the shift has been made so that $S_c \rightarrow R_x$, repetitions of $S_c \rightarrow R_x$ *weaken it,* even to zero strength. Disinhibition is the fact that, after $S_c \rightarrow R_x$ has been thus weakened by repeated occurrences within a short time, it can be restored by lapse of time, by a few occurrences of $S_c + S_u \rightarrow R_x$, by shocks of certain sorts, and perhaps in other ways. Neither of these is essential or frequent in ordinary associative shifting. The milkman's horse does not cease to obey the "Whoa" at the tenth or twelfth stop each morning. Nor would a long rest or a loud yell restore the habit if he did so cease. The true conditioned reflex is of great theoretical interest and is of practical importance in connection with the control of certain reflexes and habits.

The terms conditioned reflex, conditioned response, conditioning, and others are often used not strictly as above, but for associative shifting in general, though characterized by neither experimental extinction nor disinhibition, and even for any strengthening of any $S \rightarrow R$ by repetition (continuance being reckoned as a form of repetition), or even for any modifications in man due to his experience.*

In the actual work of influencing and changing men by government, industry, trade, education, and social work, the selection of more desirable responses to a situation and the shifting of a response to a situation where it is more desirable to have it, often work together in complicated ways. So also the two forces by which they operate, occurrence and after-effect, usually work together. But the changes can always be analyzed into differential strengthenings of responses to the same situation or into differential attachments of the same response.

By sufficient skill any response of which a person is capable

* Such misuse of the terms is unfortunate, and will be avoided in this book. As a general term for modifications due to experience we shall use the word learning. When it is desirable we shall distinguish *selective* or *multiple-response* learning, where $S \begin{cases} \rightarrow R_w \\ \rightarrow R_x \\ \rightarrow R_y \\ \rightarrow R_z \end{cases}$ changes to $S \rightarrow R_x$, from learning by *associative shift,* where $S_a \rightarrow R_x$ changes to $S_b \rightarrow R_x$ by training with addition of S_b to S_a and then subtraction of the S_a. When there is experimental extinction and disinhibition we shall call it learning of the conditional reflex type.

can conceivably be attached to any stimulus to which he is sensitive. But in fact some situations so inevitably arouse a certain response that it is practically impossible to put any other response in its place, and some responses are so inevitably attached to only a certain sort of situation that it is practically impossible to shift them to any other. Some S → R's are not modifiable in this way or modifiable only with great difficulty. If the sound of a bell was followed by a spoonful of vinegar in the mouth a thousand times, the man would still not have the sensation (or illusion) of sour at the bell alone. He would probably *think of* it, and might pucker up his mouth as he had done, but "sound of bell + presence of vinegar → taste of vinegar" would not create "sound of bell → taste of vinegar." Many investigators have tried to teach men to increase the flow of saliva at a given signal, but without sure success, though it is easily done in the case of dogs. It is easy to teach a child to wave his hands at will, but very hard to teach him to quicken his pulse at will. We learn to control the flow of tears to some extent, but not to control the flow of gastric juice.

Chapter 3

ABILITIES

Human abilities are multifarious and practically innumerable. John Doe can digest this food, spell this word, understand that sentence, jump over yonder fence, solve such and such problems, etc., etc., *ad infinitum*. They may be classified in many ways, but whatever classificatory scheme is used, there will not be groups sharply distinguished, but a continuum with intermediate or doubtful borderline cases. So a man's mental or psychological abilities shade off into "bodily" or muscular. Sensory abilities shade off into perceptual.

Three sorts of classification of abilities are of special interest. The first lists abilities according to the sort of operation that is used, such as moving, secreting, absorbing, sensing, perceiving, imagining, remembering, attending, discriminating, reasoning, choosing, deciding, acting, etc. The second lists them according to the species of end attained or service performed, as ability to digest starch, ability to manufacture certain hormones in the body, ability to read, ability to add and subtract, business ability, executive ability, ability to sing, ability to control one's temper, etc. The third lists them according to the degree to which and the means by which they can be modified (increased or decreased). So the ability to distinguish reddish grays from greenish grays cannot be greatly increased by any known means. The ability to digest carbohydrates is very hard to modify by training, but may be easily reduced by disease of certain organs and restored by dosage with insulin, and some mental abilities may similarly be obdurate against education but submissive to drugs. The ability to spell a certain thousand words can be increased from near zero to perfection by training with repetitions and rewards, but the ability to learn to spell a thousand new

words in half the time required hitherto is very hard to acquire. The ability to understand such words as elephant, rhinoceros, daffodil, portulaca, beige, croquignole and watermelon is easy to acquire; but the ability to understand such words as analytical, derivative, conditional, coordinate, chemistry, proteid, and potentiality is extremely hard to acquire.

A common method of thinking about mental abilities has been to assume (1) that certain entities properly named attention, memory, imagination, reasoning, will, etc., exist in a man and constitute his nature, and (2) that certain combinations of these, together with certain traits of character and temperament, produce business ability, literary ability, executive ability, ability to read, and the like when the circumstances of life favor their production. So for example, literary ability is supposed to be the product of a high degree of intellectual ability and imaginative ability.

The facts are very different from this, and permit no such easy derivation of the infinitude of abilities shown by civilized men in their work with things, people and ideas, as learners, earners, parents, neighbors and citizens.

Science is, however, much better off than it was when it bandied about names for abilities and "explained" an ability by attributing it to a combination of names. There has been within the last two generations a greater increase in knowledge of mental abilities than had been attained from the times of Aristotle and Solomon up till then. Some of the important facts will be presented in this and following chapters.

Human abilities are known from human behavior—from what men think and feel and do. Also, they are among our means of predicting it. To state that a person has a certain ability (call it X) is to assert that he can (and consequently will, if he desires) respond to such and such a situation (set of circumstances, environment) .by such and such thoughts, emotions, actions, etc. So the ability to spell *cat* means that the person will respond to certain requests, needs, or the like by saying or writing *c-a-t,* if he has the desire to accede to the request, satisfy the need, etc., etc. Very often the assertion is that he will respond to such

and such a situation not by some one stereotyped response or set of responses, but by any one of many combinations of such which produces a certain result. So the ability to find the correct sum of 1126, 1309, and 1495 does not specify that the person will proceed in any one way. He may write the numbers in a column, or leave them on the line; he may add 5 and 9 first, or 6 and 9; he may write 20 or write only 0; and so on.

Sometimes the attainment of the specified result in response to such and such a situation may involve the trial of various procedures, the abandonment of some, and a more or less long course of deliberation, experimentation, and criticism.

Let us take as the identification of the kind or quality of an ability the fact that a person can (and will, if he desires) attain a certain result in response to a certain situation—can produce a certain product in certain circumstances. Let us call any two abilities the same in kind if the situation and the result are the same in both. If a person can attain the same result in half the time another person takes or than he himself took before, we shall then say that the two abilities were the same in kind but differed in speed of achievement. If a person can attain the same result in the same time with half the strain or effort that another person suffers, or that he himself suffered before, we shall then say that the two abilities were the same in kind and speed of achievement but differed in the strain or effort involved. If a person can attain the same result in the same time and with the same strain or effort but by a procedure that is more elegant or instructive or pleasurable or exciting or healthful or moral or refined, or what not, we shall say that the two abilities were the same in the kind and speed and strain of achievement, but differed in respect of so and so. That is, let us make what is achieved primary, the time required secondary, the strain tertiary in our thinking, and deal with other values which the ability may have as may be required. If we identified no two abilities unless they were alike in every particular that might be of value to the person or to the world, we should have an unmanageable list. Indeed, in most work, it has been found desirable to disregard the amount of strain or effort, and limit investigation to what is achieved

and the time required, both of which can be determined objectively. And unless notice is given to the contrary, we also shall disregard the amount of strain and effort.

Even with these limitations, the number of distinct abilities is legion (probably is in the millions) and it is obviously desirable to group them further. For example, even with these limitations, the ability to find the sum of 9 and 6 is not the same as the ability to find the sum of 9 and 7, nor even the same as the ability to find the sum of 6 and 9. Persons can be found who can respond correctly to "9 and 6 are how many?" who cannot respond correctly to "6 and 9 are how many?".

(1) As a first means of grouping we may put together abilities which differ only by small and unimportant differences in the situation (circumstances, environment), but are identical in the achievement and the time required. For example, suppose that the situations are "How many are 9 and 6?" "Add 9 and 6, what is the sum?" "$9 + 6 = ?$" "9 and 6 make how many?" and "9 plus 6 equal how many?" The ability to achieve the right answer in 4 seconds is not identical in the five cases, and persons could in fact be found who had some of these five abilities and lacked others, but we may group them together with little harm.

(2) As a second means of grouping, we may put together abilities which differ only by small and unimportant differences in the achievement (result obtained, product produced). If the ability is that of translating a certain French sentence, or of drawing a line 4 inches long, or of cleaning a window, certain minor variations in what is done may be thus neglected, especially when the performances though different are equally "good." Where they are not equally "good," the limits of tolerance may themselves be stated in the description of the ability. For example, the ability to walk straight could be defined as the ability to keep from diverging more than 5° from a straight line; the ability to tell reds from greens could be defined as the ability to detect any such color-differences greater than a certain amount. This last is not a very good illustration of the neglect of "small and unimportant" differences; for the differences among those who are not color-blind or color-weak, and who would all be credited with the ability, may for certain purposes be rather im-

portant. It was chosen precisely as an introduction to the statement that neglecting small differences in the achievement is risky, and that abilities so grouped together may occasionally need to be analyzed into a graded series of abilities having different degrees of goodness.

As criteria of "small" and "unimportant" which decide whether it is legitimate to group abilities in these two ways, we use first the degree of correlation of the abilities among individuals; that is, the frequency with which the existence of one of them in a person involves the existence of the other in that same person, and second the accidentalness or "chance" causation of such discrepancies as appear. For example, suppose that abilities A_1 and A_2 in a thousand persons show the following correlation: 600 have both A_1 and A_2, 11 have A_1 but not A_2. 9 have A_2 but not A_1, 380 have neither A_1 nor A_2.* Using conventional measures of the degree of correlation, it is about .96. If the 20 discrepancies for A_1 and A_2 can be shown to have been caused by such facts as that in a person who really possessed A_1 and A_2, the manifestation of A_2 was suppressed by some "accidental" counter force, or as that in 5 other persons A_1 was so suppressed, or as that in 5 other persons who really possessed neither A_1 nor A_2 a counterfeit of A_1 was mistaken for A_1, then A_1 and A_2 may safely be treated as nearly or quite identical. For example, if A_1 was the ability to spell *antagonist* when tested at home and A_2 was the ability to spell *antagonist* when tested in school, and if the eleven who manifested A_1 but apparently lacked A_2 spelled *antagonist* wrong to spite the teacher, our confidence that the two abilities were nearly the same would be increased.

If there are a dozen A's showing these characteristics of very high correlation, the discrepancies being probably caused by the operation of "accidental" and irrelevant forces, then if the facts used are the presence of 11 or more out of 12 of them or the absence of 11 or more of the 12, there will be almost 100 percent of individuals who have 11 or more or lack 11 or more.

* This might be true if a thousand ten-year-old boys, 600 living in New York and 400 living in Paris, were shown a cat and a dog and asked to state what the English word for each was. Most of the 600 New Yorkers would probably be right; a few of the Parisians might know the English word for one or the other, but most of them would have neither ability.

The accidental and irrelevant forces will show themselves to be such by not acting often in the same direction in the same person. Such high intercorrelations justify us in thinking and arguing about the ability to add integers, the ability to multiply decimal fractions, the ability to say the Lord's Prayer, and the like, without bothering with the rare gaps and mutilations in these abilities.

(3) As a third means of simplification, we may put abilities together when there are no differences except in the time required to achieve the result. When this is done the differences in speed may be neglected entirely (as when they are of very little importance) or the ability may be listed as having varying degrees in respect of the time required for the achievement. The latter is a sounder procedure because speed is often an indication of important differences in the inner constitution of an ability, the method by which the person achieves the result, and consequently of the significance of it for other abilities, and also because in education and productive labor speed is often important in and of itself.

(4) As a fourth means of grouping we may put together abilities which almost always go together, the possession of any considerable number of them almost always involving the possession of all or most of the rest. Thus the ability to write any one word that one knows how to spell so commonly implies the ability to write any other such word that the person knows how to spell, that we replace thousands of abilities to write the simple letters and various combinations of them by the "ability to write." Similarly, the "ability to run a punch-press" may mean the constellation of abilities almost always possessed by a person who possesses any one of them.

Groupings of this fourth sort may be profitably divided into those where the abilities go together chiefly because of fundamental biological (including psychological) relations, and those where the abilities go together chiefly because of education, customs, and the like. Ability to walk, ability to hear, and ability to call up visual images are samples of the former; ability to write, ability to run a punch-press, and ability to shave or dress oneself are samples of the latter. The associations in the

TABLE 1

THE RECORDS OF 20 PERSONS, IN 21 ABILITIES. A y DENOTES THE PRESENCE OF THE ABILITY; – DENOTES ITS ABSENCE.

Person	Abilities																				
	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}	A_{18}	A_{19}	A_{20}	A_{21}
1	y	y	y	y	–	y	–	y	y	y	y	y	–	y	y	y	y	y	y	y	y
2	y	y	–	y	y	y	y	y	y	y	y	y	y	y	–	y	y	y	y	y	y
3	–	–	–	–	y	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	y
5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6	–	–	–	–	y	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	–	y	y	y	y
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	y	y	y	y	y	y	y	y	y	–	y	y	y	y	y	y	y	y	y	y	y
10	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	–	y	y
11	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	–	–	–	–	y	–	–	–	–	–	–	–	–	–	–	y	–	–	–	–	–
.																					
.																					
.																					
.																					
.																					
.																					
993	y	y	y	y	y	–	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
994	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
995	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
996	–	–	–	–	–	–	–	–	–	–	–	–	–	y	y	–	–	–	–	–	–
997	–	–	–	–	y	–	–	y	–	–	–	–	–	–	–	–	–	–	–	–	–
998	–	–	–	–	y	–	–	–	–	–	–	–	–	–	–	–	–	y	–	–	–
999	y	y	y	y	y	y	y	y	y	y	–	y	y	y	y	y	y	y	y	y	y
1000	y	y	y	y	–	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y

latter sort are often of abilities which are very unlike. Any man who can shave his cheek beside his right ear, will usually be able to shave his cheek beside his left ear, his lower lip, his chin, his neck, under his chin, etc. But some of these are more difficult achievements than others, and all of them differ greatly in the situation and in the result. But usually a man who can do any one can do all, since if he could not do all he would not do any and would not acquire skill at even the easier ones.

For example, suppose that in random sampling of a thousand persons the abilities A_1, A_2, A_3, etc. are correlated as shown in part in Table 1, in which Y means the presence of the ability listed above in the person listed at the left and a dash [–] means its absence.

From such a table for the entire thousand one can compute the frequency with which the presence of A_1 implies the presence of $A_2 \ldots\ldots A_{21}$, the absence of A_1 implies the absence of $A_2 \ldots\ldots A_{21}$, the presence of A_2 implies the presence of A_1, $A_3 \ldots\ldots A_{21}$, the absence of A_2 implies the absence of A_1, $A_3 \ldots\ldots A_{21}$, etc. If all these frequencies are very high, the group $A_1 \ldots\ldots A_{21}$ may reasonably be treated as a unit, and evidence of the possession of even only two or three of the twenty-one may be taken as evidence of the possession of all or nearly all the total ability.

If the twenty persons are a fair sample of the thousand, A_1 to A_{21} may fairly be grouped as one ability except for A_5, which is much less closely affiliated with A_1 to A_4 and A_6 to A_{21} than these are one with another.

As a secondary criterion for this fourth sort of grouping of very different particular abilities into one large ability, the value for theory or practice of doing so may be used. It is obviously desirable to do so in the case of the constituents of the ability to walk, or to write, or to operate a certain machine. But it would rarely be desirable to group into one ability the abilities to make a kayak, paddle a kayak, build snow houses, and perform certain rituals, even if these were very closely correlated in respect of presence and absence in persons. Only anthropologists would be concerned with such a complex of connections, and "ability" would be a bad name for it.

Two very important means of reducing the list are by grouping together all the abilities (either the more rigorously integral ones with which we started or the looser ones obtained by the four sorts of grouping already described) which achieve results similar in general character, but differing in (5) extent or (6) "goodness." Thus (5) all the abilities to name correctly this, that and the other plant which is seen may be grouped as "the ability to name plants," which varies in extent from the ability to name none to the ability to name ten thousand or more. Thus (6) all the abilities to draw circles may be grouped as "the ability to draw circles," but with variations in "goodness" from the work of an expert artist down to the faulty products of a tyro. The "goodness" in question may be precision, evenness, beauty, or any other characteristic of which the same kind of achievement may have varying degrees. What I have called "goodness" is often called "quality" in psychological and educational literature.

(7) A still more important means of reducing the list is like 5 and 6, save that the achievements or results or products vary in what is commonly called the "difficulty" of achieving them. Thus the thousands of abilities to solve this, that and the other arithmetical problem may be grouped under "ability to solve arithmetical problems," which varies according as the problems are very easy, easy, a little harder, still harder, very hard, and so on, as in the scale shown below.

LEVEL F

1. Will is 5 years old now. How old will he be in 2 years?
2. How much must you add to 4 to make 6?
3. A stick was 8 feet long. Tom cut off 2 feet. How long was it then?

LEVEL H

1. Dick is 11 years old. John is 15. How much older is John than Dick?
2. One quart of ice-cream is enough for 5 persons. How many quarts will be enough for 15 persons?
3. What number taken from 35 leaves 27?

LEVEL J

1. 12 is $\frac{3}{5}$ of what number?
2. If a present costing $9.45 is to be paid for by 27 men contributing equal amounts, what is one man's share?
3. Dick started from his house, walked two miles north, then two miles west, then two miles south. How far away from his house was he then?

LEVEL N

1. A camp has food enough to last 300 men 4 months. How long will it last 200 men?
2. A watch was set correct at noon Wednesday. At 6 p.m. on Thursday it was 15 seconds fast. At that rate how much will it gain in half an hour?
3. Five sixths equal how many thirds?

LEVEL P

Write the numbers and signs in each line below in the proper order, so that they make a true equation as shown in the three sample lines.

Sample lines	3 3 6 = +	3 + 3 = 6
	4 7 8 20 = + ×	7 × 4 = 20 + 8
	2 3 3 7 18 = + − × ( )	7 + 2 = 18 − (3 × 3)

1. 1 3 3 3 3 21 = + − × ÷ ( )
2. ⅓ 2 3 5 33 = + × × ( )
3. 1⅓ 2 2 2 8 12 = + × × × ( )

Similarly the millions of abilities to supply specified numbers of words to complete sentences so as to make good sense may be grouped under the ability "to complete sentences," which varies only in difficulty, as shown in the samples on pages 31 to 34.

Write words on the dotted lines so as to make the whole sentence true and sensible. Write one word on each inch of dots.

LEVEL G

1. Boys and.....soon become.....and women.
2. The.....are often more contented..... the rich.
3. The ice.....melt when hot weather comes.
4. He got wet.....he had no umbrella.
5. The.....rises.....the morning and .....at night.

LEVEL I

1. Hot weather comes in the.....and..... weather.....the winter.
2. The first.....after June is.....
3. Children.....are rude.....not easily win friends.
4. The dog.....a useful.....because .....his intelligence and faithfulness.
5. The rose is a favorite.....because of..... fragrance and.....

LEVEL K

1. When a man is.....of sight, ...also very soon out.....mind.
2. No.....is powerful.....to..... two and two be five.

3. .....you wish me to help you..... .....
Latin, please.....me by telephone.

4. He is.....genteel who does.....deeds.

5. It may.....effort and a long.....but the result is sure.

LEVEL M

1. Modern.....of communication should.....
.....closer to each other.

2. Astronomers are uncertain.....the planet Mars is
.....

3. Cleanliness is a.....item in securing and.....
good health.

4. More.....were killed, more houses.....,
more money.....during the Great.....,
than during any equal number of.....in history.

5. In the.....time squirrels store.....for food
in the.....when the.....is such that they
cannot.....for things to eat.

LEVEL O

1. India is rich in.....of scenery and climate, ...
the.....mountains to vast.....deltas raised
.....a few.....above sea.....

2. Undue consciousness often.....the flow of expression
.....diffuseness is detrimental to a clear and
.....exposition of our ideas.

3. Knighthood and Chivalry are.....words.....
are nearly.....not.....synonymous.

4. Throughout the river plains of northern India, two harvests,
and, ...some provinces, ...are.....
each.....

5. .....a man.....time sufficient for all laudable
pursuits, and.....sufficient for all generous purposes, he is free..... .....shadow of blame or reproach.

LEVEL Q

1. It must.....seem to the wisest.....men, when brought into contact with the great things of nature that
.....they.....is..... nothing
.....to the infinitude of.....they are ignorant.

2. It is a maxim that.....man.....ever written
out of reputation.....by himself.

3. The American press..... .....
above the moral level of the average good citizen,—in no
country..... .....either expect or find it
....so,—but it is.....
....of the machine politicians in the cities.

4. David Hume..... .....founded the literary
school of English historical writing, and.....
.....of the more important doctrines of modern

political economy, but also.....a paramount influence on the philosophic.....

eighteenth.....

5. Queen Anne was much.....to horseracing, and not only.....royal plates to be.....for, ...ran.....for them.....

Almost all the abilities with which economics, business, government, social work, education, and other sciences and arts relating to man are concerned are abilities formed by groupings of these three sorts (5, 6, and 7). Many failures, inadequacies, and errors of thought and practice in these fields are caused by treating as the same, groups of abilities which are the same in name only. So it is advisable to have clear and correct notions of differences in "extent," in "goodness" or "quality," and in "difficulty," of criteria for such groupings, and of typical abilities formed by such groupings, especially by groupings involving both 5 and 6, or 5 and 7, or 6 and 7, or 5, 6, and 7.

EXTENT OR RANGE OR WIDTH

Suppose that all English words were equally easy to learn to spell, and that all spellings except the correct ones were equally "bad" or "wrong." The enumeration of the particular words which a person was able to spell could then be replaced by their number. The ability to spell any one ten-thousand would be in an intelligible and useful sense the same as the ability to spell any other ten-thousand and would differ from the ability to spell any five-thousand by being twice as "extensive" or "wide." The ability to spell 5,000 would be a trifle "wider" than the ability to spell 4,999 and a trifle narrower than the ability to spell 5,001.

Suppose that the ability to earn a dollar by washing n dishes, hoeing n rows of corn, shoveling n pounds of dirt, scrubbing n square feet of floors, or any other variety of unskilled manual labor was entirely unskilled or equally skilled and equally easy

to acquire, and that there were no degrees of "goodness" or merit in the washing, hoeing, shoveling, scrubbing, etc. Then the enumeration of the various abilities at that level of skill or lack of skill possessed by a person could usefully be replaced by their number. John who had fifty such abilities would differ from James who had only forty or Joe who had sixty in extent or range of ability as an unskilled or low-skill laborer. The consequences would be very different for such differences from what they would be if Joe could do just as many of these things as James could but could do each fifty per cent "better," or from what they would be if Joe could do "harder" things like driving a car, planting corn, operating a steam-shovel, or painting a floor.

I cannot give important cases of extent or width pure and simple, because there are none. There are no abilities differing *only* in the number of included abilities, that is, including 1, 2, 3, 4.....*n* from a host of abilities all interchangeable because their several achievements are alike in general nature, equally "good" and equally "difficult." But informational groupings such as knowledge of geography, history, French vocabulary, Italian vocabulary, ability to answer miscellaneous questions of fact, acquaintance with tools and their uses, or acquaintance with the rocks, currents, and tides of a harbor as constituents of ability as a pilot, and the like do rest upon a certain approximate equivalence of constituent abilities.

GOODNESS OR QUALITY

Ability to sing the same song, but varying from "very badly" to "very well," is a series of abilities alike in that all are to sing and to sing that song, but differing in goodness or quality. So is ability to cook a certain dish, or to shoot at a certain mark with varying degrees of success. If various abilities to cook various dishes equally difficult to cook are grouped into one ability by our fourth principle (of affiliation by nature or circumstances), the resulting ability may vary according to the quality of the cooking of each item, and so have as its "quality" the total or average quality of all.

There are many abilities of consequence in which the situation is the same and the result or product produced is the same in

general nature but differing more or less widely in goodness or quality. The ability to sing a certain note in a certain song, the ability to write a certain sequence of letters, the ability to dance a certain step, the ability to use a certain tool in a certain way —these and thousands of others are of consequence as abilities which in various combinations make abilities which keep persons alive, are marketable in productive labor, or give pleasure to performers or audience or both. The total or average goodness or quality of many complex abilities such as ability to dig a ditch, cut hay, cook, play the violin, do carpentry, lay brick, or paint a picture is in large measure determined by the goodness of such simple abilities (not wholly, because other abilities are required to put the simpler ones together and organize their serial and simultaneous cooperations).

The abilities described under (1) and (2) and (3) (on pages 24 to 26), existing in only one degree of quality and describable in terms of presence or absence, plus perhaps some notation of their speed, are rare in human nature.* Almost every ability is one of a continuous series varying in the quality of the result attained.

As suggested earlier, the varying goodness or quality may be varying degrees of precision, beauty, smoothness, harmony, sweetness, or whatever has merit in the act, result, product, etc. in question. In the case of jumping, goodness is now conventionally the mere height or length of the jump, but in the case of diving, gracefulness counts heavily. In the ability of a mason the probable stability and endurance of his product are prime features of its goodness, but in the ability of a cook they are not. We may not even know what the goodness consists in, but simply rate it by a scale of specimen products as in the case of the goodness of paintings, qualities of voice, witticisms, designs, decorations, cakes, sauces, and the like.

DIFFICULTY

The concept of difficulty is used widely, variously and loosely in human affairs, and in both popular and scientific discussions of

* There are many which can be treated as if they were so because the range of "goodness" is of little importance for the purpose in question.

human abilities. So we say that "to lift 200 pounds and to lift 225 pounds require the same sort of ability, but the latter is harder," or that the tasks shown below require much the same sort of ability but are of increasing difficulty.

Writing the opposites of:

1. Yes.....Black.....Good.....
2. More.....Weak.....Love.....
3. Sad.....Buy.....Fail.....
4. Dangerous.....Funny.....Tears.....
5. Whole.....For.....Never.....
6. Unless.....And.....Sacred.....

Keeping the accounts of:

1. A filling station
2. A milk route
3. A small meat market
4. A large drug store
5. A small department store
6. A small railroad
7. Sears Roebuck

So we say that a person used his managerial ability, first in the relatively easy task of managing a small grocery store, and later in the harder task of managing a large department store. So we say that carpentry, pattern making and instrument-making all require mechanical ability; but that the last, being harder, requires a higher degree of that ability (this is *said,* but probably here different kinds of ability are required).

We are here and now concerned with the case of a set of abilities (A_1, A_2, A_3, etc.) which seem to be the same except that the achievements vary in difficulty from easy to hard in the sense that more of the same sort of ability (A) or a higher degree or greater intensity of the same sort of ability (A) is required to achieve them, and in the further sense that the person whose ability can succeed with the hardest of these tasks will succeed with all easier ones, that the person whose ability can succeed with the next to the hardest will succeed with all easier than that, and so on.

We are also specially concerned with variations of an ability which cannot be listed as variations in number of achievements or in goodness of achievements, but are clearly variations in difficulty as defined above. Let us call such variations of an ability "levels" of the ability and call the achievements which any given level of the ability can just barely accomplish, achievements of that level. One can and often does say that it is harder to know or do 1,000 things than to know or do 500 equally hard, but we can not properly say that the former ability is at a higher "level." One habitually says that it is harder to do the same thing perfectly than to do it badly, and one could properly say in many such cases that a higher "level" of the ability was required to do so and so perfectly than to do it badly. But we will bear in mind that two aspects of the ability are then involved, and that the gradation in an ability to do so and so from worse to better, may or may not correspond to the gradation in level. It might, for example, require a higher level of ability to control the throat and chest muscles to breathe or swallow *imperfectly* (as in an actor imitating being choked or asphyxiated) than to breathe or swallow normally.

As examples of abilities each including many abilities differing only or chiefly in level, we may take the ability to understand sentences, the ability to complete them, the ability to decide correctly more and more difficult points of law, the ability to perform an appendectomy with variations in the adhesions of the appendix, its readiness to rupture, etc., the ability to manage a more and more irritated and disaffected body of soldiers, or the ability to withstand a disease in various degrees of virulence.

CRITERIA FOR GROUPING ABILITIES ALIKE IN GENERAL NATURE BUT DIFFERING IN EXTENSITY, GOODNESS, OR LEVEL

"Alike in general nature" is not a rigorous term and can easily lead to different policies and standards in grouping, unless some objective criteria are used. Let us consider what these criteria may be in the three cases of (1) likeness in general nature with differences in the extensity or width of the ability, (2) likeness in general nature with differences in the goodness or quality of the ability, and (3) likeness in general nature with differences in the level of the ability.

LIKENESS EXCEPT IN EXTENSITY OR WIDTH

Suppose five hundred abilities to be all at the same level, as shown by the fact that the same percentage of persons succeed with each of the tasks by which the abilities are defined. Suppose that they are divided into sets of a hundred each in all possible ways. Suppose that the number of abilities possessed of each such set of one hundred is determined for a thousand or so persons. For example, suppose that the scores in ten such sets taken at random were listed as shown in Table 2. If the correlation among persons is perfect or nearly so for the score in any set with the score in any other set, the five hundred abilities may be regarded as having the same, or nearly the same, general nature. For if any ability was not of the same general nature as the rest, that would cause a reduction in the correlation for the set of one hundred in which that ability was included. If fifty of the five hundred were different from the rest, a set containing all those fifty would show a very large reduction in the correlations with other sets.

In practice one would not choose sets at random but would put together all the abilities most suspected of unlikeness to the rest, and correlate the total score in them of each person with the person's scores in the rest of the five hundred or in random fractions of the rest of the five hundred. If the correlation is perfect in this least likely case, the five hundred abilities may be treated as alike in general nature. Suppose, for example, that set A in Table 2 is a set of the 100 most suspected abilities, that sets B, C,

D, and E are four random quarters of the remaining 400, and that sets F, G, H, I, and J are five random drawings of 100 each from the entire 500. If the persons show throughout as close correlation or correspondence from set to set as the dozen shown in the table, the 500 abilities may safely be taken as of the same general nature. All the correlations will be near perfection, and the correlations of A with B, C, D, etc. will be as near perfection as those among B, C, D, etc.

TABLE 2

SCORES OF 12 PERSONS IN TEN SETS OF 100 ABILITIES CHOSEN AT RANDOM FROM 500: THE SCORE IS IN EACH CASE THE NUMBER OF SUCCESSES OUT OF THE HUNDRED.

Person	Set A	Set B	Set C	Set D	Set E	Set F	Set G	Set H	Set I	Set J
1	19	18	17	18	18	16	18	19	20	18
2	43	42	42	41	43	44	43	43	44	40
3	78	76	77	77	76	79	77	75	77	78
4	9	10	11	10	10	10	10	9	11	8
5	0	0	1	0	0	1	0	0	0	1
6	47	47	46	48	49	47	47	46	46	45
7	83	85	83	81	83	82	84	83	84	82
8	39	40	40	42	41	40	38	39	41	40
9	86	88	87	86	85	87	86	87	88	86
10	45	44	44	45	46	45	43	44	45	45
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
$n-1$	53	52	53	53	54	52	53	53	53	52
n	37	36	37	38	37	35	37	37	39	37

The general principle used is that abilities are alike which behave alike, and different if they behave differently. It is fundamentally the same principle as was used to show substantial identity (or difference) in the groupings under 1, 2, 3, and 4. But here we cannot require that a person having any one of the abilities to be grouped should have every other, or most of the others. We do require that a person having a certain fraction of the whole lot should have that same fraction of any sampling of the lot (within limits of "accidental" or "chance" variation). Since by hypothesis the abilities are of the same level, this will happen unless some of them differ in nature from the others.

LIKENESS EXCEPT IN GOODNESS OF THE RESULT ATTAINED (PRODUCT PRODUCED)

In this case there is relatively little danger that unlike abilities will be grouped together. The situations are the same; the response or achievement (hitting a target, drawing circles, singing a note, shoeing a horse, and the like) is usually to all appearances the same, except in its goodness. By our restricted definition of abilities we have no concern with differences of the inner mechanisms or methods by which the achievements are attained. So when common sense says that the abilities are all to do the same thing, but better and better or worse and worse, its statement may usually be accepted. But where there are grounds for suspecting that what seem to be products alike in nature and differing only in goodness really are different in nature there is an objective criterion which may be used. It is somewhat subtle in nature and very laborious in application. For the benefit of critical students, it is described in Appendix I.

LIKENESS EXCEPT FOR DIFFERENCES IN LEVEL

When scientists deliberately group the abilities of a graded series which are alike in the nature of the situations and in the nature of the achievements (results attained or products produced) but differ only in difficulty, that is, in the fact that of the persons who can succeed at the easiest level fewer and fewer can succeed with each harder and harder level, they are not likely to mix abilities which are really unlike in general nature. The ability to complete a sentence illustrated on pages 31 to 34 is probably much the same except for the difference in level.

When the grouping is taken over from common usage (as in the ability to solve arithmetical problems, or the ability to play harder and harder music, or the ability to perform harder and harder operations) there is greater danger that important differences in the situations will be neglected and that the achievements will be alike only in name. Careful study of the situations and achievements will usually evoke a correct decision. As a last resort two objective criteria are available, both of which, unfortunately, require very extensive and precise data.

The first is to determine whether all persons who possess the highest level ability, possess all the lower level abilities, whether all persons who possess the next highest level ability possess all lower than it, and so on. If they do, the abilities may be regarded as of the same general nature. For, if they were different in nature, they would be imperfectly correlated among individuals, and some persons possessing ability A at level L would lack ability not A at a level lower than L.*

Even after grouping abilities wherever possible by the seven principles described above, their number will be so great as to discourage students of human nature from even listing and describing them, and still more from the work of devising means of measuring them, observing their functioning and their values, determining their relations one to another, and experimenting with ways and means of improving them. There is a strong temptation to combine them further in order to have fewer units of study. There is also the hope that the resulting larger abilities will be better worth studying.

So abilities are combined which, though not satisfying the criteria of the seven principles described above, seem suitable to be put together. For example, abilities comprising knowledge of the meanings of single Latin words, understanding of the uses of various Latin endings, and understanding of various Latin constructions or locutions may be combined into "ability to understand Latin." So certain abilities are combined into "the ability to write a good plain hand," or "the ability to exert force with the muscles of one's body," or "ability to control one's temper."

When such combinations exceed what is permitted by principles 1 to 7, there is always or almost always some harm done by using one name for a mixture of abilities when there is imperfect knowledge of what abilities are included, or what weights they

* The operation of this criterion may be illustrated by extreme cases. Suppose, for instance, that in the completion abilities we inserted the ability to complete "A case of a minor key is ————————" or the ability to complete "The ———— of the hypotenuse is equal to the ———— of the ———— of the two ———— in a right triangle." Some persons of high level in completions would fail with the easy task in knowledge of music, or with the easy mathematical task. The second criterion is similar to that used in the case of likeness except for differences in goodness, and is described in Appendix II.

have in the mixture. The harm is less in proportion as the different abilities in the mixture are highly correlated among individuals. If we know that they are so correlated, we know that they are much alike and that not much harm is done by mixing them. Suppose, for example, that strength of grip, strength of back, strength of jaw, and other particular abilities to exert force with particular groups of muscles were correlated each with any other approximately as shown in Fig. 1, which indicates

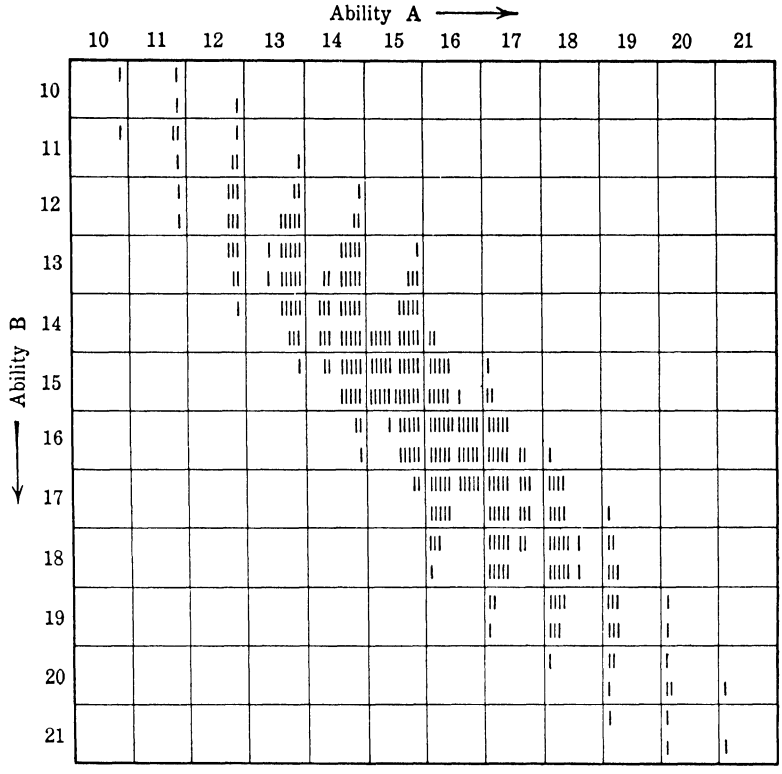


FIG. 1. An artificial illustration of a correlation between two abilities so close that little harm is done by mixing the two abilities into one. Each little line represents one individual's scores in two abilities; his score in Ability A is shown by the position of the line from right to left, and his score in Ability B by its position from the top down.

a correlation coefficient of about .90. Any reasonably weighted combination of these abilities is then closely the same as any other; the combined ability consists chiefly of something common to all of them; the use of it for any person or group of persons instead of an inventory of the separate abilities can do little harm to offset its greater convenience.

The criterion of close correlation among components is not, however, infallible. Under certain social conditions there might be a very close correlation between ability to read Latin and ability to demonstrate propositions in geometry because both were required of high-school pupils and acquired by almost no other persons, but the combination of the two abilities would, save for a very few purposes, be misleading and much inferior to the consideration of them separately.

Chapter 4

ABILITIES (*Continued*)

Neither popular thinking and reasoning about human abilities, nor the sciences of economics, business, government, law, education, etc., have advanced far enough to consider them after the fashion of the preceding chapter. The universal custom has been to deal verbally with phrases alleged to refer to large total abilities or features of many abilities, such as digestion, muscular strength, the ability to learn, the ability to remember, the ability to reason, ability as a weaver, ability as a mason, ability as an entrepreneur, executive ability, military leadership, ability to cooperate, the ability to know the nature and quality of the act one is doing, the ability to distinguish right and wrong, the ability to control one's temper, the ability to make friends, the ability to read, the ability to sing, ability at arithmetic, etc.

These abilities, and many others with which the sciences of man are concerned, refer to achievements which are important for social living; they name groups of achievements which are of great consequence in human affairs; they are much more impressive than the more definite and specific abilities such as to swallow, to walk, to know the letters of the alphabet, to know a thousand plants, to draw a circle, to solve arithmetical problems stated in words, which were discussed in the preceding chapter. But they are, with few exceptions, undefined aggregates of whose nature little is known save that they produce on the whole certain consequences which again are extremely vague, or undefined components of whose nature little is known save that they produce certain ill-defined components in the consequences of certain particular behaviors. Some (such as the ability to reason or executive ability) are mixtures, often very complicated mixtures, of imperfectly known ingredients so that one does not know

what one is thinking about when one thinks about them. Some (such as the ability to remember) are supposedly common features or elements of many abilities, but with so little agreement about what abilities they are elements of, and about how large a part they play in each of these, that they are extremely vague and uncertain. A few of them, like ability as a mason or ability to sing, are totals or averages of groups of abilities at different levels or degrees of goodness which give promise of being analyzable each into a few describable and identifiable abilities of the sorts described under 4, 5, 6, and 7 in the preceding chapter. On the whole, science gets into difficulty when it tries to observe these abilities, experiment with them, measure them, and use them to predict and control human affairs.

However, more than nine tenths and probably more than nineteen twentieths of the scientific investigation of human abilities has been of such ill-defined mixtures and components, and we must try to make the best of it.

Science in such cases begins with a name like intelligence or executive ability and a provisional inventory of the behavior or features of behavior which this name covers. This inventory it puts into the form of the situations in which the ability is used and the results attained or products produced by it. So intelligence is taken to mean the ability to obtain good answers to certain questions, good ideas for certain emergencies, good choices or compromises among certain alternative lines of thought.

Such an ability-inventory often may be divided conveniently into features of form and features of content. So, in the group of abilities to remember, the formal elements, such as ability to retain and recall after a few seconds (so-called immediate-recall memory), ability to retain and recall after hours or days, ability to recognize and refer to suitable connections, ability to retain and recall in perfect detail, and ability to retain the essential facts and use them appropriately (so-called logical memory) may be separated from the content elements, such as memory for words, memory for numbers, memory for connected discourse, memory for musical phrases, memory for odors, memory for shapes and sizes, etc. So, in intellectual ability, we may separate the formal element of choosing a fourth term to fit a third as the second fits

the first from the content elements of words, numbers, space figures, etc., in such a set as:

black,	blacker,	white	.....
31	93	20	.....
×	×	×	.....

The general opinion used to be, and still is among uninformed thinkers, that the formal elements are the chief constituents of abilities, so that a person who has a high degree of an ability with one sort of content will have approximately that degree with other sorts of content. The investigations of the past forty years, however, have demonstrated an enormous specificity in abilities. This specificity is of theoretical and practical importance wherever human abilities are important, and will be treated more fully later; but we may note that it has been found so ubiquitously that it is prudent to expect that managerial ability will vary greatly with the kind of issue that is to be decided, that ability to learn will vary with the subject or trade or accomplishment to be learned, and similarly with most of the abilities which figure in the social sciences and human engineering.

COMMON FACTORS

The possibilities and probabilities of achievement included under a certain name and within a certain inventory can sometimes be represented by one factor common to them all plus certain group factors each of which is common to a considerable number of them, plus many specific factors each of which is limited to only a few (even to only one) of the "situation → result attained" facts of the inventory.*

In proportion as the common factor outweighs the group fac-

* Strictly speaking, the term *specific factor* is applied only to a factor which operates in only one of the achievements included in the inventory. Strictly speaking, the term *group-factor* is used of a factor which is common to two or more achievements included in the inventory, though not to all. But it is usually very difficult, and not very useful, to be sure whether a factor operates in only one, so that "narrow" group factors are often lumped with specifics.

tors and the specifics, it becomes more and more justifiable to neglect them. It might indeed become advisable to use the common factor instead of the total ability in theory and practice, leaving the specific factors to be dealt with each by itself in cases where the problem made it desirable to consider them.

PRINCIPAL FACTORS OR COMPONENTS

The possibilities and probabilities of achievement included under a certain name and within a certain inventory can always be represented by a set of assumed factors (often called components) determined by a mathematical analysis of the intercorrelations of the several abilities within the inventory, provided that these several abilities are measurable. These assumed factors may or may not correspond to conceivable and significant observable realities of human nature. The principal factor or component is the one which accounts for the largest fraction of the variation amongst individuals in the achievements included in the inventory; the second factor or component is the one which accounts for the next largest fraction; and so on.*

If the principal factor accounts for a very large fraction of the variation, and is an observable reality, it will often be advisable to use this principal component instead of the original name and inventory in thought.

Common factors and principal factors may best be illustrated by an imaginary case. Suppose that ability as a salesman has been investigated and found to consist of three factors common to almost all sorts of selling, wholesale and retail, by personal interview and by correspondence, to producers and consumers, of sugar, steel mills, bonds, insurance, underwear, seeds, etc., five broad group factors, and many specifics, as listed below:

Common factors:

intelligence, interest in people, ambition.

Broad group factors:

enjoyment of a conflict of wits, popularity, ability to talk interestingly, pertinacity.

* The word *principal* is not used here in its technical sense.

Specific or narrow group factors:

knowledge of product A, knowledge of product B, etc.

knowledge of customer A, knowledge of customer B, etc.

When analyzed into principal, second, third, etc. factors, it might be found that the principal factor was closely allied to knowledge of the particular product which the person in question sells, which would be determined in part by his intelligence and ambition; and the second factor might be allied to a special sort of popularity which comes in part from a sincere interest in people.

Factorial analyses of the abilities of men is a fascinating topic which is being diligently explored, especially by Spearman, Kelley, Thurstone, Godfrey Thomson and their pupils.* It is my opinion that the real elemental factors are so numerous that the analyses will not reach them, but only more or less useful statistical composites of them. I concur in Thomson's belief "that the mind is not divided up into 'unitary factors,' but is a rich comparatively undifferentiated complex of innumerable influences; on the physiological side an intricate network of possibilities of inter-communication." ['35, p. 185]

THE CAUSATION OF ABILITIES

In thinking of human abilities it is important to distinguish the abilities which may appear as a result of elaborate stimulation and modification by people, books, customs, ideas, institutions, pictures, tools, and all the other products of the past. Using the term "culture" as the anthropologists do to mean the man-made or man-chosen environment of a human group, we may distinguish the features of a man's abilities which are parts of his original, inborn, unlearned equipment, due to the constitution of the sperm and ovum which made him at his beginning, from the features which are due to the culture in which he lives and grows. The former are known only very inadequately and inaccurately. They have to be inferred from human achievements in devious

* The interested readers should consult C. Spearman, '27, *The Abilities of Man;* T. L. Kelley, '28, *Crossroads in the Mind of Man;* L. L. Thurstone, '35, *Vectors of Mind;* G. H. Thomson, '39, *Factorial Analysis of Human Abilities.*

ways, and with varying probabilities. They are the roots, *x*, *y*, *z*, etc. of certain equations when the influences of all the variables of environment or "culture" have been allowed for. The latter are afflicted with similar uncertainties, but the ratio of the amount of uncertainty to the amount of the fact is in most abilities very much smaller.

For example the locomotor ability of man has as its original roots capacities to roll over, hitch the body along on its back or belly, creep, climb, walk and run on four legs, and later on two.* Out of these, or by adding to them stimulation from the social environment or culture, are developed various marchings, dancings, running the low and high hurdles, pole vaulting, roller-skating, ice-skating, etc. In a liquid medium without a solid footing, the original tendencies are (1) to flounder, which helps one learn to swim, and (2) to reach out to grasp for a hand-hold, a tendency which has to be overcome to make swimming or floating a success.

The abilities of men as leaders in the hunt or warfare (or, for that matter, in parliaments, crusades, strikes, banks, and factories) are probably rooted in certain traits of so-called mastery or dominance, social intelligence, courage, energy, etc., in the leaders and certain tendencies to approve and submit to size, strength, courage, gorgeous display, etc., in the led, both provided by the genes. But leadership by the literati in old China or by churchmen in medieval Europe was determined largely by "cultural" forces.

GENERAL CHARACTERISTICS OF ABILITIES

It is desirable, but rarely possible, to analyze an ability into an inborn capacity resident in the genes and acquired capacities resident only in the soma. Science often must take persons as they are and study their abilities to learn, remember, reason, draw, paint, play the piano, typewrite, sell goods, manage a business, trade, earn, save, cooperate, govern, make friends, love,

* The incompetence of ordinary observation is well shown by the fact that until a short time ago people could believe that birds had to be taught to fly and babies to walk. Birds fly, snakes wriggle, horses go on four legs and men go on two all by original nature. Their respective genes provide these behaviors as truly as they provide feathers, scales, hoofs and toes.

enjoy life, appreciate beauty, and so on and on through the long list of achievements which the world needs or desires, and which the sciences of man need to know about.

One important fact about them is that all or most are compounds involving many responses to many different situations. An inventory of just what the ability comprises is usually very long. A second fact is that most of them are mixtures of items of width, quality, and level. For example, if A has more ability to govern than B, A can (1) govern more people, or (2) govern them better, or (3) govern people who are harder to govern, or do both (1) and (2), or both (1) and (3), or both (2) and (3), or all three. A third is that most of them include sub-abilities which are very imperfectly correlated so that a person's status in the ability is really an average of the amounts of each of these sub-abilities which he possesses, amounts which may vary widely. A man with a high rating for memory in general may thus have a very poor memory for people's faces or names, or for figures, or for music. Great sensitiveness to the beauties of line and color may coexist with mediocre appreciation of poetry. A superior manager of men may be an inferior manager of children or animals. This specificity of mental organization, whereby some alleged unitary ability like leadership, inventiveness, originality, imagination, self-control, or business ability turns out to be a multitude of imperfectly correlated powers, has been and still is underestimated by thinkers who have not become familiar with recent psychology.

They are still misled by the utterly false notion that a person is a trinity of intellect, will, and emotion, comprising a small group of faculties or powers of perception, attention, memory, imagination, abstraction, judgment, reasoning, desire, choice, decision, action, sympathy, selfishness, courage, strength, skill, coordination, etc., each of which is a unitary force, a sort of machine or fairy that sits in the person's brain. A word like imagination or leadership or coordination is used vaguely but helpfully to name certain facts in human behavior. Then it is misused as a name for the unknown cause or causes of behavior. Then it is further misused as an excuse for thinking that because one word or phrase is used to name the cause, the cause is as neat, simple,

and unitary as the word. This is far from the truth and not on the road toward it.

Thinkers about human achievements in scholarship, art, business, government and other activities of civilized life made a similar mistake. Phrases like intelligence, mathematical ability, linguistic ability, business ability, ability as a trader, salesmanship, manual dexterity, executive ability, leadership, political sense, statesmanship, criminality, useful as convenient though vague names for groups of facts of behavior led people to fancy that some simple unitary entities existed which were these abilities and caused the behaviors in question. In the case of certain features of intelligence, there is some possibility that a simple cause may operate.* And there are, probably, certain relatively simple features of man's genes which fulfill themselves in proclivities to bodily activity, timidity, mastery, and submission, and other distinguishable strands or qualities of behavior. But for the most part human genes and brains developed into their present constitutions before civilization, and are not departmentalized in abilities for mathematics, music, art, business, trading, politics, law and the like.**

The departmentalization to be expected is rather toward ability in climbing, in running and dodging, in pursuing and catching, in investigating the edibility of small objects, in dismembering larger objects, in keeping in contact with a familiar group of human beings, in soliciting food from them and sharing it with them, in behaving so as not to outrage their instincts, in certain paternal and maternal arts, and in other behaviors typical of men living in small hordes, a hundred thousand or a half-million years ago, without any furniture, books, pianos, pencils, shops, or elections.***

* The general amount of energy of the higher brain centers has been suggested by Spearman, and the number of units of neurone to neurone contacts in the cerebrum by the writer.

** Original organization for language is probably an exception, though the close association of speech functions with the posterior part of the third left frontal convolution of the brain may be a matter of the movements of the throat and mouth parts and of enunciation and pronunciation rather than of the intellectual control of verbal symbolism.

*** It is indeed somewhat puzzling that so many children should so early take to music and mathematics, nearly as "naturally" as to running

The experts in this part of psychology today do not assume that there are clear-cut ability-entities corresponding to these names, and that certain observed behavior—for example, a score in Seashore's battery of tests of musical ability—is an index of the presence and status of any such entity. On the contrary, they define the ability by the behavior. Musical ability is the ability to maintain certain specified standards of rhythm, pitch, tone-quality, etc. Intelligence is the ability to succeed with an adequate sampling of all intellectual tasks. An intelligence test such as the Stanford-Binet test or the CAVD test is valid to the extent that it correlates with such a sampling. The specially careful worker in this field would now define managerial ability by the difficulties surmounted and achievements made in an adequate sampling of all managerial tasks. If there were a standard test the scores in which correlated perfectly with such achievement in all managerial tasks, he could use the score in that to define as well as to measure the ability.

In some cases there are tests which give definite intelligible information about the ability to do said tests, but knowledge is lacking or imperfect concerning what they imply about the ability in an adequate sampling of all the tasks which they are supposed to represent. So, for example, there are three sets of tests of ability to draw and paint (the Christensen, Meier, and Lewerenz tests), but no competent person would dare to say just how closely any one of the three would correlate with an adequate sampling of all tasks of an artist. Ability at one of these tests is easily determined, and may be a very valuable fact if its limitations are kept in mind.

There are hundreds of such tests, each of which has more or less correspondence with ability in a wider sampling of tasks, but with inadequate identification of these tasks, and inadequate knowledge of the closeness of correspondence. There is a strong temptation for the author of such a test to say that the score in it measures ability X, when all that is really known is that it has

about, picking berries off bushes, and begging from parents and friends, and that the distinction between those who have much and those who have little should be nearly or quite as clear for musical ability or mathematical ability as for chasing or cajolery. This puzzle deserves more attention, but not here.

some correspondence with something like X. This brings the use of tests to measure abilities into disrepute.

The measurement of a mental ability, whether by tests which try to do for an ability what a thermometer does for temperature, or by money price paid for the products of the ability, or as a rent or wage for its use, or by the subjective estimation of more or less expert juries, or by other means, is often a matter of much complexity and difficulty. The essential facts about it are presented in Appendix III.

In the case of every mental ability that has been studied, differences between individuals are great; and this is probably true of the abilities which have not been studied. Some individuals quickly and easily reach a certain level of the ability, some do so only at great expense of time and effort, some cannot reach that level by any known means. These differences are of great importance for all the sciences of man and will receive attention in Chapters 9 and 10. The correlations between desirable abilities are usually positive but not high. Nature does not compensate a man for weakness in some by strength in others, but gives to them that have. Her favoritism is, however, not so extreme as it might have been. The thousand men now living who have the highest ability to think and reason with words and other symbols will be above the average in ability to think with space relations or with objects, in the various abilities to remember, in ability to understand people, even in musical ability or such arts of skill as shooting, billiards, and carpentry; but they will not be the top thousand in any one of these.

CHANGES IN ABILITIES

Many abilities improve with age as the organism matures. Intelligence and the ability to learn, for example, improve from birth to the early twenties.*

Most abilities are improvable by any training which gives the ability exercise and makes its successful operations satisfying to the person. The amount of improvement varies from very great, as in very specific knowledges and skills, to very little, as in what

* The doctrine that their top is reached at sixteen or eighteen has been disproved.

is called general intelligence or in ability to reason, and perhaps to zero as in ability to respond to reds and greens of equal intensity.

When an ability has been strengthened by exercise it tends to weaken by disuse, though often very, very slowly. The doctrine that very long rests enhance abilities (that we learn to skate in summer, etc.) is false, but the losses with disuse are small and easily recoverable.

Old age weakens most abilities, especially those requiring energy and speed, but the drop from age fifty to age seventy-five is probably only one or two percent per year. It may be partly compensated for by increases in certain abilities related to wisdom and experience. Individuals vary widely in the incidence and rate of the drop.

Writers about government, economics, sociology, and education are often guilty of a serious error of fact, and men who manage governments, business, etc. are often guilty of a serious error of policy, in connection with changes in abilities. The first error is to assume that training of an ability in one narrow field with one sort of situations and problems will improve it equally in all fields and for all sorts of situations and problems. This error leads to fantastic expectations from training in schools and out. Schools, military service, political responsibility and other forms of training pursue rainbows and go on wild-goose chases when they might be making substantial improvements in men. The second error is to keep young people of great abilities at unimportant work in subordinate posts until facts absolutely compel us to see their merits. The doctrine that, because the average man under our present system reaches his top at forty, we should consider nobody for a top post until he is about forty is unsound, timid, and wasteful. Great abilities are so precious an asset that the world should search for them actively and put them at their proper work as soon as they are found.

ABILITIES AND INTERESTS

As a rule one enjoys doing what he can do well. The order of his abilities from the activity in which he rates highest in comparison with other persons down to that in which he rates lowest

corresponds fairly closely to the order of his liking for the activities.

There is here a natural harmony whereby an arrangement by which the world's work is distributed among men so as to maximize achievement will also increase enjoyment greatly. Conversely, if everybody was allotted the work which he liked best to do, the world's work being distributed to maximize enjoyment, there would be a very high status of achievement.

QUASI-ABILITIES AND TRAITS OF CHARACTER AND TEMPERAMENT

The common distinctions between abilities and certain traits of character and temperament are not fundamental. We could speak of the ability to feel, and be kind, as well as of kindliness. Honesty about property is in a sense an ability as well as a quality. If it is a question of what a person can do if he wishes to, some term like *ability* is customarily used; if it is a question of what he would do if he could, some term like *proclivity, want, wish,* or *like* is customarily used; if it is a question of what he does in fact do, some term like *trait* or *characteristic* or *tendency* is customarily used. But the biological facts to which these words refer may not fit our usages very well. Any thinking which depends upon these verbal distinctions is risky.

We do not have to take any such risks. On the contrary all the statements of these two chapters about abilities are true of any trait of character, disposition, temperament, etc., if they can be intelligibly made about that trait. In particular the facts and principles about identification, classification, common, group, and specific factors, compoundness, complexity, specificity, individual differences, correlation rather than compensation, and failure of training of a particular sort to spread its influence widely all apply to all traits of character, disposition, or so-called "personality."

Indeed, the general facts and principles which students of economics, business, government, law, philanthropy, and education need to know about traits of character can be thus transferred from these two chapters, or from the chapters on wants and satisfactions. Little needs to be added to the psychology of abilities and wants to cover the psychology of traits, tendencies, or characteristics.

BODILY STRENGTHS AND SKILLS

The plural is used advisedly. The number of abilities characterized by movement which human work and play include is legion, and their intercorrelations, though usually positive, are far from perfect. The psychology of the ability to carry loads, swing a sledge, mend watches, or play golf is in general that set forth in this and the previous chapter. The only important difference is that the identification and measurement of these abilities is in many cases much easier and simpler than for such abilities as intelligence, executive ability, leadership, playing chess, literary ability, or self control. In the running high jump, for example, the ability is precisely what it is measured as. We can easily measure all of it and nothing but it. Partly as a consequence of this there is less verbal argumentation and unwarranted theorizing about bodily strengths and skills than about matters of mind and morals. And what there is tends to be extravagant claims for the value of muscular training for mind and morals.

PARTICULAR ABILITIES

It would be profitable to present here what is known about those abilities and traits which are important in the world's work and management of its affairs; for example, the following:

abstract intelligence or ability with ideas, as in language and mathematics, and much of science and affairs,

mechanical intelligence, or ability to understand things, as in skilled trades and much of science,

social intelligence, or ability to understand persons and other animals,

leadership in its various forms,

ability to cooperate in various ways and at various levels of ability,

energy,

persistence,

ability to control oneself,

ability to control others,

persuasiveness,

popularity,

political ability,

ability in law, the ministry, medicine, teaching, engineering, music, art, literature, acting, finance, buying, selling, management, agriculture, military work, scientific investigation, and other activities important for welfare,

ability in courtship and marriage, as parent and guardian, as neighbor and citizen, as voter, critic, and supporter of representatives,

ability to face the facts about the world and oneself and adapt one's own external behavior and inner flow of ideas to reality without evasions, or regressions to childish and perverse solutions.

It will, however, be more profitable to present such special facts where they are specially appropriate, and after considering the psychology of wants and motives. The facts concerning very high abilities are important for all the social sciences, and will be the topic of the next chapter.

Chapter 5

GREAT ABILITIES *

Common sense and psychology use freely a scaling of abilities from little to great or low to high. John, who can solve all the business problems that Richard can solve and many more besides, has, we say, more business ability or a higher degree of business ability than Richard. If A can do all the acts of skill as a carpenter that B can do and others that are harder to do, we say that A has more or higher ability as a carpenter. A typist who, working as well as she can, makes two mistakes per thousand opportunities has less ability than one who makes only one. A person whose product or service in any trade or profession satisfies very exacting tastes has more ability in that trade or profession than one who can satisfy only the less exacting.

It would be difficult to frame a rigorous definition of "great" or "high" as applied to abilities to solve problems, manage people, manipulate tools and materials, entertain the intelligent, entertain the dull, and all the other multifarious works of man. And it is not necessary, and probably not even advisable, to try to do so at present. But it is well to have in mind three notable varieties of such scaling. The first includes cases where the upper end of the scale denotes chiefly ability to do harder things; the second includes cases where the upper end of the scale denotes chiefly ability to do the same thing better, more exactly, more elegantly, more pleasingly, or otherwise in a more satisfactory manner; the third includes cases where the upper end denotes chiefly ability to do more things. The third is much less important than the others and is rarely dealt with by itself alone as a high ability. Our common-sense scales are usually mixtures or

* Much of this chapter is reprinted from an article ['38 A] by the author in the Scientific Monthly, vol. 47, pp. 59–72.

composites of these three, but relatively pure cases are those of high ability in (1) invention, (2) singing and (3) a certain lowly type of scholarship.

Common sense and all the social sciences freely assume the existence in men of qualities or traits or combinations thereof which are the causes of this, that and the other achievement. High musical ability is the ability to achieve so and so, to produce such and such a product, of harmony, pleasure in the listeners, etc. High entrepreneurial ability is the ability to hire materials, labor and tools and achieve a product that can be marketed at enough to pay the bills with a large surplus. But of what musical ability and entrepreneurial ability consist or how they are related to other abilities very little is known. Indeed, it would perhaps be preferable to replace such terms as executive ability, statesmanship, artistic ability, military genius, business ability, and literary ability in each case by "the ability to produce so and so," until much more is known than now about their respective constitutions and affiliations. Something real and biological doubtless does correspond to each of these terms, but it may be different in different persons, and the trait in A which, along with other traits in him, gives him high military ability, may, along with other traits in B, make B a great captain of industry, or may, along with certain features of C, cause or permit C to be a great reformer.

CAUSATION

The causation of specially high degrees of ability is, like everything else in human individual differences, the action of certain events or conditions upon the genes. If all fertilized ova were subjected to just the same series of events, the men who developed from these ova would still differ in their abilities to remember, think, sing, draw, jump, govern, make money or whatever else. If there were a million having as nearly the same genes as "identical" twins have, and if a hundred different trainings were applied to a hundred groups of ten thousand each, the groups would differ more or less in such of their abilities as were sensitive to the trainings.

The causation of specially high degrees of ability differs in no

fundamental respect from the causation of any stated degree of ability. The doctrine of the irrepressibility of genius by any environment, no matter how unfavorable (often attributed to Galton) is unsound, though very high inborn capacities do have a notable tendency to seek and find an environment that favors them and a training that heightens them. The potency of training may be very low, so that the most favorable versus the most unfavorable social conditions that a human organism could encounter in the United States today would make very little difference in the ability. It may be very high, so that an average status of the genes acted upon by the best possible series of events will produce a higher ability than the optimal status of the genes acted upon by the worst possible series of events. General intelligence and singing are cases where training is relatively weak as a cause of very high abilities. Ability in diagnosing diseases and ability in translating Indian languages are cases where it is relatively strong.

In many of the abilities which are called upon in our civilization to produce or serve, such as legal ability, medical ability, engineering ability, dramatic ability, executive ability, or political ability, we have made arrangements whereby the training without which a person can hardly manifest very high ability is denied to those who have only mediocre or inferior genes in that respect. They cannot get into medical schools or medical practice; they cannot practice entertaining audiences; they cannot, except rarely by nepotism, get training as executives or be elected to public office. So only the originally able receive the training, and we cannot tell how much or little the training could do for persons of low natural capacity. And in general, partly because we give training in relation to capacity and partly because individuals of high capacity seek and find opportunities for training, the two sorts of causation act together in close correlation.

A high capacity may fail to manifest itself in demonstrated ability, by lack of the adequate stimulus. Military ability may lie dormant if there are no wars. The ability to manage a great enterprise through a hierarchy of subordinates, each possessed of certain special abilities to a higher degree than that of the manager, could hardly show itself in a pastoral civilization.

In general, very high ability is due to (1) fairly favorable qualities in the genes plus (2) the favorable training which such genes select or create, plus (3) the favorable training which parents, friends and society in general provide. The first is primary and essential. Without it the second will be absent and the third will be largely unavailing. The three together, or sometimes the first and second without the third, raise the ability year by year to levels such that it can profit by more and more advanced training. If this is withheld at any level, the ability is kept from attaining still higher levels. So doubtless there were in Europe from 1600 to 1800 many thousand men who might have been as able rulers as Gustavus Adolphus or Frederick the Great, so far as the constitution of their genes was concerned. It is very desirable to provide adequate early training to persons of probably favorable inborn capacities, and to add to it in proportion as they profit from it. A point is soon reached in the case of high abilities for which there is an economic demand at which further training is provided almost automatically and the person is paid well to take it.

It is of some importance to know how much of the payments made for high abilities are in the nature of rent for the natural resources supplied by the genes and how much are to balance the time and money spent in acquiring mental capital by training. The latter is surely usually only a very small fraction of the total. Lawyers who receive $100,000 a year, on the average, from age forty to sixty-five average less than a dozen years of training beyond the age of compulsory school attendance, and less than a score of hours a week of unpaid study from the end of this training to age forty. For the rest, such a one gets his training from work for which he is paid more and more liberally as his ability becomes known and increases. Estimating the cost of his training from 14 to 26 and his unpaid study from 26 to 40 very liberally, a single year's wages at 40 would pay for all.

In most business men of high ability the percentage chargeable to training is still less. Before the days of schools of business, such a one was paid for almost all his business training; and often the more valuable the experience was for him, the more he was paid for it. The man who received $100,000 as president, re-

ceived, as vice-president, $40,000 and also the training which brought his ability status up to that demanded of a president.

What is indubitable in the case of high legal or managerial or financial ability is often equally true of doctors, engineers, artists, musicians, actors, literary men, orators, politicians, salesmen, speculators, confidence-men and burglars of great ability. They are often paid liberally for much of the training that is most valuable to them.

A word may be added, somewhat out of place, concerning the disutilities which men of very high abilities suffer by exercising their abilities and training to improve them when they could be playing golf, lying in bed, reading novels, dancing or enjoying wine, women and song. They are very small in comparison to the enjoyment which they get from their work. The ratio of satisfaction gained from exercise of the ability to satisfactions lost from lack of certain other enjoyments is in general higher the higher the ability. This is partly because of a fairly close correlation between ability and interest, and partly because the provision and exercise of a high ability bring self-approval, a sense of personal worth and social esteem.

FREQUENCY

Common observation reveals that very high abilities are usually very rare. This holds good even when almost everybody has adequate early opportunities and when almost everybody who shows fairly high ability as a result of these early opportunities is eager to get more and is likely to be given more. Such is now the case, for example, with singing. The number of tenors as good as Caruso and Jean de Reszke will always be very small, unless some new discovery in the physiology of the voice overcomes present limitations, or some new practice in human breeding multiplies these rare individuals.

By analogy with what is known of very high abilities that are definable and measurable, such as various athletic abilities, abstract intellect, knowledge of languages, and ability to make money in a given profession, it is reasonable to expect that very high abilities are the extreme of a tail of a total surface of frequency, and that this tail has a form like that of Fig. 2, where the

high abilities are due to specially favorable concatenations of many independent causes of about equal magnitude, or, like those of Fig. 3 or Fig. 4, where the high abilities involve also the action of certain prepotent causes or groups of correlated causes.

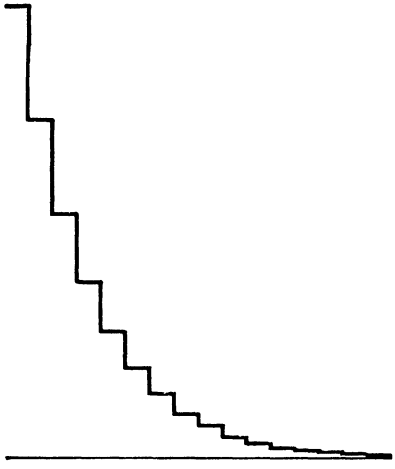


FIG. 2. The distribution of persons of very great ability (approximately the top thousandth) if very great ability is caused by a fairly large number of forces of approximately equal magnitude.

Suppose the high levels of inborn capacity to achieve in a certain line (such as mathematics or law or banking) to be distributed so that the top 6,200 men out of a million will, if they receive no special opportunities, practice, or training, be distributed as shown in Fig. 5 at age 50. Suppose that a certain cause or group of causes has the effect of raising the achievement in question from 5 to 16 points with an average effect of 10½. (Such a group might be going to a law school, and being admitted to a good firm.) Suppose that this cause or group of causes acts selectively, upon 10 percent of the men who would be at level 125 without it, upon 15 percent of the men who would be at level 126 without it, and 20, 25, 30, 35, and 40 percent in successive levels from 127 to 131, and thereafter accelerating its selective tendency so as to affect 46, 53, 61, 70, and 80 percent at successive levels. Then the distribution will be as in Fig. 6.

Suppose that a cause or group of causes acts in the same selective way, but now increases its potency in relation to inborn capacity from an average of 10½ upon persons of the 125 level, to an average of 11½ upon persons in the 126 level, to an average of 12½ upon persons of the 127 level, and so on up to an average of 21½ at the 136 level. Then the distribution will be as in Fig. 7.

It is often prudent to proceed upon some such assumptions in

default of anything better, but so little is known concerning the nature and causation of such abilities as to trade, manage men, direct a business, sell goods, organize a factory, select invest-

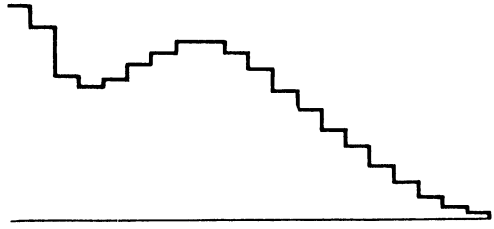


FIG. 3. The distribution of persons of very great ability when there is added to the forces causing the distribution of FIG. 2 one force of very large magnitude.

ments, foresee changes in fashion, conduct a trial, influence a jury, attract followers, and the like, that such assumptions in such cases are extremely hazardous. How many men in this country

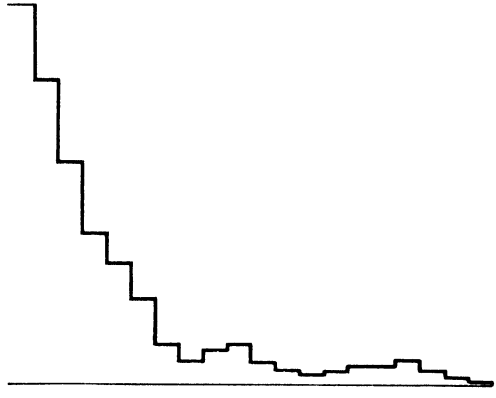


FIG. 4. The distribution of persons of very great ability when there are added to the forces causing the distribution of FIG. 2 two forces of fairly large magnitude.

would be able to manage the American Federation of Labor as well as it has been managed? To design a dam demonstrably better than Boulder Dam was designed? To direct its construc-

tion demonstrably better than it has been directed? To secure ten thousand new subscribers for a certain magazine within a year? To displace the present national leader of the Democratic party within two years? To turn ten thousand dollars into ten million within ten years by trading, and increase this, or at least not lose any of it, during a second ten years? Experts in the various fields may dare to make estimates on the basis of their observations, but general observation and theory cannot, as yet, do much more than to put the number somewhere between three and three thousand (or between one in ten thousand adults and one in ten million).*

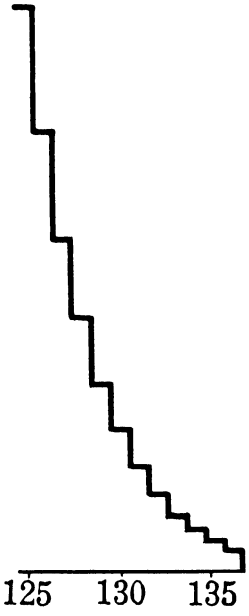


FIG. 5. The probable distribution of the ablest 6,200 men in a million by inborn capacity, the average of the million being 100, and the standard deviation being 10.

Observation is likely to be misled by two opposite prejudices in estimating the rarity of men able to solve difficult scientific problems, manage great plants or firms, invest a million dollars wisely, or the like. If one thinks of the persons who are by common consent at the top level of ability and then moves down to estimate how many there are who are nearly as good, they seem very scarce. Close seconds to Carnegie or Caruso or Theodore Roosevelt in their respective generations do not readily come to mind. When Locke ran 220 yards in 20.6 seconds he doubtless seemed to many to have no close second.

Such abilities, found perhaps once in five hundred million men and admittedly peerless, are likely to make us belittle those who are really not far below them on the scale in question. In actual fact there were several available who could run 220 yards in only a second

* The six abilities taken as illustrations were not chosen with care to have them of even approximately equal height, but simply to be all fairly high, but not impossible of attainment. They probably differ much *inter se*.

more, and there may be many business men and singers not far below the best.

If, on the other hand, one thinks of the symptoms and tests of an ability starting from the average and going to higher and higher levels, one may think that those at each level could, with a

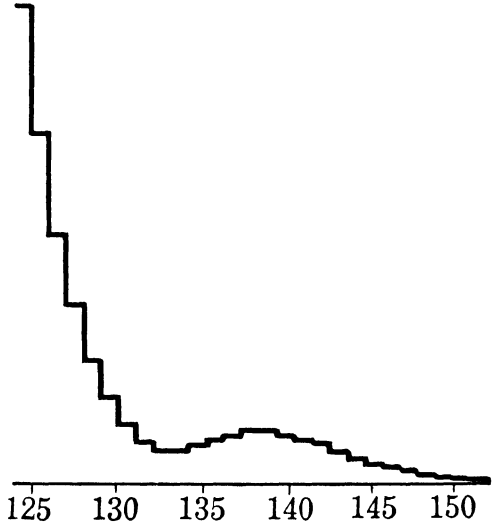


FIG. 6. The distribution of the 6,200 men of FIG. 5 if they are subject to a force which raises a person's score from 5 to 16 points (10½ points on the average), and acts upon 10 percent of persons having ability 125, 15 percent having ability 126, 20 percent having ability 127, and upon 25, 30, 35, 40, 46, 53, 61, 70, and 80 percent, respectively, of persons having abilities 128, 129, 130, 131, 132, 133, 134, 135, and 136.

little better fortune or a little more effort, equal the achievement of a higher level. From running a small bank to running a large bank, from running one department of a department store to running the whole, from governor to president, the requirements do not seem to increase very greatly, and one may conclude that the next higher level of ability must have nearly as many representatives.

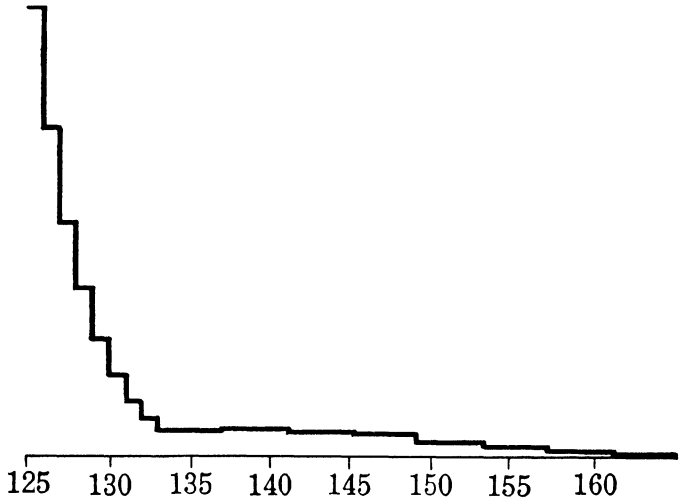


FIG. 7. The distribution of the 6,200 men of FIG. 5 if they are subject to a force which acts upon 10 percent of persons having ability 125, raising them from 5 to 16 points; upon 15 percent of persons having ability 125, raising them from 6 to 17 points; upon 20 percent of persons having ability 127, raising them from 7 to 18 points; and so on up to action upon 80 percent of persons having abilities 136, raising them from 16 to 27 points.

THE DISCOVERY OF SPECIALLY HIGH ABILITIES

Specially high abilities are presumably no more subject to chance or miracle than eclipses, the weather or anything else in nature. An omniscient observer could presumably predict how high ability any person would display in any line with any specified training. Our present powers of prediction seem slight in comparison with what can be done about eclipses or even about the weather, but are far above zero. A prediction much above chance can be made for any child even before he is born. From age 2 years 0 months or even earlier, certain abilities can be predicted from his sensory, motor, and intellectual achievement to date. All predictions are, of course, in terms of probabilities and with a margin of doubt. As a person's development proceeds and records of his achievements accumulate, better and better

predictions can be made. When, however, the ability to achieve a certain result, A, is inferred from anything save very similar achievement, there is a rather large probability of error. The specialization of some abilities is so great that abilities so similar as to be called by the same name may not be perfect indicators one of another. Also the person himself may change and so be able to do more or less than he could have done had he stayed the same. But this latter is probably the cause of much less error and doubt than has been supposed popularly. Great shifts like those of Grant are very rare.

Some abilities, as in abstract intellect, music and mathematics, appear early; others, as in the management of men and of money, appear later. The guiding principle is that a capacity will show itself as an ability when situations are met which demand the ability and reward it. So a child with the capacity *can* show abstract intellect as soon as he knows a substantial number of facts and words, or musical ability as soon as he is acquainted with some system of relations of consonance, melody and harmony. If his activities are rewarded (perhaps only by his own enjoyment of them) he *will* show it. A person with the relevant capacity will similarly manage people and money as soon as he can profitably do so, but this will naturally be later. Cornelius Vanderbilt the elder was an active and successful entrepreneur at 12; but school laws, labor laws, and social customs would probably prevent him from repeating this if he were born again.

Some sons of well-to-do parents seem to promise little until they graduate from college or professional school, having only a record of good sense, friendships and moderate success in games or other hobbies, and then manifest great ability in business or government. Some of the second-generation executives of Taussig and Jocelyn would doubtless illustrate this, as do the histories of the families which have so largely ruled England. The talents of these men are not such as to be stimulated by lessons or games, or rewarded by extra pocket-money or power over boys, but are called forth by the dignified responsibilities and rewards of adult life.

A scientific personnel manager for the world should, in his arrangements to utilize all specially high capacities, discover and

keep track of: (1) children of parents of high achievement, (2) persons who are especially intelligent, (3) persons who are especially sensitive to beauty, (4) persons who are especially creative in the fine arts or useful arts, (5) persons who are especially desirous of excellence and persistent in striving for success, and (6) persons who are especially courageous and independent.

It is probable that a continuous account of the superior abilities that appear at ages 14, 18, and 22, with provision to keep careers open for their talents, would be a useful social investment. Even if nine out of ten of the recipients of such attention and aid achieve only moderately, the investment may yet be profitable provided one in a hundred of those near the top is enabled to do a higher quality of work than he would otherwise have done.

The full argument in support of this conclusion would be long and intricate, but its gist may be realized by considering what the world could afford to pay to develop the ability to cure cancer or make it fashionable for nations to settle their disputes by justice rather than force, ten years sooner than it would otherwise be developed. Even a slight rise in a very high ability is, roughly speaking, priceless. Even a small chance of such a rise is worth a large expenditure. We should not miss the chance by failure to discover the promising candidates early.

Business and industrial enterprises have been supposed to discover very high abilities surely and easily by work "on the job," but this has never been proved. Wise owners and managers of large enterprises are probably as eager to find such persons of high ability as these are to make their abilities known. But the conditions of modern mines, factories, wholesale houses, department stores, banks, railroads, etc., may prevent workers from knowing their own abilities and others from observing or inferring them. Consider the abilities of making financial decisions, improving processes, organizing production, organizing accounts, managing inferiors, cooperating with equals, selling goods and trading in the case of a man 20 to 25 to-day. Except in the cases of selling and trading, there is some reason to believe that a man of high ability would have it recognized more quickly by becoming secretary, or even simply stenographer, to a high execu-

tive, than by working up in one of the regular divisions of the business.

The more the work of an organization is specialized and regularized so that each person's responsibilities are more fully described and prescribed, the less chance there is that persons can show their promise by extraordinary competence in emergencies. We may hope that impartial records of the quality of performance at the regular routine compensate for this lack. We may also hope that the displacement of a hundred-thousand general manufacturers and business men by a hundred-thousand engineers, accountants, shop-managers, superintendents, sales-managers, credit-men, legal advisers and other specialists not only permits a greater number of high abilities to work, but makes them more discoverable. Theoretically, it should do so. Theoretically, indeed, we should be able to discover high promise for many features of business and manufacturing in men while they are still students in schools of business and engineering.

There are no easy means of estimating how many fine flowers of managerial or entrepreneurial or financial ability waste their sweetness now, or have in times past. It would perhaps be worth while to measure the gains when some hindrance is removed, as when privates in the army are permitted to become commissioned officers by passing certain tests or by the exigencies of war, or as when customary restrictions of certain governmental posts to the nobility are abandoned.

UTILIZATION

The best function of exceptionally high abilities is to perform valuable services which no lesser ability can perform at all, as in scientific discoveries, inventions, masterpieces of painting, music, literature and other fine arts, difficult problems and decisions, and difficult feats in inspiring, persuading, reconciling and otherwise managing individuals and groups.

In modern civilization there is always work of this sort to be done, so that very high abilities should never be unemployed, save for recreation. They should never do anything else, save as a luxury or a medicine. From the moment that a man or a woman has demonstrated his possession of such ability, society should, in

its own interest, arrange that he does for it what only he and his kind can do.* If by a miracle some possible Newton or Dante could shovel as much sand per hour as ten thousand men, so that he could command four thousand dollars an hour as shoveler of sand all over the globe, society should, if possible, persuade him not to take that contract.**

If the n difficult jobs to be done can be distributed among the N men of high ability so that each does what nobody else even among them can do, or what he can do better than anybody else, there is an obvious arrangement for maximal utilization. But if some individual can do two or more better than anybody else, the matter is not quite so simple; and if the jobs vary in importance and some of the individuals surpass some of the others in several of them, it may be fairly complex. A solution giving maximal utilization will not then be reached if those in authority in respect of each job try to get for that job the individual who will do it best. But it can be reached if all jobs, importances, individuals, and abilities are considered together. Table 3 shows the maximal utilization of ten men for twenty jobs of specified importance which none but they can do. For convenience, it is assumed that each job would require the same time as any of the others.

The assignment or direction or attraction of high abilities to one job rather than another may be left to the individuals singly, or to a group of them, or to some body (such as the French Academy, the British Royal Society, the American Academy of Arts and Sciences or the American National Academy of Sciences) supposed to be competent to organize and direct the work of men of genius, or to some branch of the government, or to whatever universities, foundations, or business concerns pay for their time.

Psychologically it seems safer to trust as a rule to the individuals

* These statements hold true even when there is not surety that he can do so and so, but only a certain probability higher than that for anybody else and enormously higher than the probabilities for 999 men out of a thousand.

** As the world is, the possible Newton or Dante would be wise to exercise his shovel magic for a few hours, so as to live thereafter free from financial worries!

themselves plus the guidance they will obtain in the ordinary course of events from their fellow experts. Great writers, painters, musicians, scientists, lawyers, reformers, business men and rulers will doubtless do some selfish, useless and silly things with their

TABLE 3

MAXIMAL UTILIZATION OF 10 PERSONS (A, B, C, D, ETC.) DOING ONE JOB EACH OF 20 JOBS. A y INDICATES THAT THE PERSON IN QUESTION CAN DO THE JOB IN QUESTION

Job	Importance	Person Assigned	Persons and Their Abilities									
			A	B	C	D	E	F	G	H	I	J
1	10			y	y		y		y	y		
2	10		y	y	y	y	y	y	y			y
3	11		y	y		y	y		y		y	y
4	12		y		y	y					y	
5	14			y			y					y
6	15		y		y	y			y		y	
7	15			y			y		y	y		y
8	16	I	y			y					y	y
9	16		y			y	y			y		
10	18				y			y	y			
11	18	C or F			y			y	y			
12	20	H	y			y		y		y		y
13	20	F or C			y			y	y			
14	20	G		y			y		y			y
15	20	D	y		y	y						
16	21	E		y			y					
17	22			y								
18	22	J	y				y					y
19	24	B		y								y
20	25	A	y									

talents if paid to do what they please without let or hindrance. Cases can be cited where a great man did better under the pressure of a publisher's contracts, the need to compose music that the market would buy, a grant for the completion of a specified project, a popular demand, the dictates of a superior or other persuasion or coercion from those who were using his abilities, than when he used them freely. But on the whole what great men have done by choice will probably average much higher for

the common good than what they have done by pressure from employers, advisers or the public.

Three facts need to be considered in this connection. The first is that there is a positive correlation of about .50 between ability and virtue or good will toward men. Consequently, unless we are competent in judging who will work in the interest of mankind, we will do better to trust our fortunes to able persons than to try to pick well-intentioned ones. Second, very able individuals are far likelier to judge correctly *what* work they are likely to succeed at and whether the time is ripe to attack it than anybody else, at least until some man of genius makes it his specialty to study what sorts of abilities are best adapted to what sorts of work. Third, very able persons usually attach much more interest and devotion to self-chosen work. For such a man to work at A when he yearns to work at B is especially wasteful.

Except for reasons of weight, then, very high abilities may be permitted to choose their own jobs. There is still more reason to permit them to choose their own methods. Only for reasons of great weight should society or any of its agents presume to manage such men and women in their special lines of work.

But the correlations between special abilities and good will, good sense, cooperativeness, balance and other multipliers of a man's value, though almost certainly positive, are far from perfect. In the management of his general life the person of high special ability may profit greatly from direction, persuasion, and even coercion *ab extra*. Wise publishers, producers, heads of educational or business institutions, financial and industrial managers, patrons and friends may protect them from distractions, irritations, and follies and help to keep them healthy and happy.

The success of entrepreneurs in utilizing the labor of specialists of very high abilities will probably in the next hundred years be more important for their own profits and for the common good than their success in utilizing the rank and file of skilled and unskilled manual and clerical workers. The success of the public in making conditions such that high abilities work in its interest will also presumably become even more important than it has been. Less than ever can we afford to stone the prophets.

Public assistance may safely be given to the education of very

able persons and their relief from labor which makes poor use of their abilities by allowances for maintenance. Present practices in the United States are often diametrically wrong, as where a gifted child who at a certain age has advanced far in school is permitted to be sent to work by his parents, while a dull child of the same age must be kept in school.

In the case of a random sampling of about a thousand boys in New York City whose careers were studied from 1922 to 1932, the number of years of schooling received by the top twentieth in intellectual achievement averaged less than half a year more than that for the bottom twentieth.*

The public should obviously on all counts demand systems of appointment and promotion by merit in all non-elective government services. This would open one set of careers to individuals of high abilities; and, if physicians, lawyers, workers in the physical, biological, and social sciences, engineers and men of affairs who use high abilities for the public good are also given power and freedom in proportion to their demonstrated services, we should have a very useful, though incomplete, insurance against misuse and lack of use of these precious national resources.

The public should also take some pains to learn what sorts of persons and abilities are its real benefactors. It is not entirely fair to ask men of ability to act in the public interest rather than in their own, when the public chooses to be deceived pleasantly rather than told wholesome truths, to be poisoned rather than nourished, and to be debauched rather than ennobled.

Indirect provision for utilization of many sorts of high ability is made fairly efficiently by universities, hospitals, museums, foundations for the advancement of human welfare and other endowed institutions. These provide living expenses and facilities for work either as a gift or in return for moderate amounts of teaching or other service. Indirect provision for utilizing many

* It is a common error to think that society is doing more for the intellectually able than for the dull because the former reach much higher grades. This means chiefly that, with the same gift of schooling in years, the able achieve much more than the dull. In the sample referred to above the top twentieth reached grade 12, while the bottom twentieth reached only grade 8.

sorts more or less well is made by business concerns which employ not only men of great ability in managing men, money and machines, but also men of great ability as physicists, chemists, geologists, engineers, architects, economists, statisticians, psychologists, lawyers and others. Just how high the efficiency of the utilization is cannot be stated. It probably ranges from a low point where the person is put at work which lower abilities could do as well, but where he at least has adequate livelihood with fairly congenial work, to a point where he is abundantly paid and provided with first-rate opportunities to exercise and improve his abilities. The latter is, of course, likelier to be the case with the abilities to manage men, money, and machines, than with the abilities less intimately associated with the management of production and selling so as to meet some demand and thereby pay lenders their interest and shareholders some return on their investment. But the owners, if they interfere at all, will perhaps in the future interfere less with the specialists in a corporation's management than with the high general executives who plan its organization and appoint the top specialists. The high general executives have progressed far from the early days when they treated the specialists as distinctly subordinate in every way and always put upon them the burden of proof, and in general considered that they themselves knew more about everything in the business than all those beneath them. They will progress still further and will give freer and freer play to the abilities of others so far as these are exercised for the good of the business. With the vexed question of the degree of correspondence between what is good for the business and what is good for mankind we are not here concerned, beyond noting that if the products produced or services rendered are themselves good for mankind and if there is the amount of control over matters of health, decency, justice and the like now prevalent in civilized countries, the correspondence is much above zero. We may not hope that Adam Smith's "invisible hand" holds it at or near 1.00, but no competent economist would rate it as zero or negative. Moreover, the features of the conduct of the business which are due to the activities of the very able individual specialists are, because of the correlation between ability and good will toward men, more

likely than those of foremen, office-managers, salesmen and workers generally to be beneficial, in so far as the benevolence of able persons may be assumed to be beneficial.

There are certain sinister neglects and misuses of high abilities due to selfishness, nepotism, envy, jealousy and other base human passions, and others due to natural and normal self-esteem. A king may use his power fairly well in most respects, but, for fear of losing it, may make little or no use of the great abilities of some of his subordinates. The number of murders of near relatives by kings of old was very large! Dictators, even the most benevolent, seldom take much pains to train able successors. Men have resigned positions of great power and dignity in order to retire to monasteries, or by doctor's orders, or to indulge in some hobby, but not often simply to give some abler man a chance to do their work better. Indeed, it is psychologically very hard for one to believe that some of his subordinates are abler than he is, since that conflicts with his long habit of dominance over them, and is also not a pleasant belief to entertain.

As a rule, a man's achievement rises till age forty, holds at a level until age fifty-four, and then falls, though not very rapidly, up to age seventy. But this is not widely known, and a ruler, artist, scientist, professional man or business man who knew and believed it would still be strongly tempted to think that he was an exception. The drop being gradual and rather slow permits him to do this, and may conceal the fact from his associates until some dramatic comparison with a previous similar demand shows that he does not have the ability he once had.

Very able men cannot then be relied on to do full justice to other very able men in all circumstances. They are, however, more likely to do so than less able or mediocre men. The ablest kings will tolerate abler ministers than less able kings will; and we may expect that the ablest bank presidents will give way to promising juniors oftener and earlier than the petty magnates of small towns.

Very high abilities may be misused by their possessors because of two very important psychological fallacies. The first is the fallacy of overrating one's judgments of all or many sorts because in one's special field they are excellent. The second is the

fallacy of assuming that one's might is right on all or many occasions because it has been right in one's special field. A man who day after day has judged correctly ninety-nine times out of a hundred about, say, legal problems, and who gains a moderate knowledge about sociology or politics or art, will feel an unjustifiable confidence in his judgments about the latter unless he reminds himself that he is disqualified from expertness in the latter. A man who has exercised power repeatedly with benefit to all concerned as, say, a bishop or general or company president, will feel an unjustifiable confidence in his exercise of power that comes to him as a college trustee or senator or director of an art museum, unless he deliberately allows for his lesser fitness for the latter parts.

Such misuses are not of very great importance, first, because men of very high abilities usually are too interested in their own specialties to interfere much in other lines; second, because they are intelligent about their limitations, and third because, even if overvalued, their exercise of thought and of power will still be much better than the average, though below that of the expert. Such misuses should, however, be reduced. In particular, men of very high literary or oratorical gifts could well have their statements about philosophy, religion, education, government and reform criticized by experts lest their talents make the worse appear the better; men of great ability to make money could wisely inform themselves concerning the correlations of this with other abilities; a man of high abilities of any sort should abate, outside of his specialty, the peremptoriness and absolutism which is his right within it.

If the leading specialist in treating a certain disease discovers a preventive of it, he may lessen his own income greatly by making the discovery public. Yet, as Professor Cattell has often remarked, the public gives him nothing to offset this. The ablest lawyers make a great financial sacrifice to take posts as judges or as professors in schools of law. Army officers highly competent in engineering and management have attractive chances to leave the service for private employment. And, in general, very high abilities which can be employed for private ends will be sought for these, and the private concern will usually outbid the public.

For example, great scholars or scientists will be paid far more for writing textbooks than for doing research. The case is different with low abilities, where the public often pays more money and security than private employers would offer.

The attitude of very able persons toward public versus private employment varies, of course, enormously with the person and the nature of the employment, but certain facts are of wide applicability. Very able persons do consider, more than others, the common good and the good of the future and will make sacrifices for it. They seek, more than others, freedom to do excellent work and especially abominate either political or commercial pressure which forces them to do shoddy work. They demand permanence of tenure in public work not so much to be sure of a livelihood as to be sure of protection against political pressure. They are more sensitive than others and seek freedom to work in their own way and among congenial surroundings.

No community has planned and arranged to discover and utilize all the very high abilities of its members. There may be a large waste because of discouragement or lack of encouragement, especially lack of financial support. The amount of the latter varies from near zero in the case of some prophets, reformers, philosophers, mathematicians, scientists and scholars to a large superfluity in the case of some entertainers, managers, entrepreneurs and traders.

Since great ability has much more than its share of able ancestors, some provision is made by them. In Odin's study of the conditions of nature and nurture of eminent French men of letters, the number who were brought up in chateaux was large. In Taussig and Jocelyn's study of business executives, the parents were often successful business men. The sons of clergymen and teachers have been distinguished for high achievement in science, scholarship and the professions; and their parents probably usually provided encouragement other than financial.

Some provision is still made by individual patrons. Young people who are highly gifted in music or painting do receive such help and probably could oftener if they could not be provided for otherwise. A boy or girl equally promising in science or scholarship would probably not obtain such patronage and would

now be regarded as eccentric and lacking in self-respect if he asked for it. After a certain amount of training the able *protégé* in art or music is left to earn his living and probably can do so without excessive sacrifice, though this is not sure in the case of musical composers.

In general, individual patronage is very rare, but the universities and foundations supply it in the form of scholarships and fellowships, a few of which are adequate for complete support. Maintenance allowances during the period of secondary education have been proposed in various places and are being seriously considered by public authorities in France. The provision of financial aid during training is very uneven and more benevolent than efficient. For example, the aid available for intending clergymen is far richer than that for intending physicians, the latter being indeed almost nil. The theory is rather to reward religious devotion and palliate future poverty than to provide for public welfare.

If he has somehow obtained training, the highly gifted engineer, lawyer, physician, or clergyman can usually make a living at more or less instructive work. The highly gifted scientist or scholar can, if not too eccentric, make a living by teaching or expert service. Poets and other literary men can, thanks to Pulitzer prizes and Guggenheim fellowships, receive financial rewards for the work they most wish to do, or can become entertainers, as so many of the greatest of their kind have done.

Prizes such as those of the Nobel fund have the merit of giving individuals of great ability wherewithal to provide essentials and make old age secure and also of informing the world who some of its great benefactors are. The same is true of a system of national pensions such as those of the British civil list, especially if they are large enough to be impressive to the public. Such public honors by way of financial support are not popular, however, and even in the enormous increase of public expenditures of the last generation, almost nothing has been spent directly to reward great public services.

It therefore seems politic to work rather for the support of universities, museums, hospitals, social settlements, institutes for science and scholarship, orchestras, and the like which are for

the public good in and of themselves, and which will provide, as one by-product, dignified and congenial ways of earning a living for those high abilities which are not paid for by the general demand for business and professional services.

Nobody knows how many of the very high possibilities in the genes of the ten million persons born in this country from 1870 on who survived to age 50 or later, have been realized. To be definite we may consider the fate of the top thousand in the ten million, that is, the top one per ten thousand. If some omniscient guardian angel could have recorded the possibilities of each of the ten million at conception, at birth, at age 5, at age 10, at age 15, at age 20, at age 25, at age 30, and so on, nobody knows how fully the possibilities existing for any thousand at any age were realized in their lives thereafter. But not the most ardent believer in the relative importance of the genes and their tendency to find or create the environment they need, would claim that the possibilities were 100 percent realized.

The reader may well make the best guess he can and act upon it when he has a chance, as voter, donor, adviser, or the like, to further the utilization of the nation's most precious asset. The writer's guess would be that our eventual utilization of possibilities existing at age 15 varies from as low as .30 in the case of capacity to govern well to as high as .80 in the case of managerial and entrepreneurial capacities, and to .90 or .95 for trading ability; is about .60 in the case of the fine arts, science, and scholarship; and is about .70 in engineering, invention, law, medicine, and education. These percentages concern the numbers of persons who are doing the sort of work which they should be doing in the world's interest. The percentages of utilization, including also putting their abilities to work as early as is best and keeping them at work under the best conditions, would be lower.

Probably nine out of ten psychologists and sociologists would consider my estimates far too high.

THE WAGES OF SPECIALLY HIGH ABILITIES

It is a matter of common knoweldge that the frequency curve for wages for any one species of ability is apparently enormously

skewed, the maximum being often thirty or more times the mode.* The difference between distributions of wages and distributions of the few abilities that have been measured in physical units or in reasonable units of difficulty or of quality is striking. The latter rarely show upper extremes that are three or more times the mode. This may in some cases to some extent be illusory, since there should perhaps be added a long stretch of negative values. Thus one might if necessary pay a first year medical student a thousand dollars *not* to operate upon one for appendicitis, and pay an average butcher ten thousand dollars not to do so. Also it may turn out, when a wider variety of measurements in units of difficulty or quality has been made, including literary, musical, managerial and other vendible sorts, that our present specimens are not typical.

However, there will probably remain large discrepancies between the increases in an ability as a psychologist would measure them and the corresponding increases in wages. And this fact may stimulate us to consider certain forces which, other things being equal, can and must cause the latter increases.

One force arises from the fact that a small increase in the ability may cause a large increase in sheer volume of the product produced or service performed. It is not inconceivable that abilities to plan an advertising campaign which were in the proportions of 10, 11, and 12 might produce returns in the proportions of 10, 100 and 1000. If we suppose that two writers of detective stories are identical in the techniques of style, in their appeal to all passions and prejudices save curiosity and the desire to be entertained and refreshed, and in all else save originality and ingenuity in respect of plot, surprise and adventure, A's abilities being to B's in these three respects in the ratio of 3 to 2, A might well sell ten times as many books as B. As a corollary of this same principle large transactions can afford very high wages for superior advice and management. If a bank spends yearly a million dollars for bonds, and if A's advice enables it to get one tenth of one percent better value than B's advice does, the bank can profitably pay A up to $1000 more than B annually. If it spends a hundred million dollars a year for bonds, it could pay A

* The *mode* means the most frequent amount.

up to $100,000 a year more than B. The same holds for management where the only difference is in the size of the group managed. If the one manager can also succeed with more perplexing emergencies, etc., than the other, he may be paid an added differential.

A second force arises from the fact that a small difference in the ability may produce a crucial and highly valued difference in the quality of the product or service. A ball player who is just enough better than other minor league players to be hired for a major league team; a scholar who is just enough better than others to be called to one of the great universities; an actor who is just enough better than others to be treated as a star; a physician or lawyer who is just enough better than others to cause his patients or clients to recommend him rather than be silent about him—such a one may receive a disproportionate pecuniary return. In business where a relatively small difference in the quality of the service may change red to black, or increase the balance available for dividends on the common stock from 2½ to 3, the justifiable difference in salary may be very great.

A third force comes into action when the small difference in ability enables its possessor to do something which no lesser ability can do at all. For example, it is reported that Dwight Morrow won repute by solving a problem in corporation organization which slightly less able lawyers had found insoluble. So a surgeon who can successfully perform a certain operation with which others fail may receive a monopoly price from those who can afford to pay for the service. The difference between a certain probability of success and a lower probability may have the same effect. So a surgeon who can succeed 90 times out of a hundred with a certain operation which others can succeed with only 80 times out of a hundred may receive a monopoly price from those who can afford to pay for a .90 chance of life rather than an .80.

Within the same sort of ability small differences may receive large pecuniary rewards because of volume, quality, and monopoly. These forces may, of course, co-act. The man of very high ability is in fact very likely to be sought because volume makes the cost of some of his services per unit specially low, and quality

makes some of them specially valued, and uniqueness makes some of them indispensable for certain purposes.

It is a matter of common knowledge that the pecuniary rewards of specially high abilities of different sorts vary very widely and that the ratios in which they stand, each to the wages of the corresponding common or modal ability, also vary very widely. The scholar who of his generation adds the most and best to our knowledge of the Indo-European languages or Greek history may perhaps receive $12,000 for this and certain teaching; the top clergyman may double this; the top violinist or pianist may treble or quadruple it (this ratio may change because of the radio); the top engineer may make seven or eight times as much; the top surgeon may make ten or fifteen times as much; the top lawyer may make twenty times as much; some top managers, financiers, and entertainers receive even more.

The specially high abilities in different lines are not easily comparable, and would not be strictly or exactly comparable even if the facts about the persons were studied carefully and in great detail. In fact only under certain conditions can any intelligible meaning be attached to the statement that the ability of a certain musician is equal to, or less than, or greater than, the ability of a certain lawyer or engineer. But if, by any reasonable meanings, a dozen men in a dozen of the above and other equally dignified lines of work could be rated as equal, the differences in pecuniary rewards would be little, if any, less than those stated.

These differences between occupations are important because in the case of a person possessed of more than one high ability they may decide which he puts to use, and because the attractiveness of occupations in general to fairly able and ambitious young people may be due more to the highest than to the average pecuniary rewards, and because they show certain facts about the market for specially high abilities. I have therefore collected such facts and estimates as I could without excessive trouble concerning the top ten or top hundred men of their generation in various lines in the United States. These are reported together with some facts for other countries in Table 4.

The causation of these differences is referable in part to the

principles of volume, quality, and monopoly or uniqueness. Specially able literary or histrionic entertainers receive much more than specially able physicians because they can serve hundreds of thousands at a time. The movies and talkies set a new pecuniary scale for actors by multiplying volume.

TABLE 4

APPROXIMATE ANNUAL WAGE AT AGE 50–55, OR AT THE HIGHEST TEN-YEAR PERIOD OF ABILITY IN THE CASE OF ATHLETES AND ENTERTAINERS, ATTAINABLE BY THE ABLEST HALF-DOZEN PERSONS IN THE UNITED STATES IN THE OCCUPATION SPECIFIED, FOR THE PERIOD 1931–1940

	Estimated Obtainable Wages per Year *	Facts in Defense of the Estimates**
Law	$300,000	A very able lawyer is quoted as saying, "I expect to receive $1,000 a day, and by a day I mean each day of the year, not each day that I work."
Medicine and surgery	200,000	
The ministry	15,000	
Teaching, not including income from textbooks	15,000	
Teaching, including income from textbooks	50,000 ***	
Presidents of universities, superintendents of schools, and other educational managers.	35,000	In 1934–1935 the highest salary of a president in the 51 land-grant colleges was $20,500; in municipal colleges [1938] the highest salaries were $21,000. The largest private uni-

* The use of attainable instead of attained is important. It is possible, though unlikely, that no one of the half-dozen ablest men in the activity specified receives as high a wage as that stated. What is meant is that without sacrifice of any important habits, ideals, or prejudices the ablest persons could, under ordinary conditions, approximate it if they tried, and could not attain much more than it no matter how hard they tried, unless they used their abilities in some more remunerative activity.

** The facts presented as evidence in defense of the estimates do not imply that the persons mentioned are among the half-dozen ablest persons in the activity specified. In cases where one would dare to select certain persons as among the half-dozen, the wages are often not known. I have also used in the evidential column only facts which are public property.

*** A person who teaches something which many wish to learn, who has the reputation of great ability to teach it, and who has ability to manage mass teaching and to combine allied enterprises with it may receive much more than $50,000 a year. According to John Kohler, writing in the American Mercury of May, 1936, Ely Culbertson, famous as a teacher of card games, was then receiving about $500,000 a year.

TABLE 4 (*Continued*)

	Estimated Obtainable Wages per Year	Facts in Defense of the Estimates
		versities pay somewhat more, and some income is received from books, lectures, and special services. The highest reported salaries of superintendents of schools are around $20,000, and these may be increased substantially by authorship.
Science and scholarship without managerial duties.	20,000	The report of the Treasury to the Ways and Means Committee includes salaries of $21,500 and $15,875 to two men of science, who, under the wise leadership of W. R. Whitney, work with probably as much freedom as is enjoyed by men in universities or non-profit-making institutes.
Science and scholarship with managerial duties.	75,000	Some scientists may receive more by bonus systems. The five highest salaries reported to the Ways and Means Committee for men in Cattell's starred list were $65,416.87, $54,-281.73, $74,140.70, $55,000, and $40,000, but some of the men on the list are employed by companies not included in the report.
Engineers without managerial duties	35,000	
Engineers with managerial duties	75,000	
Invention without managerial duties	100,000	
Invention with managerial duties	200,000	C. F. Kettering received $304,000 in 1936.
Entrepreneurial ability	2,000,000	
Management of philanthropic work or public affairs.	30,000	
Business management	400,000	The average of 1935 and 1936 salaries for the highest paid officers of General Motors, American Telephone and Telegraph Company, Standard Oil of

TABLE 4 (*Continued*)

	Estimated Obtainable Wages per Year	Facts in Defense of the Estimates
		New Jersey, and American Tobacco Company, were, in order, approximately $420,000; $210,000; $125,000; and $230,000.
Labor leadership	15,000	The salary of John L. Lewis was recently raised from $12,000 to $25,000. But he may have to pay certain non-personal expenses from this.
Army	15,000	The salary of a major-general is $8000 plus allowances amounting possibly to $1700, but residence at a military post involves certain valuable customary rights.
Navy	15,000	The salary of an admiral is $8000, and he has a cash allowance of $2200. He has a rental allowance for dependents of $1262, and a small subsistence allowance.
Civil service	15,000	
Painting and sculpture, excluding portrait painters and cartoonists	15,000	
Portrait painters	50,000	
Cartoonists	125,000	
Literature	75,000	Arnold Bennett reports his earnings for 1912 as £16000 after paying agents' fees, and for 1913 as £17,166 10s 1d less agents' fees [Journal, vol. 2, pp. 70 and 93]. Walter Lippmann's 1935 salary from the Herald Tribune was $54,329.
Editorial work	125,000	Some 1935 salaries were: Arthur Brisbane, $260,000; M. W. Goddard, $156,000.
Music	75,000	
Acting	400,000	Gary Cooper received $311,000 as

TABLE 4 (*Continued*)

	Estimated Obtainable Wages per Year	Facts in Defense of the Estimates
		salary in 1935, and $370,000 in 1936, and presumably substantial amounts for the use of his name. Marlene Dietrich received $368,000 and $269,000 as salaries.
Entertainers: athletic	75,000	It must be remembered that the career of a pugilist or a baseball star is short. On the other hand it begins in the early twenties, so that he has long use of whatever he saves.
Entertainers: combinations of writing, acting, and music.	400,000	Will Rogers was receiving about a half-million at the time of his death. Mae West received $480,000 in 1935, and $323,000 in 1936, as salary, and presumably had further income from the use of her name. Gracie Fields of England is reported by *Time* to make $750,000 a year.

The reader will understand that the ablest abilities of a certain sort do not necessarily receive the highest pecuniary rewards. They choose their work; a painter who could receive more if he would paint portraits may refuse to do so. In some cases they would not get the rewards even if they tried to. Some idiosyncracy may prevent. There is also an element of accident in certain cases, as where an invention happens to become much more or less profitable than could have been anticipated. There are also factors of custom. For example, the top salaries in General Motors run three or four times as high as the top salaries in General Electric, Standard Oil of New Jersey, or United States Steel.

The amounts stated in Table 4 would be more significant if some of the sorts of ability were subdivided. The ability to entertain or inspire persons with I.Q.'s from 150 to 190 will not receive as large pecuniary reward for entertaining or inspiring them as an equal ability to entertain or inspire persons with I.Q.'s from 80 to 120 will receive. Actors whose faces film well and whose

voices record well add enormously thereby to the wages which their other histrionic abilities are worth.

I have estimated what the abilities in question would receive if uncomplicated by other qualities in the person or by accidents of fortune. We are interested in how much is paid to certain persons as evidence of how much is paid for certain abilities. The estimates may, I hope, be regarded as accurate within 20 percent of their amounts. But they are useful even if they are much less accurate than this. They show that great ability to entertain us is paid about as well as great ability to manage a business, that great ability to save our lives by surgery is paid nearly as well as great ability to save our property by legal advice, that great abilities in literature, art, and music usually get great pecuniary rewards only if they serve a very large number of people; that public servants in the army, navy, and civil service either are lacking in great abilities or are notably underpaid, that great abilities to advance knowledge and to manage public affairs get very low wages, in spite of the fact that they are the abilities most productive of welfare for the world.

Specially able dancers receive much more than specially able acrobats partly because they attain a quality which is finer, or is thought to be so. The ablest surgeons make more money than the ablest physicians partly because their high percentages of success are surer, or at least better known.

Two high abilities may make equally strong appeals to equal numbers of persons, but the persons in the one case may have much greater purchasing power. The presidents of banks receive more than the presidents of universities partly because the latter simply have not the money to spend. If the trustees and patrons of the latter were all agreed that the work of the presidents of the universities was much more important than that of the presidents of the banks, they still might be estopped from raising the salaries in question because the patrons of the universities could give no more money even if assured of greater intellectual and moral profit, whereas the stockholders of the banks could afford what they wanted. They could pay for scholarship and idealism in their bank presidents if they wanted that! The pay of labor leaders or heads of scientific associations in comparison with

equally able officers of business concerns is probably a still better illustration.

A high ability of one sort may receive a much lower pecuniary return than a high ability of another sort because such is the custom and nobody takes sufficient pains to change it. The much lower pay of football stars in England than of baseball stars in the United States seems to be a clear case of this.* So also perhaps is the pay of major-generals or high naval officers in comparison with that of federal judges, and officers in the Federal Reserve Banks.

There seems to be a force causing us to pay more for a very high ability when we get a return in money than when we get equal return in the direct satisfaction of some want. We seem, that is, to have the custom of paying more money to him who produces a given amount of money or material for us than to him who produces the beauty, health, relief from pain, or edification which would be worth that sum of money. I cannot prove this, but there seems to me to be a balance left after all other forces have been taken account of in explaining the average difference between the trader-financier-manager-lawyer group and the teacher-doctor-clergyman-entertainer group. I should explain it partly by the superiority of a given amount of general purchasing power or marketable possessions over any particular sort of satisfying consumption that it could buy (due to the irreversibility of the exchange), but partly also by the force of mental association producing a sense that it is specially fit and proper to pay money for certain goods, especially for future money.

Theories which account for differences in wages by differences in the amount of pain, deprivation, or other disutility, or by differences in the amount of time spent in training (without pay) are especially inept in the case of specially high abilities. Within the same sort of work, the ablest and most paid, though not free from drudgery, usually suffer less from their work than their inferiors and often spend less time in training without pay than their inferiors for a considerable distance down the scale. Among

* They are paid probably less than a tenth as much. The gate receipts are probably lower because of the lower prices per person, but not enough lower to account for even half of the difference.

different lines of work this holds even more emphatically. The top business men, lawyers, surgeons, and literary and histrionic entertainers surely enjoy their work as much as the top scholars, scientists, philosophers, clergymen, and teachers, and spend on the average less time in unpaid training for it.

That specially high abilities receive important transpecuniary returns in enjoyable thought and action, achievement, prestige, the sense of personal worth, praise from fellow-experts, and the like is obvious. These all deserve study. But I will limit myself here to a few conjectures about the total wages of whatever sort which would be adequate to call forth good use of the abilities in economic systems with very little private control of natural resources, capital, or labor.

Human nature is in general highly adaptable and will learn to get a living, reproduce, and enjoy itself after a fashion under physical and social conditions which seem unbearable to us. Persons of specially high abilities are probably by nature rather more adaptable than the average. They might, especially if brought up to it, do fairly good work as conscripts in the employ of a communistic majority, or servants of an all-possessing dictator. In general, they would tend to use their abilities as well as they could under any system of life and government that was not so foolish, unjust or brutish as to arouse the rebellion of reason, good will, or good taste.

To do good work they probably would not need a much more expensive provision of food, lodging and other personal goods and services than average men, if they were accustomed to it.* They would need the control of certain tools and materials ranging in cost for use and consumption from a dollar a year for pencil and paper for a poet to fairly large amounts for some scientific and managerial geniuses, but most of these they would not need to own.

A communistic majority or an all-possessing dictator would probably ill-treat specially high abilities. The former would neither understand nor appreciate them; and the latter would

* Some allowance would probably have to be made to the artistic and intellectual workers for certain modest refinements, and for greater protection against family troubles and uncongenial associates.

misuse them even if he did. But they work at present in spite of much misunderstanding and attempted misuse by majorities and by large possessors.

They would doubtless profit by kinder treatment. If some future America should make heroes out of those who protect it against untoward forces in nature, and against its own injustice and folly, and saints out of those who satisfy human wants on earth, rewarding them by the lion's share of whatever pecuniary and transpecuniary goods it could offer, the ablest men and women would probably work somewhat more and better than now. The appreciation would both stimulate and comfort them, and the freedom to do as they pleased would on the whole improve their work, but it would be rash for an advocate of an aristocracy of merit to guarantee that such would quadruple or even treble the amount of superlative work in art, science, scholarship, the professions, business and government done in this country.

It is not very profitable to make such conjectures. Much the better course would be to investigate the conditions under which very high abilities have been born, nurtured, and put to good use. Any arrangements for government, education, business and industry which have demonstrably created, discovered or properly utilized specially high abilities are in so far forth promising for the common good.

The greatest mental abilities are as a rule the poorest paid so far as money is concerned. The contributions of the ablest men in science and scholarship, in art and music, and in the professions are more than twice the average of those in the same sort of work who are paid half as much, more than four times the average of those who are paid a quarter as much, more than ten times the average of those who are paid a tenth as much. Evidence to prove this need not be given, except in the case of administrative and executive ability in business, where the contrary view has some a priori arguments in its favor, and where evidence has until recently been lacking.

The Securities and Exchange Commission (S.E.C.) reports now furnish the evidence required in the form of the salaries of company officers. These may be put into relation with any

measures which are available of the magnitude, importance, or value of their services. The magnitude of the service of a company's chief executive increases with the amount of property for whose use he is responsible, with the volume of business which it does, and with the number of employees. Other factors count

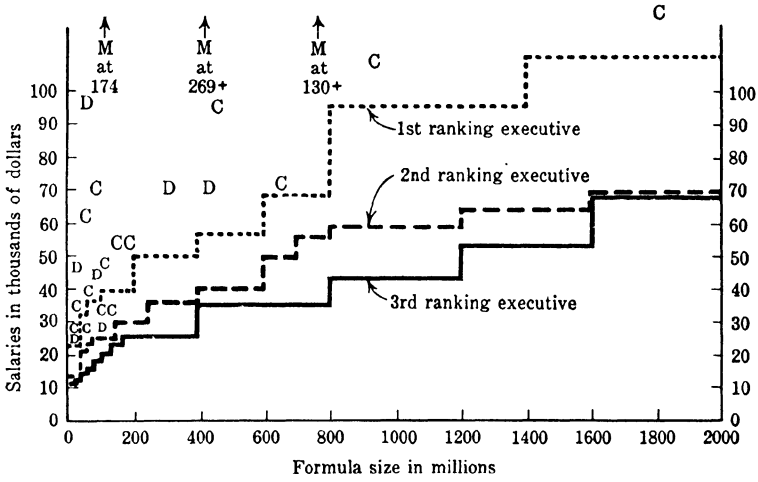


FIG. 8. Median salaries of 1st, 2nd, and 3rd ranking executives, in relation to formula size of company. All companies except railroads and public utilities. C's, D's, and M's are individual salaries of highest paid officers of chemical, drug, and motion picture companies. [Thorndike and Beckwith, '37 A, p. 118.]

also, such as the complexity of its work and the newness and unprecedented quality of its work, but these three are the main factors. Let us then consider the salary of the chief executives of a company in relation to the following measure of the magnitude of his services:—Total assets of the company in dollars + 2 times the gross revenue in dollars + 20,000 times the number of employees (average during the year).*

Using this formula Thorndike and Beckwith ['37] observed the relation in oil and mining companies, chain stores, department

* There may be better formulas for weighting property owned, business done, and personnel used. The use of such would make very little difference in what follows.

stores, companies manufacturing automobiles or airplanes, chemicals, food, drinks, or tobacco, light machinery, heavy machinery, and metals, transportation, and public utility companies. Except for the last two the relation was much the same in all. Combining all except the transportation and public utility companies, the relation is as shown in Fig. 8. The relation in the case of public-

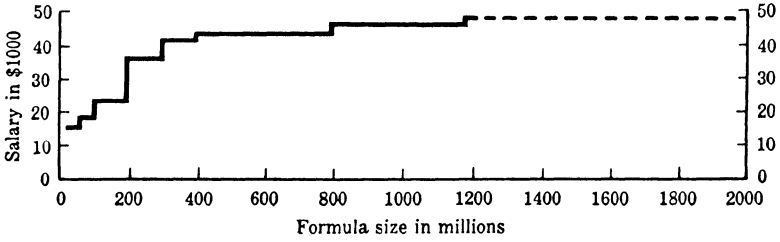


FIG. 9. Median salaries of most highly paid public utility executives in relation to formula size of company. [Thorndike and Beckwith, '37 A, p. 319.]

utility companies is as shown in Fig. 9. In the former the salary of a man who manages a company ten times as great (by the formula) does not receive ten times as much salary, but about twice as much. As company size doubles, the president's salary rises about one fourth. In the latter the rises are even slower. There is no reason to believe that the quality of the services of a chief executive is any worse in the larger than in the smaller companies. On the contrary, it is likely to be better. So a measure of value of the services which included quality as well as magnitude would show the men at the head of the largest companies even more poorly paid relatively than they are now.

To make the matter more realistic let us suppose that the services of Mr. Gifford, the president of the American Telephone and Telegraph Company, have in the last ten years added one one hundredth of one percent per year to the cheapness, accuracy, convenience, etc. of telephone use. They probably have done more than that. If every group of persons on the company's payroll for a sum of salaries equal to his salary ($210,000) had done as much, telephone service would have been improved beyond recognition. If by paying him or somebody else $420,000,

this addition could have been two hundredths of a percent per year instead of one, it would have been a marvelous bargain. The addition of three hundred switchboard operators to speed up service, or two hundred linemen to reduce breakdowns, which would cost as much or more, would be as one drop to a bucketful of value.

The popular objection to the high salaries of business executives thus seems extremely short-sighted and perverse. If any class of business men earns more than it receives, it is probably the class of high executives of great corporations, if they are the ablest men available.

Whether raising the pecuniary rewards of the greatest abilities in management would improve the quality or quantity of their work is a different question. It is conceivable that it would be better to extend the custom which already prevails in some concerns of setting the pecuniary reward of business management at some conventional amount and relying upon the power and dignity attached to the position and the interest in the work itself to attract and retain persons of great ability. As suggested earlier, the decision is probably best left to the persons of very great ability. They may occasionally use the money less wisely than would the stockholders or consumers who would otherwise get it, but not as a rule. Whatever will put great managerial ability at work should be offered—money, power, prestige or whatever else is required.

Chapter 6

WANTS

The life of a dog or cat or chicken obviously consists largely of and is determined by appetites, cravings, wants, desires and the like and their gratification or satisfaction. The animal confronts its world with a repertory of these proclivities and does, so to speak, its best to get what it desires and avoid what annoys it. So also does the life of a man, though the appetites, cravings and desires are more numerous, subtle and complicated, and the gratification or satisfaction is more delayed and indirect. Each man confronts his world with a host of active preferences, being only rarely and incidentally a mere indifferent recipient of external forces. His acts are directed, on the whole, in the interest of these desires and aversions; when he seems to be doing what he does not wish to do, it is usually because of some other want which is controlling him. Government, business, religion, science and art work in the service of these human wants, especially of those which we have come to regard as the better or nobler. All sane and humane persons regard it as desirable, other things being equal, to change nature so that it will satisfy more "good" wants of more human beings. So they plough land, sow crops, bridge streams, destroy disease-germs. They also regard it as desirable to modify the wants themselves, strengthening the "good" ones, such as the cravings for justice, truth, or beauty, and weakening, or exterminating the "bad" ones.

We all recognize the existence and importance of wants, their satisfaction, and their improvement. We must also all agree that true notions about their nature and causation are important; for the conduct of individual men and the policies of institutions, communities, and nations are directed (and probably often misdirected) by the current ideas about what men do want, what

they ought to want, how they may be taught to want what they ought to want, and what the best or the most practicable ways of satisfying certain wants are.

This section or aspect of the sciences dealing with man has shared in the general advancement of knowledge, so that a mediocre mind today can learn more truth and less error about human motives than Euripides and Aristotle had, or than the 19th century novelists and moralists had. But the share is relatively small; the great gains of modern science have been elsewhere. For example, physiology has advanced knowledge of how food is digested enormously more than knowledge of why certain foods are preferred. Psychology can give a far better account of the acquisition of ideas and their joint action than of the acquisition of likes and dislikes and the interplay of motives.

Though small relatively to knowledge of physical facts and to knowledge of certain mental and social facts, scientific knowledge of human motivation does exist. It is not widespread; current practices in education, government, business, philanthropy, and religion abound in mistakes due to ignorance of one or another feature of it; textbooks of psychology, sociology and ethics do not yet present it; it must be sought in observations of animal behavior, experiments with school children, case-histories of pathological cravings, studies of advertising and selling, descriptions of tribal mores, records and statistics of families, churches, courts, prisons, organizations for charity and relief, education and recreation, the production and consumption of goods. It is not organized. There is no one group of men, nor even any one man, that possesses it, has put it in order, and can bring it to bear at will upon any problem of theory or practice. A gifted and experienced student of government and law has some of it but lacks much. Experts in anthropology, psychology, medicine, social and religious work, criminology, economics, and business possess each a fraction of it, but imperfectly because unchecked by other parts of it.

The importance of increasing it needs no demonstration. It is certain that man should try to match his understanding of masses, atoms, and cells by understanding of himself; it is highly probable

that mastery of human nature will greatly increase the value of our mastery of the rest of nature. Many competent thinkers indeed attribute the tragic distress of the civilized world in the last twenty-five years largely to a lag of scientific direction of human behavior behind that of physical forces; they fear that unless we learn to understand and adjust men's wants, reckless individuals and groups will seek satisfaction in stupid and short-sighted procedures ruinous to the world as a whole and to their own futures.

THE NATURE OF WANTS

We are concerned with wants both in the sense of desires or wishes for things which may or may not be good for the person, and in the sense of needs or lacks of beneficial things which the person may or may not desire. We shall use the word *wants* for the former and the word *needs* for the latter. It would perhaps be better to use *wishes* or *desires* or *cravings* for the former, but each of these is in ordinary usage somewhat narrow, and thinkers about economics and business habitually prefer the word *wants* for this sense. It is somewhat pedantic to distinguish sharply between desires and lacks of desirables when the actual conditions in living men so often fall under both categories. But on the whole it seems best to emphasize the distinction, because it is often crucial in problems of welfare, and also saves the reader the trouble of deciding whether the word *want* in any given case means that the person would be satisfied by a certain state of affairs or that he would be benefited by it. *Want* then = *wish, desire, appetite, liking, craving* and the like. *Need* = the other common meaning of want and some of the meanings of *drive* as used by psychologists.

The most discussed type of human want is that condition of a person in which he is aware of and recognizes certain sensations, feelings, or other symptoms, is aware that a certain state of affairs will be satisfying, and manifests a certain attitude or behavior toward the attainment of that satisfier. So a thirsty child says "I want a drink of water" or a weary man says "I want to go to bed." In such cases the wanting clearly includes an actual felt condition (thirst, fatigue) and an imagined or thought-

of satisfier. Many wants, however, vary greatly from this full-fledged occurrence of symptom and idea of satisfier.

The symptom may be only vaguely felt, and recognized insecurely or not at all; it may not even be felt at all. So for example, a girl seeing a dress in a show-window may want it to the extent of thinking of its possession as satisfactory and of adopting a certain behavior or attitude, without any premonitory symptom corresponding to the thirst or fatigue. The idea of the satisfier may be hazy, incomplete, or even entirely absent. So certain restless longings due to sex may exist without any representation of the conditions appropriate to satisfy them.*

The essential characteristic of wants is the behavior they cause. This often includes restlessness, activity, and change from the *status quo,* until the want is gratified; and always includes a tendency to respond to certain events, the satisfiers, in ways different from those used toward non-satisfiers. The essential dynamic quality of wants is preference.

The satisfying (i.e. "wanted") state of affairs evokes acquiescence, or behavior pro, and is cherished. The annoying (i.e. unwanted or "diswanted") state of affairs evokes irritation, rebellion, and behavior con.

Some wants occur very rarely; the reader may never have wanted to know the square root of 1089. Some occur repeatedly. Of these many occur in accord with bodily rhythms. Some seem to be almost perpetual, as the craving for security by the timid, or the craving for success by the ambitious. Some wants are highly specialized, as the mother's desire to see her child after a separation. Some have very general satisfiers; for example, the wish for attention, praise, or success. Some are present in only a small fraction of the population; only a few insane or eccentric souls long to eat grass, lacerate their flesh, or go to bed with

* The idea of a satisfier is often of something which will not in fact satisfy the want, as when a man seeks excitement to relieve an irritation which can be relieved much better by vigorous exercise and sleep, or as when a woman craves a career who really wants a husband and home. But such are cases where a person thinks he wants something which he will not in fact prefer. We are here concerned with cases where he does not even think what he wants.

corpses. Some are so widespread that we assume their existence in every person until we have evidence to the contrary. We are, of course, most concerned practically with wants which persist or recur often, which have a wide range of satisfiers, and which are widespread. But the facts and principles concerning wants in general may often be studied effectively in the case of rare, specialized, and abnormal wants.

So far nothing has been said about negative wants or aversions. We may want *not* to be in terror, *not* to suffer this headache, etc., etc. Such desires to abolish, reduce or avoid certain annoying states of affairs are of great importance. For certain reasons, however, it is best to postpone any discussion of what happens in such cases. They will be treated adequately in due time.

THE SATISFACTION, GRATIFICATION, OR FULFILLMENT OF WANTS

A want is a preference. A person who wants such and such responds differently on the one hand to certain states of affairs which, we say, satisfy the want and on the other hand to states of affairs which do not. To satisfy a want sometimes means to satisfy the person by putting an end to some annoying thing or lack, as in the drink for thirst, rest for weariness, company for solitude, interesting events or experiences for ennui. In these cases it also often brings a positive state that is welcome in and of itself. The water not only abolishes the thirst but itself feels good; there may be a definite pleasure in relaxing the muscles; company drives away the wretched loneliness and adds positive comfort and zest. To satisfy a person may mean to produce such enjoyable conditions without any abolition or reduction of any annoying thing or lack. A salary increase or good news from a friend satisfies, though one had in no way been suffering from the lack of it, or even aware of the lack. Whether one says that these satisfy a want of the person, or only that they satisfy the person, is not of much consequence. If we say the former we may defend our usage by claiming that the person had a genuine want for an increase of salary in the sense that his behavior or attitude would have preferred it, if he had considered the matter at all. If we say the latter we may claim that it is more accurate to restrict wants to preferences known to exist by evidence over

and above the fact that certain states of affairs are preferred when they do really occur, and to admit that many things are pleasant or welcome which do not satisfy wants. We liked them when we got them but we did not want them in advance. The former broader view of wants is on the whole the better, since it enables us to treat together matters which are probably closely allied biologically, even though different in their conscious accompaniments.

The satisfier of a want sometimes abolishes or reduces the want, and even predisposes the person to a different one, as when rest satisfies the craving for it and permits the craving for exercise to wax. Sometimes it leaves the want almost or quite unimpaired, as in the case of the cravings for security, power, and affection. A want may even increase by being gratified.

Satisfiers may be defined as states of affairs which the person in question in the state of mind and body in question does nothing to avoid or reject, often doing such things as attain or maintain them. Prominent among them are (1) sensory pleasures, such as sweet, fruity and nutty tastes, (2) social amenities, such as smiles and approving voices, and (3) the normal healthy functionings of "natural" tendencies, such as overtaking what one chases, grasping what one reaches for, or subduing what one attacks. But pains may, under certain conditions, be satisfying, as when a painful electric shock is used as a signal that the person's answers are right in experiments in learning; and, in general, things ordinarily annoying may for special reasons become satisfiers. So a fanatic convinced that the hoots and sneers of mankind signify that he is favored by God and assured of eternal bliss, and that the natural appetites and affections are snares set to destroy his soul, may be satisfied by what is abhorrent to most men.

The qualification made above ("to the person in question in the state of mind and body in question") is obviously important. What is one man's mental meat is another man's poison. And the same man will be variously satisfied according as he is famished, sleepy, in love, in fear of his life, wrestling with another man, wrestling with a mathematical problem, etc., etc. He is, indeed, strictly speaking, not the same man.

The essential fact in wants and their satisfaction is the fact of

preference or favoritism. A want is a preference; a satisfier is what is, other things being equal, preferred. All valid notions about man's desires, motives, purposes, interests, likes, choices, decisions, seeking, and the like are descriptions or analyses of his preferential behavior, his tendencies to favor and select.

THE MODUS OPERANDI OF SELECTION; THE DYNAMICS OF PREFERENCE

The brain physiology of preference is largely unknown. For example, what happens in a man's brain when he feels thirsty, or after he has drunk as much water as he wishes, or when he is proposing marriage, or after he has been accepted, is so little known that if four perfect pictures of the four conditions of his brain were available, it would be hard to tell which was which.

Although the detailed physiology of wants and satisfactions is yet to be discovered, certain important facts or principles about their dynamics as seen from the outside are known, which give a considerable amount of understanding, first, of how a man can satisfy his wants increasingly, and second, of how to change wants for the better.

The first is the fact or principle of reinforcement,—that one mental tendency may be strengthened by others, that one brain process may be increased in its amount or intensity or vigor by another. So, for example, the extent of the knee-jerk, or the force with which one squeezes a dynamometer, may be increased by sensory stimulations of various sorts.

The second is the fact or principle of the special reinforcing or confirming action of a satisfier,—that a satisfier happening to a man reinforces or strengthens any modifiable mental connection with which it is associated.

This strengthening of a connection is shown in the following ways: If the situation continues, a satisfier will make the person more likely to repeat the response then and there than he would have been had the satisfier not occurred. So a child hitting or biting a novel object will be more likely to hit or bite it again if this response produces an enjoyable sound or taste or parental praise than if it produces no satisfaction. If this second connection of the response with the situation is also followed by a

satisfier, and nothing diverts the child, he may repeat the response again and again as long as the situation remains or until the consequence ceases to be satisfying. So a child confronted by his first dish of berries will eat until they are gone or he is satiated. Not so if the saucer had contained little balls of wool or morsels of spinach! If the situation vanishes immediately after the response to it so that the response cannot then and there be repeated, the person will be more likely to repeat it when it does later occur than he would have been had the satisfier not occurred.

This fact of continuance or repetition of behavior that is rewarded by satisfying outcomes is so utterly familiar that students of economics, business, sociology and government have until recently accepted it as inevitable and needing no explanation. Psychologists and physiologists, on the contrary, have tried to account for mental dynamics and the changes in a man's behavior toward his environment as resultants of frequency, recency, the attainment of equilibrium or other factors uninfluenced by wants and satisfactions.

The fact is not inevitable. There could be a world in which men changed their behavior in favor of the frequent and not in favor of the satisfying. But it is a fact. Experiments in which everything is kept identical save the attachment of a satisfier to the situation → response connection at once reveal the satisfier as a powerful force, and the connection as changing notably in strength because of it. Its strength at the start may, for example, be only .10, the person being as likely to do any one of nine other things in response to the situation as to make the response (call it R_1) which produces the satisfier. In the course of a minute he may initially be likely to respond to the situation (call it S_1) only four times by R_1 and four times each by R_2, R_3, R_4, etc. But let the satisfier be attached to it once and this strength rises (say to .30), so that it is several times as likely to occur as R_2 or R_3, etc., and is likely to occur once in five seconds instead of once in fifteen. Its next occurrence being rewarded, its strength is further increased, say to .50, so that R_1 is nine times as likely to occur in response to S_1 as any one of R_2, R_3, etc., and almost sure to occur within three seconds. A few more rewarded occurrences, and the

strength of the connection leading from S_1 to R_1 is at or near 1.00. In abstract terms $S_1 \rightarrow R_1 \rightarrow$ satisfier will differ from $S_1 \rightarrow R_1 \rightarrow$ no satisfier by a greater probability that S_1 will evoke R_1 in the immediate future if S_1 remains, or in the remote future if it vanishes and recurs.*

A third item in the dynamics of preference is the fact of "spread" or "scatter" of the confirming action of a satisfier. A satisfier occurring at a certain point in a series of connections, $S_1 \rightarrow R_1$, $S_2 \rightarrow R_2$, $S_3 \rightarrow R_3$, $S_4 \rightarrow R_4$, etc., strengthens not only the connection which it immediately follows but also to some extent the neighboring connections in the series. Suppose, for example, that a hundred men each experienced a sequence of a dozen connections, of which the sixth was rewarded by a satisfier (say, the announcement of "Right" by the experimenter, plus a money bonus), the other eleven being left with no reward or punished by the announcement of "Wrong" and a money penalty. Suppose that the series of situations, S_1, S_2, S_3, S_4, etc. recurs. Then not only will the strength of $S_6 \rightarrow R_6$ be very much increased over what it was at the first occurrence of S_6, but the strength of $S_7 \rightarrow R_7$, and $S_5 \rightarrow R_5$ will also be somewhat increased, and even the strength of $S_4 \rightarrow R_4$ and $S_8 \rightarrow R_8$. Whether the strengthening force of the satisfier *spreads* out beyond the connection to which it is chiefly attached, or *scatters* in the sense that sometimes it misses entirely the connection to which it is chiefly attached and exerts its influence on some other instead, is not known. It may do both.

The confirming reaction does not result mechanically from every satisfier and does not exert its force indifferently upon whatever connections are occurring. A man may experience a condition of intense satisfaction without discharging any confirming reaction. For example, if the experimenter occasionally after a wrong response says "Wrong" but gives ten times the maximum reward, saying "This is for general excellence," the learner may, though much pleased, not strengthen that wrong

* In certain animals very weak or lacking in memory there may be little or no evidence of strengthening of the second sort. Some imbeciles, for example, might learn to gobble the berries instead of stare at them or finger them, but have to relearn this on each occasion thereafter.

connection. He is operating in a system where the confirming reaction tends to follow satisfactions of certain special sorts, and tends to attach itself to connections to which it "belongs."

There is, however, a fundamental tendency for a satisfying status to produce a confirming reaction regardless of any reasonableness or relevance. So a cat will learn to claw at the back of a cage in order to get out at the front of it, or to scratch itself to get food, or to lick itself to get freedom.

The fact of reinforcement gives the general basis for satisfiers to influence human behavior. The confirming reaction, that is, the strengthening by a satisfier of whatever connection it is attached to, describes the influence. The spread or scatter phenomenon proves that this influence is not logical, rational, or in need of any other than strictly biological principles to explain it. The satisfier does not necessarily strengthen the connection which produces the satisfier, or which is good for the person, or which the person chooses to have strengthened. It does so much more often than chance would allow, but only by virtue of the fact that it strengthens most the connection to which it belongs most closely as a biological event, which is usually the connection immediately preceding it in the strand of experience of which the satisfier is a part. It may strengthen somewhat any connection in the neighborhood, good, bad, or indifferent, desired or not desired, coming before it or after it, left unrewarded or even punished.

A man then adopts progressively and rather rapidly, though by no means infallibly, the habits and tendencies which gratify his wants or preferences pro, because these are very often strengthened by the confirming reaction. By the confirming action of satisfiers a man tends on the whole to get what satisfies him so far as his environment, physical and social, permits, but the procedure is indirect and fallible at its very roots. He cannot make himself do what will gratify his wants by decision and edict, but only by strengthening connections which lead to such action. In using the confirming action of satisfiers to strengthen them he can only arrange things, so far as may be, in such fashion that the natural biological attachments of the satisfiers are to them rather than to anything else, or more often than to anything else.

A main factor in the understanding of human behavior is sound knowledge of the confirming reaction, and a main factor in successful human engineering is ingenuity in arranging matters so that the confirming reaction works on one's side.

AVERSIONS AND ANNOYERS

Men obviously prefer not to be in, have, or experience certain states of affairs as truly as they prefer to be in, have, or experience certain others. They want not to be in pain, terror, confinement, or solitude, not to be scorned, ridiculed, or ashamed. Whereas a positive want or desire is gratified by the attainment of some satisfier, these negative wants or aversions are gratified by getting rid of some annoyer.

Sometimes one and the same fact of preference may with minor changes be treated as either a positive or a negative. So the same fact may be treated as a desire to get rid of thirst or a desire to have a drink, according to minor shifts. So the desire to avoid solitude and the desire to have company may mean almost the same thing. But there are many clear cases where the want to be rid of a certain status does not imply wanting any specified status in place of it, much less seeking any particular satisfier which, when obtained, automatically abolishes the disliked status. So with most pains and fears, for example. Among ten thousand who want the pain to cease there are only two or three in whom this want turns into a craving for some particular opiate. Among a thousand who scream, or moan, or tremble, and crave relief from terror, a score or so may want their God to send them courage or want an abundance of alcohol to create it, but the great majority just want the terror or the terrifying object to cease to be. In these pure cases of aversion the preference is between some annoyer and the absence thereof, regardless of what, if anything, takes its place.

An annoyer may be defined as a state of affairs which the person in question in the condition in question does little or nothing to maintain, often doing such things as abolish or avoid it. Notable among annoyers are sensory pains, thwartings and frustrations of certain inborn or habitual tendencies, lacks of stimuli needed

to permit such tendencies to act, fear, shock, disgust, shame, melancholy, and irritation.

An aversion is a preference against. An annoyer is a thing *dispreferred;* the aversion is "satisfied" by the abolition or reduction of the annoyer.

THE ACTION OF ANNOYERS

We have seen that a satisfier tends to strengthen tendencies producing it, and that it does this rather uniformly and ubiquitously, though not necessarily or infallibly, by arousing a reinforcing or confirming reaction which strengthens the connection to which the satisfier is attached. It is natural to think that an annoyer tends to weaken tendencies producing it, with similar uniformity and generality, by arousing directly an inhibitory or depressing reaction which weakens whatever it is attached to. This is not the case. Annoyers do tend in certain ways to weaken the tendencies producing them under some conditions, but not in the same manner or to the same extent that satisfiers strengthen them. In particular there is no inhibitory or depressing influence aroused directly by annoyers, comparable and opposite to the confirming influence of satisfiers. Attaching satisfiers to mental connections will strengthen them regardless of what else is done; but attaching annoyers to connections will not weaken them save indirectly by causing the person to do something else, that is, to establish some other connection which works against the first (as by drawing back, running away, spitting out, deciding not to do that again or to try something different, thinking "To do that produces pain or failure," or the like). The presence of a satisfier in and of itself has potency by arousing the confirming reaction, whatever else it may do by instigating a closer embrace, a nearer approach, a decision that the thing just done was beneficial, an idea that "To do this gets me what I wanted," etc. The presence of an annoyer has nothing comparable to this direct potency. Nature might have endowed man, if not with a mechanism whereby an annoyer could weaken any connection to which it was attached, at least with a mechanism whereby an annoyer could stimulate the man to do *anything except* the connection followed by the annoyer. But he is not so endowed.

To learn what may be expected from annoyers we must, in fact, observe what each of them impels the person to do. Some annoyers make him spit out what is in his mouth, some make him withdraw part of his body, some make him shrink, some make him turn and run, some make him scratch, some make him scream, some make him look sad or weep, some make him scratch *himself,* some make him struggle, some make him strike, bite and kick, some make him seek about restlessly. After a certain amount of experience some make him seek definitely for what has been found to afford relief from the annoyer in question.

Indirectly some of these behaviors may weaken the connection preceding the annoyer. If a person responds to a certain situation by reaching forth to touch it and then responds by pulling his hand back, the second connection (especially if it is rewarded) decreases the probability of occurrence of the first. So also if a person responds to an object first by running toward it and then by running away from it. But there is no general surety that an annoyer will do so. $S_1 \rightarrow R_1$ followed by the announcement "Wrong" and a painful electric shock may leave the connection as strong as it was before.

If the person understands that the preceding connection caused the annoyer, the occurrence of the annoyer has an informative action. It classes that connection as "bad," "wrong," "to be avoided" or the like. A satisfier has a similar informative action, but has its confirming action in addition.

A man will not then tend to get rid of what annoys him in the same way and to the same extent that he tends to keep what satisfies him. The process of selection for survival among mental connections whereby those which produce satisfying after-effects tend to be strengthened automatically by the confirming reaction has no parallel elimination of those which produce annoying after-effects. Indeed one of the commonest and most serviceable ways of getting rid of an annoyer is by discovering behavior which does get rid of it and making the riddance satisfying (if it is not so already), so that the confirming force of the satisfier strengthens the connections which abolish, reduce, or avoid the annoyers.

These facts account for much of the superiority of positive over negative, education, legislation, etc.

AN INVENTORY OF HUMAN WANTS

Suppose that the thoughts and feelings and acts of a random sample of a million representing all human beings during the past year had been recorded and that competent students had estimated from each person's record what that person had wanted during the year and how frequent and intense each want had been. Suppose that as a result we had a fairly complete and accurate inventory of the human world's desires and aversions. Such an inventory would present an enormous variety. Probably the lists for no two individuals out of the million would be absolutely identical. If we tried to present the facts as a memorandum to some dictator who wished to know what the world wanted, or in our prayers to deity, they would be hard to organize and summarize neatly.

It would seem reasonable first to list the wants which were unanimous, but we should be compelled to amend this to "nearly unanimous," for some eccentrics would be found who did not want food, freedom from bodily pain, or whatever was listed among the very popular wants. Among those who did manifest the want, there would be variations in its intensity from near indifference to a passion of gluttony, sensitiveness, or the like, so extreme as to be called insane.

The particular forms in which a common craving, as for food, power, security, or the approval of other human beings, manifested or clothed itself would present a bewildering variety. In spite of custom and standardization the flavors enjoyed by some but not by all would number thousands; the forms of power are multifarious; mothers, nurses, employers, labor-unions, physicians, patent-medicines, science, religions, are wanted to protect and enhance the feeling of safety; tens of thousands of ornaments, styles, accomplishments, and honors are sought variously as means of attaining admiration and avoiding scorn.

The procedure of assigning specific wants for this or that particular possession, experience, or condition to general wants for power, approval, affection, entertainment and the like is somewhat speculative. A person's desire to have an automobile, for example, may be rooted in any one of a large number of combina-

tions of wants (for rapid motion through space, the sense of power over things, mechanisms to tinker with, sight-seeing and adventure, the admiring glances of neighbors and the multitude, social contacts, ease and other things) mixed in different proportions. It is relatively easy to find out what people buy, but hard and unsafe to determine what they buy it for. How the want for alcoholic liquors or for a college education should be allotted, in the case of each of those who want it, nobody could surely say.

A summary which took no risks of giving false weights to the items in our supposed inventory, or of making false inferences from them, would have to stop far short of a neat compact list of wants with clean-cut estimates of the magnitude of each. It would have a long list, and its estimates for each would be made with wide margins of error. This would be true even with a complete and accurate inventory of the things, experiences, and conditions wanted by the million persons. Since such an inventory and or even the data for it are lacking, the ideas of what the world wants, or of what the inhabitants of the United States want, or of what New York City children aged 10 to 12 want, are vague and chaotic in even well-informed and unprejudiced minds.

In this haze and confusion it is easy for narrow enthusiasts to take extreme positions and accept doubtful, or even demonstrably false, conclusions. Even very able thinkers may be thus misled. A leading psychiatrist may assert that what mankind universally wants is love and security; a leader in literature may, on the contrary, put the prime movers of life as rivalry and adventure; an optimistic reformer may act on the faith that men will cleave to truth and justice once they have experienced them; a pessimist may be equally confident that comfortable superstitions are preferred over truth, and that greed is stronger than justice; one sociologist may think that food, sex, and cheap excitement have been the great satisfiers from the time of our chimpanzee-like ancestors on through the days of *panem et circenses* to the tabloids and movies; another may stress the importance of simple out-door pleasures and family life from the time of our gorilla-like ancestors (the gorilla being now viewed as a model husband and father) to that of Swiss Family Robinson and Little Women; a

psychologist may declare that men like what they are used to, whatever it may be; an educator, that men want to express their natures, to be themselves, more than to have possessions, friends, and sensory pleasures.

Samuel Johnson regarded the craving for distinction as of prime importance. It doubtless was to him. Jeremy Bentham, in spite of a relatively objective and impartial mind, allotted nearly a third of pleasures and pains to the intellectual or contemplative part of life. His list of the simple pleasures and pains out of which all are compounded was as follows:

"II. The several simple pleasures of which human nature is susceptible, seem to be as follows: 1. The pleasures of sense. 2. The pleasures of wealth. 3. The pleasures of skill. 4. The pleasures of amity. 5. The pleasures of a good name. 6. The pleasures of power. 7. The pleasures of piety. 8. The pleasures of benevolence. 9. The pleasures of malevolence. 10. The pleasures of memory. 11. The pleasures of imagination. 12. The pleasures of expectation. 13. The pleasures dependent on association. 14. The pleasures of relief.

"III. The several simple pains seem to be as follows: 1. The pains of privation. 2. The pains of the senses. 3. The pains of awkwardness. 4. The pains of enmity. 5. The pains of an ill name. 6. The pains of piety. 7. The pains of benevolence. 8. The pains of malevolence. 9. The pains of the memory. 10. The pains of the imagination. 11. The pains of expectation. 12. The pains dependent on association." [Principles of Morals and Legislation, p. 33 f. of the 1907 reprint of the 1823 Edition.]

All such neat lists of general names as this by Bentham require interpretation in terms of the actual situations, responses, satisfiers and annoyers which they include, if they are to be useful for science. It does little good to know that there are pleasures and pains of sense, memory, imagination, expectation, etc.

It is reasonable to assume that any species of animals enjoys the activities which its inherited nature leads it to engage in—that birds like to fly, pick grains and berries, catch insects, and build nests,—that moles like to burrow, that fishes like to swim and dart at their prey. Man is presumably no exception; the activities which his inherited nature leads man to engage in are probably

satisfying to him. The pursuits by which man got his living and perpetuated his kind in a state of nature a hundred thousand years ago probably then gave him an enjoyable life. Annoyance probably came, not from having to work for a living as hunter, fruit-picker, clam-digger, or whatever he by nature then was, but from sensory pains, deprivations, frustrations, and such annoying states as fear, nostalgia, or shame.

All this does not, however, help much to decide about man's present wants, since we do not know what his inherited nature then was, or how it has since changed. He does indeed seem to have a stronger innate passion for chasing, catching, subduing and dismembering animals than for collecting shellfish, berries, grains, or roots. Modern man thus pursues wild animals at great cost of money and time. But he does so even more keenly perhaps in very indirect ways and with artificial weapons than in the direct chase, jump and throttle which would have been the natural way ten thousand generations ago, if man was then a hunter. His activities as hunter in paleolithic times may conceivably have been as much determined by learning as his present activities in a rayon mill or a submarine. Some Edison of long ago may have invented the hunting of deer.

One thing is sure about such an adequate and accurate inventory, namely, that the desires and aversions pertaining strictly to keeping alive and propagating would form a very small fraction of it. The human food and drink wants of 1940 whose fulfilments are necessary to keep the body from weakening, wasting away, drying out, or becoming subject to diseases are almost hidden in the wealthy classes of prosperous nations by wants for certain accessories in the form of daintinesses and conveniences, and are almost everywhere increased by certain cravings for flavors, intoxicants, narcotics, etc. Clothes and buildings minister not only to the cravings for protection from the weather and from animals large and small, and for sex-appeal, but also to the wants for various sensory comforts, social approvals, distinction, mastery, protection against magical and religious forces that may injure, and aid from such forces that are beneficent, and many other things. Of the wants which are more or less related to sex gratification, family life, and the nurture of the young, a modicum

would suffice to perpetuate the human species; most of them relate to gregariousness, sociability, friendship, affection, romantic love, display, sex activity far in excess of that useful in producing offspring, home comforts, the enjoyment of the happiness of others, social approval, etc.

If a planning-committee of deities, real or self-constituted, took the task of perpetuating the human species, they would not need to perpetuate even so small a fraction of its wants as some humble peasantry or uncivilized tribe displays, much less the wants to which a city's shops cater.

In the heyday of misuse of the words "evolution" and "the survival of the fit," speculative thinkers were tempted to argue that whatever wants man feels are useful for his survival, or at least were so until recently and would be so in more primitive conditions. They were also tempted to assume the widespread and intense existence of wants which a species devoted to surviving might be expected by a logician to have, such as those subsumed under the instinct of self-preservation and the parental instinct.

The consideration of an approximate total inventory of human wants could never have been very encouraging to this doctrine that whatever man wants is, or at least once was, right for his survival. And in the present time when nearly every inhabitant of civilized lands wants to own a radio and an automobile, go to the movies weekly, and contemplate sports and fighting rather than engage in them, and travels in almost every way save by his own legs, when both individual crimes and national wars occur not by passion or impulse, but as elaborate products of the machinations of cold-blooded racketeers and political cliques, when the want not to have children is becoming respectable, the misfit of the doctrine to the facts is beyond question. Indeed, a rather strong case could be made out for the opposite doctrine that the human species wanted on the whole to destroy itself and so was accustoming itself to a wasteful love of amusement devoid of rest and recreation, a dependence upon an elaborate, artificial and unmanageable horde of machines, an intrusting of its life to governmental systems which can have ten million men kill or maim one another within a few months, and other wants and activities well designed to favor the suicide of *homo sapiens*.

Human wants are as natural, as explainable, and as properly subject to matter-of-fact consideration as human bones or blood-vessels; but this is not to say that the human species would be less and less sure of survival if one after another of men's present wants were annihilated, beginning, say, with the want of A for Love Nest perfumery, of B for national glory, of C for a hundred concubines, and of D for an airplane with gold fittings and a loud speaker to signal his approach over a distance of ten miles.

A second thing is sure about such an adequate and accurate inventory; namely, that many of the desires and aversions are man-made, learned in a human environment, artificial in the sense of not being implanted in man by some deity or some all pervading force of nature. Man is a domesticated animal, has been domesticating himself for hundreds (probably thousands) of generations, has selected some of his kin to live and some to die, some to produce offspring and some to remain childless, has built up customs and institutions, has accumulated paraphernalia of clothes, tools, and patterns of conduct. The young man who wants to be a doctor, play well at golf or tennis, ride horseback, take an aspirin tablet, or know what time it is, or the girl who wants to be married, first having a diamond engagement ring, to play the piano, have wavy hair, or know how long it will be before spring will come again—in each case wants as he or she does, partly or wholly because of a man-made environment.

It is equally sure, though often disputed, that much in the inventory is not man-made, and not learned in a human environment or in any other, but is due to man's original, unlearned tendencies—is due to the constitution of the genes in the twenty-four pairs of chromosomes which form the start of a human life. Neither the old speculative doctrine that a man's mind is a *tabula rasa* to be written on by experience alone and uninfluenced by his inherited nature, nor the recent speculations which attribute omnipotence to the habits and tendencies established by associative mechanisms such as the conditioned reflex, will stand the test of facts. Dogs and chimpanzees will not become men in their wants by being treated as men. The chimpanzees might very possibly come to want radios and to go to the movies every week,

or even to go to church (if the ceremonial was varied and colorful), but none of them would want to have a large bank account, study algebra, or die for truth and justice.

Human wants are determined in part by the germinal constitution of man, just as the shapes of human hands and heads are. The truth of this will be abundantly demonstrated in Chapters 11 and 12.

Acceptance of this third fact that man inherits tendencies toward certain desires and aversions as he inherits tendencies to have such and such teeth, shape of skull, length of arm, etc., leads to a fourth, that he probably shares certain wants with the mammals in general, and certain further wants with the primates, especially the anthropoid apes. This is probable; and a scientific analyst of the future may be able not only to separate out the contribution of unlearned, original tendencies from that of learning in a human environment, but also to separate out, in the former, layers or strands or components, some dating back millions of years and common to other primates than man, some dating back tens of millions of years and common to most or all mammals. But at present so little is known about what chimpanzees, gorillas, lions, deer, rabbits, shrews, whales and the like are satisfied and annoyed by, that such an analysis of the human inheritance is not of great service in interpreting and organizing the variety of human wants.

The split into original inherited, unlearned components due to the genes and derived, acquired, learned components due to the events of life is helpful for several reasons.

First of all, it helps to provide answers to the most important practical questions which can be asked about any human want; namely: "Must we accept it as we accept gravitation, night and day, the action of oxygen on metals, or the color of our eyes, and make the best of it, unless and until we can breed it out of the genes? or can we avoid it by eliminating certain features of the environment, especially of customs and education, which are responsible for it? Do we get it for nothing as a gift of nature, or must we make sure that the environment is such as to produce and foster it in each generation?"

Other things being equal, the probability of easy control of a human want by customs, laws, schools, etc., is proportional to the probability that the want is man-made—a product of the habits, customs, models, ideals and the like which constitute the "culture" or human environment in the case. What man has given, man can take away or give in richer measure. Thus the craving called "curiosity" in our supposed inventory would surely include desires (1) to take a cruise around the world, (2) to read the morning's tabloid, (3) to observe the workings of airplanes and gliders, (4) to see the biggest steamship in the world, (5) to discover causes and cures for cancer and infantile paralysis, (6) to ride on an elephant, (7) to know the meanings of a thousand Chinese words, (8) to know the temperatures of a thousand stars, and (9) to know how far a cat can spit. If these various forms or parts of "curiosity" could be resolved into an unlearned component (or components), which the genes of man have to a degree that the genes of moles, whales, sloths, and guinea pigs do not, and learned components, which education can create or prevent, we could probably improve social control.

Furthermore, many of the desires and aversions which reputable students of human nature have attributed to original tendencies existing in man apart from learning are at least very fundamental, primary and influential. If more searching observation finds one of these to be a product of some environmental condition, that environmental condition is likely to be itself fundamental and widespread. In contrast to the almost infinite variety and derived or secondary character of much of the total inventory, the candidates for inclusion as tendencies due to the genes are grouped in relatively few tendencies which are, if not original, at least fundamental roots in human nature, whence multitudes of special desires and aversions grow. This will be obvious from the following list of such candidates, which seem to the writer to be surely or probably rooted in the genes. This list does not include some which have been imputed to man by various eminent thinkers; on the other hand, it includes some which other eminent thinkers would attribute to the training received by man rather than to the genes which create him.

Desires

1. bright colors and glitter; sunshine; soft, tinkling, and rhythmical sounds; sweet, fruity, and nutty tastes; touching what is soft and smooth and dry.
2. free bodily movement; rapid motion through space.
3. healthy normal action of the digestive, circulatory, excretory, nervous and other physiological systems.
4. having something behind one's back when resting; "being in a sheltered nook, open on only one side," as James says.
5. the presence of friendly, or at least not inimical, human beings.
6. "concerted action as one of an organized crowd."
7. to move when refreshed, especially as in running, jumping, climbing, pulling and wrestling.
8. to rest when tired.
9. vocalization; visual exploration; manipulation.
10. mental control; to do something and have something happen as the consequence is, other things being equal, satisfying, whatever be done and whatever be the consequent happening.
11. witnessing the happy behavior of other human beings, especially of children.
12. successful courtship and love between the sexes.
13. voluptuous sensation, however obtained.
14. to manifest affection.
15. to receive affection.
16. intimate approval, as by smiles, pats, admission to companionship and the like from one to whom he has the inner response of submissiveness; humble approval, as by admiring glances, from anybody.
17. domination, being submitted to by others.
18. to surpass others in the work or play to which original nature leads us and them.
19. submission to a person toward whom it is the "natural" response.
20. In general, when any instinctive behavior series is started and operates successfully, its activities are satisfying and the situa-

tions which they produce are satisfying, other things being equal.

Aversions

1. the sight of black; sudden loud sounds; bitter tastes; the odors of putrid flesh; excrement and vomit; sensory pains; over-tension of muscles; impeded or insufficient action of the bodily organs.
2. slimy, wriggling and creeping things on one's flesh.
3. large animals or objects like animals approaching one rapidly; angry scowling faces; solitude; darkness; being suddenly clutched.
4. pain.
5. severe shock of any sort.
6. being interfered with in any bodily movements which the individual is impelled by his own constitution to make.
7. the intrusion of strangers into the neighborhood of one's habitation and the abstraction of any object therefrom.
8. the seizure by others of an object which one is using.
9. being shut up completely within a small, and especially a strange, enclosure.
10. being subdued by a person to whom (or a thing to which) one does not naturally have a submissive attitude.
11. inattention or neglect by human beings whose attention one solicits.
12. the withdrawal of approving intercourse by masters.
13. looks of scorn and derision from anyone.
14. seeing others approved.
15. being outdone by others.
16. In general, when any instinctive behavior-series is started, any failure of it to operate successfully is annoying.

The effort to divide the contents of an inventory of human wants between germinal components and learned components also leads to a useful consideration of the range of occurrence of wants, since one indication of a probable inherited basis for a want is its appearance in nearly all members of the human species. Even if the widespread occurrence of the want is due to a wide-

spread occurrence of some environmental cause, it is useful to have emphasis upon such wants. The items of the list above are then surely worthy of attention, whatever may be found to be the facts concerning their causation.

A fourth reason why the unlearned-learned differentiation is useful is that it emphasizes the essential qualities or factors which satisfy or annoy rather than the concrete things or situations which do so. If people list their likes and dislikes, they are likely to report, "I like (or dislike) to read, to dance, to play golf, to work in a garden, to go to church; I like music, art, children, cats, automobile trips, bicycling, horseback riding, swimming; I like to be at parties, alone, in my own home, in new environments, with my mother," and the like. Similarly if one observes the desires and aversions of his fellow men he tends (and quite properly) to observe what concrete states of affairs evoke likes and dislikes. This is good as far as it goes; indeed, it is better than purely speculative assumptions about qualities in situations which are satisfying and annoying. But there probably are factors to be found by adequate investigation which in various combinations explain human likes and dislikes. If the sensation of rapid motion through space, for example, is found to be intrinsically satisfying, we can better understand the pleasures of running, riding, bicycling, and the like. The feeling of "security," i.e., the complete absence of fear, antagonism, caution, and "tension," may play a large part in liking to be alone, liking to be with friends, and liking to be in one's own familiar habitat and lair.

The effort to discover germinal tendencies is an effort to discover factors which are independent of books, churches, musical instruments, paints and brushes, and all other apparatus of civilization, because the genes cannot be expected to be adapted to any such. They do not, so to speak, know a church from a theater, or a book from a roast of beef.

A fifth reason is that attention to the unlearned gifts of heredity disposes us to arrange desires and aversions in genetic series, as developments from primitive forms, by way of emphasis, elimination, elaborations, refinements, and shifts of various sorts. So, for example, if we find reason to believe that man tends by original nature to enjoy human approval in the form of "natural"

smiles, admiring or awe-struck looks and cries, we are encouraged to trace the associative links whereby any given "artificial" manifestation or symbol of approval in words, wages, honors, etc. is very effective for one person, much less so for another, and of nearly zero value for a third.

It should be one ideal for science and practice to transform the descriptive inventory into a genetic or developmental chart, on which each person's wants would trace back to earlier desires and aversions from which they grew under the influence of the events of his life, and eventually to those to which his genes disposed him, and to the environmental events which changed indifference into preference.

The hope may be cherished that an inventory of human wants as indicated by what people do will fall into some sort of order and show general facts and principles in spite of its enormous variety and resistance to explanation by any one simple doctrine. We may expect to find some wants as truly parts of the human inheritance as the shape of the skull, the number of neurones in the brain, or the nature of the muscles in the hand, pervading many areas of life and developing into multifarious special forms under various stimuli. We may expect to find other widespread and important wants corresponding to, and in part created by, important institutions such as the family, the church, language, numbers, various forms of music and graphic art. We may expect that the eccentricities of individuals will not be chaotic but will cluster about norms or modes from which small divergences are frequent but large divergences relatively few. We may, in general, hope that human wants will submit to scientific treatment as surely, though not as easily, as human bones or blood or neurones.

Obviously no complete and accurate inventory of human wants has ever been made. Nor can one be made without a superlative ingenuity which perhaps nobody possesses, and an amount of labor which is prohibitive. But a rough census could be made which would be very useful to anybody who wishes to help the world either to satisfy the wants it now has, or to improve them. A sketch could be drawn which would show important features in human wants which many thinkers might

otherwise neglect. A provisional inventory could be tabulated which experts in anthropology, psychology, economics, government, law, business, religion, education and penology might find useful, and which they could correct and extend in those areas where they have special knowledge. As a beginning let us take the wants of the population of the United States. What the population of a given place and time wants is fairly well shown by what it spends its time and money for, and I have been to some pains to collect facts for the population of the United States near 1930. The facts are of intrinsic interest also.

HOW WE SPEND OUR TIME AND WHAT WE SPEND IT FOR*

There are a number of reports concerning the time schedules of students, but their case is too special to use except as a supplement. The best data concerning adults are those given under fifty-nine rubrics by Nelson * ['34] for a large group (nearly 500) connected with a Y. W. C. A. The study made in 1931 was repeated in 1932. From Nelson's records I compute that 48 hours a week are used to get a living (including time of transportation to and from work), 56 hours for sleep and 3½ hours for responsibilities to the home where one lives. Twenty-four hours are spent in eating, personal care and shopping. The remaining 36½ hours include: church activities, 1½; outdoor games and sports, 3¼; automobile rides and trips, 4½; reading, including the newspaper, 7; studies and lectures, 1–; movies, theater, pageants, 3¾; sedentary games, 1¾; music, 1¾ (seven eighths of which is passive listening); radio other than music, 1–; sewing, painting, arts and crafts, 1–; parties, dances, picnics, club activities, dates with men and entertaining in the home, 9.**

We may summarize the expenditures of waking hours as 48 to productive labor, 6 or less to other duties, 33½ or more to pleasure, 24 to eating, personal care and shopping, and ½ unspecified. If the 24 hours are credited half to keeping the person alive, well and presentable for her work and half to the pleasures of the palate, of sociability and of gaining the approval of others

* This and the following section are quoted in the main from two articles in the *Scientific Monthly* [Thorndike 37B and 37C].

** A more detailed statement of Nelson's facts is given in Appendix IV.

and of oneself by one's appearance, the total for work and duties is 66, not quite three fifths of waking time; and that for pleasure is 45½+, somewhat over two fifths. Of course, some of the productive labor and going to and from it may be pleasurable also.

Moralists generally, and the liberal reformers of the nineteenth century in particular, seem to have expected that if people were enabled to obtain the necessities of life with a part of their time and energy, they would use a large fraction of the balance in the pursuit of learning, wisdom, beauty and good works. The fraction is small in these business girls. Except for the newspaper, the average reading is about 3½ hours a week, studies and lectures are less than 1 hour, and even an optimistic evaluation of the concerts, club activities, etc., would probably not sum to an hour that would have been approved by Bentham or by either Mill (or, for that matter, by Carlyle or Ruskin or Matthew Arnold or Cardinal Newman). Yet this group is probably much superior to the average of the population and had convenient and free access (in New York City) to science, literature and art. They had the time and were obviously not exhausted by their labors, since they resorted to resting other than sleep for less than one hour per week.

Before commenting further on the facts, let us try to translate the schedule of time spent (except in sleep or at productive labor for a wage) into a schedule of wants gratified. For example, how should the hour and a half spent in church activities be allotted among the desires for security, for the approval of others, for self-approval, for the welfare of others, for mental activity, for social entertainment and for the pleasures of sight and sound? How should the 10 hours for personal care be allotted? How should the 3½ hours for home responsibilities be allotted?

Table 5 shows the allotments in the case of samples from the 55 items according to a jury of six psychologists and also the summation of the allotments of all the 55 items reporting time spent other than in sleep, work for wages, and transportation to and from work.

In so far as the jury's allotments are dependable, the time other than that spent in sleep, work for a wage, and transportation to

TABLE 5

THE PERCENTAGES OF THE TIME SPENT IN VARIOUS ITEMS OF ACTIVITY BY BUSINESS GIRLS WHICH GRATIFIED CERTAIN WANTS, ACCORDING TO A JURY OF PSYCHOLOGISTS

	Personal care	Home responsibilities	Automobile	Talking with family	Writing letters	Reading the newspaper	Church activities	Sum for 55 items, all except sleep, work, and transportation to and from work
1. Protection against hunger, cold, heat and wet, animals, diseases, and bad people, exercise, rest and sex relief	10.8	15.5	9.7		0.1	4.0	4.0	20.2
2. Avoidance or reduction of pain	3.2	1.9	3.0		0.1	0.8	1.1	2.1
3. Pleasures of taste, smell, sight and sound	5.8	10.5	16.1	2.8		8.3	6.9	14.3
4. Mental activity, curiosity and exploration		0.3	6.7	5.9	11.6	58.3	3.6	8.1
5. Manipulation and construction	0.8		1.6		0.1			1.0
6. Security (other than in 1)	3.8	10.5	0.3	9.3	4.7	1.7	17.4	1.5
7. Affection (to get it)	14.1	3.7	3.5	14.8	15.1		3.6	4.7
8. Companionship	5.3	4.1	12.6	29.6	18.3	5.8	16.7	8.5
9. Approval from others	19.6	16.3	3.5	2.8	11.1	2.5	7.3	7.3
10. Approval from one's self	14.2	9.2	0.3	1.9	5.3	5.8	5.8	4.3
11. Mastery over others	5.3	1.7	0.8	3.7	3.3	0.8	1.1	1.9
12. The welfare of others	0.5	10.2	0.8	9.3	9.7	1.7	7.3	1.9
13. Sex entertainment	11.4	8.5	15.9	0.9	16.7	2.5	5.8	11.5
14. Social entertainment	3.0	6.1	24.2	17.6	3.5	3.3	16.7	10.5
15. Physical entertainment	1.1	0.7	0.8		0.1			1.5
16. Unspecified comfort	0.8	0.7	0.3	0.9		4.2	2.9	0.7

and from work serves chiefly the desire for entertainment in a broad sense. Including the allotments to sensory pleasures of taste, smell, sight and sound, and half of those to mental activity, curiosity, exploration, manipulation and construction, 42 percent of such time is so spent, about 20 percent being spent for physical needs, about 12 percent being spent to get approval and about 13 percent to get companionship and affection. The results by any reasonable allotments would not differ greatly from these.

Records like these from business girls are not available for business men, farmers, factory workers, housewives or any large adult groups. We have to rely on general observation helped out by various facts of record.

The hours of sleep for adults 20 to 60 may be set at 8 per day

or a bit more. The amount of mere rest (i.e., rest without any accompanying entertainment) is probably under half an hour per day. In the business girls it was an eighth of an hour. In reports by professional, sales and factory workers (male and female) of a telephone company, less than 2 percent of leisure time was credited to mere rest. The amounts would presumably be larger for persons doing hard muscular work, but they are a small and declining minority; and few even among them are too tired to enjoy the radio.

In ordinary economic conditions the average number of hours of work for wages or about the home, including time spent in going to and from work, is probably not far from 50 per week or 7 per day for adult men and women. The variation is of course enormous, probably from zero to a hundred.

The farmer's work is a balance of the seasons; the soft-coal miners have tried for years to get 200 days of work per year; the retail dealer and his clerks may work far beyond union hours; many houseworkers add the care of their homes to 8 or more hours for wages. But these great variations are consistent with even greater uniformities. In ordinary times most workers in factories, retail and wholesale stores, railroad and utility companies, schools, the civil services, banks, insurance companies, hotels, restaurants and households have regular jobs with regular hours of work and regular duties at home, summing, as stated, to nearly 50 per week.

The care of the body and personal appearance may be estimated at 5 hours a week for men and 8 for women. Routine eating takes perhaps 10 for men and 8 for women (the difference in time being spent by the women in serving and cleaning up, counted in their work records).

About 40 hours a week are left at the adult's disposal. He is free to use these to gratify any of his wants—for security, affection, companionship, approval (of himself, his fellow-men, or his God), power over things or people, the welfare of others, intellectual activity and achievement or entertainment of whatever sort he chooses. I shall make a provisional estimate of how they are used by allotting the schedules of leisure time activities reported by professional, sales, and factory employees of a large

telephone company to the wants they seem to serve. I shall be guided by the judgments of a jury of psychologists.

For example, games, sports and other forms of exercise (including sailing, hunting and fishing, but excluding gardening) account for 12.8 percent, 16 percent, and 21 percent of the leisure time reported by professional, sales, and factory men, and for 7.6 percent, 9.3 percent and 21.8 percent of that reported by professional, sales, and factory women, respectively. The jury of psychologists allots time so spent as follows:

to the desire for physical—and also sensory, intellectual, sex and social—entertainment	76	percent
to the desire for companionship	10	"
to the desire for approval	6	"
to other wants	8	"

In a similar manner the times reported as spent in playing cards and sedentary games are allotted as follows:

to the desire for entertainment	65	percent
to the desire for companionship	15	percent
to the desire for approval	8	percent
to the desire for power or mastery	5	percent
to other wants	7	percent

When similar allotments are made for the times reported for parties, dancing, conversation, other social gatherings, radio, making music and listening to music other than radio, movies, talkies, theater, vaudeville, reading, automobiling, and gardening, over four fifths of the leisure time of these groups is accounted for; and almost seven tenths of it is accounted for by the desires for entertainment, companionship, and approval, as shown in Table 6.

Evidence of the use of leisure time for the welfare of others is rare, except in the case of the professional men. They report 9.2 percent of the time as "with family or children." In the other five groups (in order) this figure is 0 percent, 2.0 percent, 1.4 percent, 1.6 percent and 0 percent. The other evidence is in the time spent in clubs more or less concerned with social betterment. The percentages are 3.3, 0.3, 3.4, 4.3, 0.6 and 1.4. The

reports for religious activities give 1.7 percent, 0, 0, 1.5 percent, 1.6 percent and 2.5 percent. The reports for lectures and studies give 1.4 percent, 6.3 percent, 5.0 percent, 4.4 percent, 4.3 percent and 5.8 percent. The reports for sewing give 0, 0, 0, 0.5, 1.9 and 8.3 percent.

TABLE 6

ALLOTMENTS OF LEISURE TIME FOR PROFESSIONAL, SALES, AND FACTORY EMPLOYEES OF A LARGE COMPANY

	Professional		Sales		Factory	
	Men	Women	Men	Women	Men	Women
Percentage of leisure time reported as spent in games and sports, social gatherings and conversation, radio, theater, movies and talkies, reading, music, automobiling, and gardening	76.0	80.9	89.8	85.2	87.2	78.0
Allotted to entertainment	49.2	52.3	61.4	58.3	59.6	54.8
Allotted to companionship	5.0	6.5	9.3	7.2	7.6	7.9
Allotted to approval	8.2	7.7	7.1	6.9	6.9	5.4

Some of the time for family, clubs, church, lectures and studies, and sewing should be allotted to entertainment, but we may use this as a factor of safety for the conclusion that over half of the free time of adults in this country, or about 25 hours a week, is spent for entertainment.* Another large fraction is spent for companionship, which is itself in part a form of entertainment.

The radio, the talkies, the automobile and the popular magazines are ready providers. They do not, however, completely fill the bill, since, by nature or training or both, people demand companionship, sociability and a chance to talk, and favor a certain amount of physical activity. The family circle and the social gathering are not and probably never will be outmoded as sources of enjoyment (certainly not the latter). They maintain their appeal; a friendly group engaged together without compulsion in almost any sort of activity will entertain itself.

* Boder and Beach ['36] got statements from 4000 adolescents (age 13–17) of what they wished that "our government, your parents, your school, and the church should do or be able to do in order that young people of your age might be happier." Three eighths of the statements expressed desires for entertainment directly or indirectly, naming dances, more parties, etc., later hours, and less home-work.

The amount of time spent in physical entertainment by means of games and sports has probably increased also within the past generation. But the enormous increase has been in reading magazines, riding in automobiles, going to the pictures and listening to the radio. The time saved from wage-work and family work by reductions in hours and by gas, electricity, and household appliances has gone for increased entertainment, supplied mostly by these four means.

Some students of history and sociology will credit the present flood of entertainment to the great increase in the supply coupled with commercial methods of stimulating the demand. They will argue that men will, under fit environmental conditions, spend their free time in serving the state by fighting or otherwise or in serving the church by religious rites or in serving the family by labor and ceremonial. They will assert that men will follow true gods of truth or beauty or virtue or utility or the common good as readily as the false god of entertainment if they are shown the right path by example and have their feet set upon it by habit.

I hope that this is so. But I fear that the craving for entertainment is deeply rooted in man's nature and that very strong counter-attractions will be required to stem the present flood. I prophesy that historical and anthropological research will increasingly reveal that the great majority of people have spent their free time for entertainment up to or beyond thirty hours a week, if a supply was available. The desire for approval may counteract it widely, as in waves of Puritanism or patriotism. Also, the desire to see others happy, which apparently has been held down by brutal and bigoted customs in most civilizations, may become a more and more potent alternative, at least in superior souls. The human nervous system is very adaptable and can learn to operate with satisfaction in a humdrum world. But its lines of least resistance go toward cheerful sociability, free play, sensory stimulation and emotional excitement.

WHAT WE SPEND OUR MONEY FOR

According to Lynd ['33, vol. 2, p. 889], the people of the United States spent in 1929 8,000 million dollars for clothing,

1,500 million for laundry, cleaning and dyeing, 750 million for death and burial and 3,500 million for life insurance. We inquire how much of the 8,000 million spent for clothing was spent to gratify the desires for protection against cold, wet, animals, diseases, pain, for the reproduction of the human species, for pleasures of vision, for a happy sex life, whether by sensuality, romance, philandering, courtship or otherwise, for affection (i.e., to obtain it), for the approval of others, for self-approval (i.e., the sense of personal worth), for dominance over others, for the welfare of others and for any other desire which in fact led any person to buy clothing for himself or anybody else. We ask similar questions concerning the nation's laundry bill, funeral expenses and insurance payments.

It may be admitted at once that nobody can answer such questions accurately save by an enormous amount of careful and impartial observation of a representative sampling of persons in respect of what they buy, what they do with it and what desires seem to be operating in the case of their purchasing and use. On the other hand, economists, business men, sociologists, psychologists and intelligent people in general are observing pertinent behavior constantly, and have a fund of facts which are far above zero knowledge and, we may hope, fairly free from constant errors of prejudice. It may be very useful to collect and organize samples from this fund.

This we have done, using as our retrospective observers eight psychologists (six men and two women), five women (including experts in nutrition, home economics and the family), three economists, and a small miscellaneous group of intelligent persons. The opinions of this last group will be used only in part or occasionally as a check.

Table 7 presents the average opinion of the two juries (psychologists and others) concerning what we spend our money for when we buy food, clothing, rent, life insurance, laundry, cleaning and dyeing, funerals and burial. The reader will note that purchases of *food* are judged to contribute appreciably to every one of the twenty-four satisfactions except protection against bad people, that purchases of *clothing* are judged to contribute appreciably to every one except the pleasures of taste and smell,

TABLE 7

AVERAGE ALLOTMENT (I) BY PSYCHOLOGISTS AND (II) BY OTHERS OF 1,700 UNITS SPENT FOR FOOD, 800 UNITS SPENT FOR CLOTHING, 800 UNITS SPENT FOR RENT, 400 UNITS SPENT FOR HOME FURNISHINGS, 480 UNITS SPENT FOR FUEL AND LIGHT, 350 UNITS SPENT FOR LIFE-INSURANCE, 150 UNITS SPENT FOR LAUNDRY, CLEANING AND DYEING AND 75 UNITS SPENT FOR DEATH AND BURIAL (THE UNIT BEING 10 MILLION DOLLARS). AMOUNTS ARE TO THE NEAREST UNIT, LESS THAN 5 MILLION DOLLARS BEING ENTERED AS 0

	A. Hunger	B. Protection against cold, heat, wet	C. Exercise	D. Sleep, rest	E. Sex relief	F. Reproduce species	G. Protection against animals and diseases	H. Protection against bad people	I. Reduce or avoid pain	J. Pleasures of taste and smell	K. Pleasures of sight and sound	L. Sex entertainment	M. Security	N. Affection (to get it)	O. Companionship	P. Approval of others	Q. Approval of one's self	R. Mastery over others	S. The welfare of others	T. Mental activity	U. Curiosity and exploration	V. Social entertainment	W. Physical entertainment	X. Comfort not in A to W
Food:																								
I	876	27	0	3	3	21	50	0	26	275	62	45	8	15	48	71	5	4	53	1	4	74	3	46
II	931	20	12	2	5	7	48	0	5	202	15	64	2	25	37	53	10	0	53	1	10	170	3	20
Clothing:																								
I	1	302	2	1	6	7	57	4	13	0	42	69	29	21	14	101	47	42	8	1	4	14	3	16
II	0	309	5	5	13	1	35	0	6	0	58	67	1	20	7	123	64	25	21	0	0	39	4	12
Rent:																								
I	15	235	4	94	22	20	37	36	3	4	21	21	80	16	18	48	28	13	28	3	1	31	3	17
II	8	250	1	66	9	17	36	30	2	3	40	25	35	13	10	78	44	6	31	2	2	48	6	39
Life Insurance:																								
I	0	0	0	1	0	17	3	0	3	0	0	2	73	23	5	29	48	2	143	0	1	0	0	0
II	0	0	0	0	0	10	8	6	3	0	0	2	166	12	0	3	8	1	124	0	0	0	0	7
Laundry:																								
I	1	6	1	5	1	2	26	0	1	9	14	13	1	0	1	25	18	3	8	0	0	4	0	15
II	1	3	1	0	0	1	12	0	3	9	21	5	0	4	1	32	20	1	9	0	0	8	3	11
Death and burial:																								
I	0	0	0	0	0	0	6	0	1	0	0	0	4	5	0	28	13	1	4	0	0	3	0	10
II	0	0	0	0	0	0	5	1	0	2	0	0	9	4	0	28	6	0	8	0	0	4	0	8

and that *rent* is judged to contribute to all without exception. The reader will perhaps think that some of these allotments should be reduced to zero, because he himself gets no such gratifications from his payments, but he is probably wrong.

The table shows that the two juries agree rather closely.* The psychologists tend to break away oftener and further from the conventional overemphasis on food for hunger, clothing for warmth, rent for shelter and insurance for security. Each entry in Table 7 has a certain interest, but we have more important facts to consider.

We may extend Table 7 by similar tables for the 33 items listed below, which represent Lynd's list with additions computed or estimated by Dr. Ella Woodyard (chiefly from various tables in *Business Week*, April 27 to September 7, 1932), and with certain items grouped.

Estimated Expenditures in 1929 (in Units of 100 Million Dollars) **

1. Food	170
2. Clothing	80
3. Rent	80
4. Home furnishings	40
5. Fuel and light	48
6. Life insurance	35
7. Religion	9
8. Automobile (purchase and use)	65
9. Travel	20
10. Motion pictures, theaters, concerts, etc.	20

* The closeness of agreement between the two juries is measured by the following correlation coefficients: food, .85; rent, .89; clothing, .85; laundry, etc., .79; life insurance, .71; death and burial, .84.

** The accuracy of the absolute numbers in these expenditures is of no importance to our argument. The accuracy of their relationships one to another is of importance, but not so much as would be thought offhand. The probability is that any reasonable estimate of the national budget of expenditures would produce about the same distribution among wants as this one does, with one exception. The year 1929 was more of a luxury year than the average, and to that extent our conclusions are somewhat biased against the necessities of food and lodging.

11. Clubs, lodges, etc.	4
12. Indoor and outdoor games, sports	9
13. Newspapers	4
14. Radio and musical instruments	6
15. Jewelry and silverware	6
16. Flowers from florists	2
17. Cosmetics, beauty parlors	7
18. Physicians	10
19. Dentists	4
20. Hospitals, sanitariums	11
21. Medicine (patent and prescription and other medical costs)	10
22. Laundry, cleaning, dyeing	15
23. Tobacco	16
24. Confectionery and chewing gum	7
25. Drinks and narcotics (not tobacco)	27
26. Correspondence and communication	10
27. Leather goods and luggage	3
28. Investments	95
29. Education	16½
30. Welfare	6
31. Death and burial	7½
32. Legal services; fines, penalties, etc., including divorces.	3½
33. Taxes; local, state, and federal	64

If the 33 amounts assigned to each of the 24 wants are summed, we have estimates, by our twenty observers, of the total amounts paid to avoid hunger, cold, heat and wet, get exercise, sleep and rest, etc. These amounts and the percentages which they are of the total expenditures are presented in Table 8, which may be called a budget in terms of wants or satisfactions. The allotments by the two juries agree rather closely, the correlation (omitting X, miscellaneous satisfaction or comfort), being .92.*

Table 8 is much more dependable than any of the thirty-three separate tables whence it is derived. Imperfections in the allot-

* It would probably be higher if each person's X could be distributed among A to W.

ments of one sort of expenditures by the two juries will be largely counterbalanced by contrary imperfections in the allotments of other sorts.

Table 8 states that we spend about one ninth of our money to ward off hunger, about one tenth to keep warm (or cool) and dry, that only a few eccentrics pay money for exercise, our pay-

TABLE 8

THE TOTALS OF THE 33 ITEMS OF EXPENDITURES AFTER ALLOTMENT (I) BY THE PSYCHOLOGISTS AND (II) BY THE GROUP OF ECONOMISTS, EXPERTS IN HOME ECONOMICS, ETC.

	I		II	
	In units of $10,000,000	In percentages of the total	In units of $10,000,000	In percentages of the total
A. Hunger	1,018	11.2	1026	11.3
B. Protection against cold, heat, wet	925	10.2	889	9.8
C. Exercise	39	.4	63	.7
D. Sleep, rest	239	2.6	184	2.0
E. Sex relief	77	.8	81	.9
F. Reproduce species	172	1.9	73	.8
G. Protection against animals and diseases	404	4.4	377	4.1
H. Protection against bad people	227	2.5	140	1.5
I. Reduce or avoid pain	322	3.5	209	2.3
J. Pleasures of taste and smell	414	4.6	434	4.8
K. Pleasures of sight and sound	359	3.9	471	5.2
L. Sex entertainment	356	3.9	374	4.1
M. Security	959	10.5	1015	11.2
N. Affection (to get it)	163	1.8	169	1.9
O. Companionship	210	2.3	211	2.3
P. Approval of others	657	7.2	653	7.2
Q. Approval of one's self	367	4.0	347	3.8
R. Mastery over others	276	3.0	164	1.8
S. The welfare of others	656	7.2	786	8.6
T. Mental activity	175	1.9	210	2.3
U. Curiosity and exploration	168	1.8	211	2.3
V. Social entertainment	380	4.2	613	6.7
W. Physical entertainment	104	1.1	115	1.3
X. Comfort not in A to W	411	4.5	273	3.0

ments for games and sports being for entertainment rather than exercise, that we spend much time but little money for rest, that the mental features of sex life cost us about five times as much as the physical, that the reproduction of the species comes chiefly as a by-product, that we pay twice as much for protection against diseases as for protection against bad men (or did in 1929), that sheer sensory pleasures and the avoidance of pain (exclusive of hunger, cold, heat, wet and fatigue) account for only about one eighth of our budget. Some Freudian psychiatrists say that what human beings want above all else is love and security, but in Table 8 security averages under 11 percent and affection under 2 percent. We pay more to get companionship than to get affection. Approval of others and of one's own self (conscience, self-respect, pride, etc.) rival hunger and security. A cynic may say that the percentages for Item S (the welfare of others) in Table 8 show modern civilized man to be only one twelfth altruist and that the percentages for item T show him to be only 2 percent intellectual. This is harsh, neglecting the *time* that persons (mothers especially) spend for the welfare of others, and the fact that a fine intellectual life can now be lived at almost no pecuniary expense, and also neglecting certain facts of Table 8 itself. But Table 8 does fall far below the ideals set by moralists. For entertainment (L, V, and W) we spent more than for mental activity and the welfare of others combined.

Table 9 shows the allotments to various groups of wants, compiled from Table 8. Less than a third of the expenditures are allotted to keeping the population alive, well, and able to reproduce itself. The pleasures of the senses take a tenth; the pleasures of the intellect less than half that. The selfish satisfactions which depend rather directly upon our fellow men take over a fifth. This becomes over a third if the satisfactions of the love-life and benevolence are included. The desire for security takes a tenth, an eighth if security from bad men is also included. By Table 9, *homo* (of U. S. A. 1929) seems much more sociable than *sapiens*. He seems to be mainly a hedonist, but most of the pleasure he seeks is not of the senses.

Tables 8 and 9 are subject to correction and improvement, but they give, I think, a better picture of the ultimate satisfactions

TABLE 9

THE TOTALS FOR GROUPS OF WANTS, COMPUTED FROM TABLE 3 AND EXPRESSED AS PERCENTAGES

	I	II
	By psychologists	By others
Subsistence, perpetuation and some increase of the stock (A, B, C, D, E, F and G)	31.6	29.6
Pleasures of the senses, bodily activity, intellect and love life (I, J, K, T, U, W, L and ½ X)	23.3	23.8
Security (H and M)	13.0	12.7
Social satisfactions (N, O, V, P, Q, R and ½ X)	24.8	25.2
Benevolence (S)	7.2	8.6
Total	100.0	99.9
Subsistence, etc. (A, B, C, D, E, F and G)	31.6	29.6
Reduced pain (I)	3.5	2.3
Pleasures of the senses and bodily activity (J, K and W)	9.6	11.2
Love life (L)	3.9	4.1
Pleasures of the intellect (T and U)	4.0	4.6
Security (H and M)	13.0	12.7
Company, affection and social entertainment (N, O and V)	8.4	10.9
Approval, social and self (P and Q)	11.3	11.0
Mastery or dominance (R)	3.0	1.8
Benevolence (S)	7.2	8.6
Comfort not included in the above (X)	4.5	3.0
Total	100.0	99.8

for which those with purchasing power use it than has hithertc been available.

"What we spend our money for" may be translated into "What we spend our working time for," and then combined with the facts reported in the earlier section about our uses of leisure. The combination will give some idea of the gratifications for which all our days are spent.

Time not spent at work or in sleep was found to be spent largely for entertainment (including the pleasures of the senses and of the love life), companionship, affection and approval. Much of working time also is spent for these. I estimate that about a third of waking hours are spent for entertainment in this

broad sense, about a tenth for companionship and affection and about a tenth for the approval of self and others. Generous estimates of the use of leisure time for intellectual activity other than for entertainment and for the welfare of others would be around one twentieth in both cases. This would give for all working hours about 4 percent for intellectual wants and about 8 percent for the welfare of others.* Most people devote few or none of their leisure hours to the security which is a main purpose of their work. The total is about 7 percent. The needs of subsistence, perpetuation and some increase of the human race in this country account for about a fourth of our waking hours.

I conjecture therefore that the 16 hours of the waking day of adults in the United States are spent roughly as follows:

25	percent	for subsistence and perpetuation.
2	"	to avoid or reduce sensory pain.
7	"	for security.
8	"	" the welfare of others.
30	"	" entertainment.
10	"	" companionship and affection.
10	"	" approval.
4	"	" intellectual activity.
2	"	" dominance over others.
2	"	" other wants.

These allotments are easy to criticize. I myself could put down reasons why this or that one is probably wrong. But they are at least honest, impartial conjectures based on facts.

Man does not put first those wants the satisfaction of which ensures survival, the production of offspring and their survival, and attend to others only after these have been satiated. His craving for social intercourse and the approval of self and others is for greater amounts and different sorts than are needed for survival; his craving for sex pleasures is out of all proportion to what is needed for the production of offspring; his craving for entertainment may even operate against the nourishment of the young and the protection of the community.

* This estimate is specially insecure because the budgets of time include none for mothers. I have had to guess what allotment to make for them.

This seems to have been true of all peoples and times so far as their histories have been recorded, and of the so-called primitive peoples of the present. The peasants of China and India who live on a few cents a day and do not save enough to carry themselves through a year of bad crops none the less spend time in social intercourse and such entertainment as comes their way and in rites and ceremonies which increase their peace of mind and self respect.

The savages of Central and Northern Australia studied so fully by Spencer and Gillen have almost no clothing to protect them from cold, wet, or insects, but have many ornaments; they have dogs as pals and companions rather than as aids in hunting; they spend an enormous amount of time in ceremonies which have little or no utility other than to minister to self-approval and social approval, gratify the desire for sociability and entertainment, and perhaps maintain the authority of the old men.

This chapter has presented such facts and opinions as seem to me to provide an approximately correct notion of the important desires and aversions of civilized men today and give protection against inadequacies and errors due to lack of knowledge of man's animal ancestry and limitations in experience of the behavior of children and persons of various mental levels and social classes. As an antidote to errors in my judgment, I append quotations from men of science who have given more or less attention to the matter from various points of view.

An expert in social psychology, Floyd Allport, lists as "fundamental habit systems" which are "rooted in mechanisms which originally dominated in competition for final common paths," and which presumably have wants and satisfactions corresponding to them, the following:—"Flight, escape, concealment, modesty, shyness, providing and wearing clothes, habitation, fighting, resentment, repulsion, cleanliness, rivalry, yielding, eating, drinking, food-getting activities, responses to tickling and amusement,

* The natives, of course, impute to these magic ceremonies efficacy in maintaining the supply of animals, plants and other features useful for living. Consequently their performances give peace of mind, but if they felt no need of magic control of nature there would be no anxieties to be quieted. In this case magic cures only what magic causes, leaving sociability and entertainment as its net contributions.

aesthetic and play attitudes, chivalry, courtship, coyness, mating, caressing and fondling, maternal and paternal behavior, filial behavior and other family responses, manipulation, locomotion, developed vocalization, talking, reading, writing, curiosity, hunting, hoarding, constructing, imitating, domineering, self-assertion, submission, sympathetic behavior, response to approval and disapproval, learning of a trade or profession. These include the activities which are of major importance for the existence both of the individual and the social group. Being rooted in mechanisms which originally dominated in competition for final common paths, they retain as habits the domination of mature behavior. We may call them *prepotent habits.*" ['24, p. 80]

An expert in animal psychology, Tolman, emphasizes certain basic mammalian wants as descriptive of man's. He says: "The list of such positive demands would, in the case of rats, be comprised, I believe, by (a) the demand for food; (b) the demand for sex-objects; (c) the demand for explorable alleys; (d) the demand for dark places in which to hide; and (e) the demand for warm soft places in which to go to sleep. Turning to human beings, I suspect that the list of the ultimate positive demands would be much the same. It also is probably largely, if not wholly, comprised by the demands for food, for sex-objects, for explorable alleys, for dark places in which to hide, and for warm soft places in which to go to sleep. It may, however, turn out that in addition there must also be included in the list for men an ultimate demand for harmonious sense-impressions, an ultimate demand for the social approval of one's fellows. . . . Under this head of negative demands I would conceive a set of variables which would be respectively operative in producing (in the case of rats) negative consummatory responses, (a) in the presence of electric grills, (b) in the presence of surrounding and hampering barriers (including the ends of blind-alleys), (c) in the presence of open exposed fields, and (d) in the presence of powerful noxious stimuli. . . . For men also I suspect the list of ultimate negative demands would be much the same. For them also it would, I believe, include and probably be wholly comprised by: demands against electric grills (or other pain-inducing devices), against surrounding and hampering barriers,

against open exposed fields, and against powerful noxious stimuli." ['35, p. 367 f.]

An expert in mental diseases, Macfie Campbell, reports that in the persons whom he treats "one meets the same topics again and again; they are the fundamental issues of human life. We meet the insistent urge of the appetites, especially the sexual appetite and all its components. We meet the strong desire to be of value and to have prestige and to escape from a feeling of guilt or of inferiority. We meet the craving for a sound bond of affection between oneself and the family and one's fellows." ['35, p. 87 f.]

HUMAN WANTS IN DETAIL

Almost every human want deserves more study than has been given to it; for our knowledge is usually far from complete. Terms like hunger, craving for sexual activity, ambition, love of distinction, or gregariousness, present us with questions as well as facts. We say that John Doe wants alcoholic liquor, which is true and useful as far as it goes, but we need greatly to know also what inner stimuli or clues tell him to take a drink and what the drink does for him.

To illustrate and enforce the principle, I present here some of the facts concerning two of the simpler sensory wants—for food and for smoking tobacco, one sensory-imaginative want—to see animals happy, and one notably imaginative or ideational want—for a good life after death.

The Desire for Food

Hunger and thirst are well-known and widespread wants, and are identifiable not only by the fact that the intake of certain substances satisfies the person who has them and normally reduces the strength of the want, but also by certain fairly definite feelings. A person who is dehydrated feels thirsty, and does not mistake this feeling for any other. The feeling of desire for food is not quite so simple. There are the so-called hunger-pangs due to the contractions of an empty stomach, and there is the very different hunger (or "appetite" as Maslow prefers to call it to distinguish it from the aforesaid pangs) which a healthy

person feels after a certain abstinence from food. The latter is the ordinary signal and stimulus for eating. Many persons live for fifty years feeling "hungry" several times a day without ever being conscious of hunger-pangs proper, and when they do feel such may regard them as special pains rather than stimuli to seek food. It is testimony to the tendency to neglect patent facts that certain scientists should have regarded the hunger pangs as the essential thing in hunger.

Hunger does not act logically as a symptom of the need of food or a motive to ingest it. Psychologists who have starved themselves report that after a rise to notable intensity the hunger weakens so that after a time as the need for food becomes greater the craving for it becomes less. Fat people who could eat nothing but water and a few salts, etc. with possibly a net advantage, would become as hungry, perhaps more so, after a few days abstinence as consumptives whose health would be seriously jeopardized.

This being true of one of the most fundamental natural wants, where the correspondence with need has a clear survival value, what can we expect of wants in general? Wants are very inadequate symptoms and measures of needs even when they are the best symptoms available.

Hunger is instructive also in that it becomes the base for an enormous edifice of derived and specialized wants. The human race could doubtless be entirely healthy, and moderately happy, on very humble fare; for example, a diet consisting of some cereal and a modicum of fruits, vegetables, roots, animal flesh and salt. This could be eaten casually and without ceremony. But man in satisfying his hunger satisfies the desire of the palate, experiments with new foods and combinations of foods, prepares these in many ways, attaches imaginary potencies to this that and the other among them, and sets up rules for who should eat what. He invents tools to eat with, containers to store food in, and cooking utensils. He transforms certain meals into feasts and ceremonies with elaborate rules and arrangements, and makes the satisfaction of hunger an occasion and excuse for vicarious consumption, conspicuous waste, and display calculated to secure self-respect and social admiration.

The forces of repetition and reward form habits of specific food preferences, and of routines for production, preparation, and consumption. All these may happen in even very "primitive" communities. Civilization elaborates and adorns the structure based on hunger almost *ad infinitum.*

The Desire to Smoke Tobacco

The desire for a smoke in users of tobacco is interesting in several respects. It is an artificial want in the sense that the human genes have no specific power to make man like absorbing nicotine, or sucking in tobacco smoke, or manipulating a pipe, cigar or cigarette. It is rarely or never fostered in infancy. It develops in spite of the absence of pleasure from the early occurrences of smoking. Smoking was outlandish in origin and had little prestige value. Yet the craving spread over the world with extreme rapidity, and is very strong in many. Tobacco has probably more followers than any one deity, and a large number of devotees or slaves. The inhabitants of this country spent $1,600,000,000 for tobacco in a recent year, a fifth as much as they spent for clothing.

What causes the appeal is not surely known. It could be argued on the one hand that My Lady Nicotine is a gentle and kindly drug, dulling pains, hunger and irritability, and, on the other, that the use of tobacco does little useful except to allay an annoying lack which would never have been experienced except for artificial cultivation by the habit itself. Physiologists and psychologists who are habitual smokers differ widely in their opinions concerning what benefits they get from smoking. For example, seven well-known psychologists in whom the craving is strong (they would want from $25 to $500 to abstain for two weeks) report as follows:

A. "Satisfaction of urge from a pleasing tickle at the back of the throat and of a craving located at the midriff. Feeling of belonging in a group where others are smoking. The widespread use of tobacco may be related to a resultant diminished sex appetite."

B. "Very convenient antidote for committee meetings and conferences. Also gives me something to occupy myself with

when engaged in difficult mental tasks. I smoke a pipe. Do not like cigarettes and only seldom smoke cigars."

C. "1. A tone-lowering; 2. A fringe attention-focus or distraction apparently aiding thought or speech; 3. Temporary calm or decreased irritability. The longer range effects do No. 1 too much and reverse No. 3."

D. "Companionship and I know not what."

E. "Soothing. Lighting up gives one time to think in a crisis. The taste has little to do with it, the motor aspects a great deal."

F. "Sociability, draining activity, manipulatory pleasure, especially in smoking a pipe and observing it take on color. Smoking neither benefits nor injures me physically, so I have been informed by competent medical men. If there is such a thing as mental satisfaction, I get it."

G. "Restfulness, the ability to do anything for the time of the smoke, community of behavior when with a group of smokers, a constant beneficial distraction."

Any habitual smoker knows when he wants a smoke, and rarely mistakes this want for hunger or thirst or the desire to rest or the desire to chew gum or what not. But just what the inner state, condition, or stimulus is that makes him light his pipe or cigarette, he finds it hard to determine. Five of the seven psychologists, when asked "What is the stimulus or combination of stimuli which makes you want to smoke?" replied as follows:— "A craving at the midriff." "Feel uncomfortable without it, particularly when there is some tension in the situation." "Malaise, akin to thirst in mouth-roof and oesophagus." "I wish I knew." "Physiological discomfort if I don't." The other two had even more indefinite ideas about the state provocative of the craving. In fact we do not even know with certainty why men who pass hardly a waking hour without smoking almost never want to smoke when they wake up in the night.

The craving for a smoke seems to be on the border-line between the cravings for drugs such as morphine, cocaine, hashish, or alcohol and the cravings for certain frequently occurring enjoyable events, such as chewing gum, playing the piano, having a bath, reading the newspaper, or eating an apple. Any one person's experiences are likely to provide him with a stock of

resources which act or are supposed to act in stimulating, relaxing, sedative, hypnotic, or more vaguely comforting ways. They range from foods and drugs with important intrinsic potencies to things which influence him only through the associations they have had in his experience and the peculiar consequences which they cause in his brain. But most of them have some intrinsic potency. For example, a cup of tea has some of the drug, a good deal of heat and liquid, some quickly absorbed nourishment if it contains sugar, and usually a few minutes of relative relaxation of the muscles, as well as whatever personal consequences have been attached to it by associative habit. On the other hand, even the most potent drug may have a yet stronger effect by such associative processes.

One who buys any article for personal consumption buys not only the materials constituting that article, but whatever has been attached to the consumption of such articles by his experience. The identical constituents disguised or distorted might fail to give the desired result. On the other hand, a little open-minded experimentation aided by faith might demonstrate in many cases that the desired result could be had with a considerable reduction of some expensive or harmful ingredient.

The Desire to See Animals Happy

The common enjoyment of the welfare of animals and dislike to see them suffer are significant as evidence that the solidarity of the human species and its "consciousness of kind" are far from absolute. The bonds uniting men as men are only one set among many. The cooperation and sympathy of a certain class of men may embrace their horses and dogs more closely than the human workers on their plantations, and may even embrace all horses and dogs more closely than certain men whose color, shape, and manners are used to exclude them from the treatment accorded to men in general. Indeed, a cynic might assert that nobody responds to the human species as such except by way of theoretical discussions and sexual intercourse.

Such a statement would be in error; there probably are in the genes forces causing responses to humans as humans; e.g., gregariousness, attention, mastery, submission, rivalry, etc. But

these responses are easily specialized and limited in their attachments. They did not prevent us from treating black men as having no souls and supporting our treatment by the belief that they have none; nor from treating women as inferior to men; nor from treating Protestants (or Catholics) as perverts who have lost their claims as human beings; nor from any exclusion or discrimination which we find reasonable, convenient or comfortable.

Good will toward animals also furnishes a striking illustration of vicious outcomes of good wants, in some of the activities of anti-vivisectionists. If these well-meaning people had had their way the suffering of animals themselves from disease would have been increased by an amount a thousand times as great as the suffering from the experiments of scientific men, to say nothing of the increase in human suffering.

The Desire for Life after Death

The desire for a good life after death has been widespread and often powerful. It would be interesting to illustrate its influence, measure the changes therein and prophesy its future. Someone sometime should do so.

But our present task is the less dramatic and exciting one of using it to illustrate certain general principles.

The first concerns the question of how and why mankind, creatures born of nature and bred in nature, fit by their anatomy and physiology to deal with natural objects, invented so many super- or extra-natural objects to respond to by desire, aversion, fear, and many other states of mind and acts of body. Why, for example, did men not respond to a dead man as a corpse, adapting their thought and acts about dead men to what corpses actually do as natural objects? Why invent a life after death for dead men?

The important general principles are two: First, the ideas, notions, or representative abstract and conceptual thoughts of men, as distinct from the percepts, are only very indirectly born of nature, limited by it, or adapted to it. They are a superstructure which, though based on experiences of nature and constructed out of things which are like natural objects, can transcend nature

fantastically as dreams do, inconsistently as wishes often do, abstractly as in the geometer's lines with zero cross section, and planes with zero thickness, in fact, in any ways that one can think of. Man's ideational life can be as much at home with the ghosts it has imagined as with the men it sees and touches. Some mana or magic power the notion of which it constructs in its fancies or reflections seems as genuine and believable and dependable to it as the force of gravity.

The power of reorganizing experience in thought is so great that man can easily disregard or distort natural facts so as to believe that there are somewhere animals that talk, weapons that always hit the mark, or giants a hundred feet tall, and can reverse natural facts so as to think of the dead as more powerful on earth than the living. The wonder is not that mankind has entertained so many superstitions, but that it has not entertained many more.

Second, until rather recently and exceptionally men have not distinguished between ideas which operate well in predicting events and ideas which operate well in making one comfortable. We now know that sowing a certain sort of seed in certain places at certain times will under certain conditions produce a crop, and that the incantations one pronounces or the libations one pours will, in and of themselves, do nothing to the crop, though they may add to the hope and peace of mind of the farmer. But that is a late discovery.

As a consequence of the first principle we may expect a practically infinite number of beliefs to have occurred at one time or another in one person or another. As a consequence of the first and second principles we may expect that an enormous number of beliefs will be retained by one or more persons; namely, all those which are not displaced by some belief which was more comfortable for the person in question to hold in response to the situation in question. From those so retained certain ones will die a natural psychological death from disuse; others will be selected for permanent survival in the individual in question; some will be spread and popularized; a few will become fixed traditions of the family, community, or entire population.

Beliefs may obviously also spread or perish because the acts

based upon them are so beneficial to the individual or to the community as to favor the perpetuation of the believers and their offspring or so harmful as to reduce it. After a belief is once established in a community, any new members of the community will usually acquire and retain the belief not only because it makes them comfortable in and of itself, but also because the social environment causes the belief to occur in them and strengthens it by a diffuse approval or at least tolerance.

The belief in life after death, and in variations of good and bad in that life was then, one may say, sure to occur in men who did not attach the thoughts, feelings, intentions, abilities, or even some of the acts, of living men to their living bodies in any definite, much less in any absolute, way. So long as he did not think about it at all, a man could treat a human corpse as a dog treats one, being triumphant, miserable, curious, or cannibalistic according to the circumstances, but if he thought about it at all, there was certainly little in his experience until a few hundred years ago to make him conclude that the thinking and feeling person whom he knew had been annihilated because his body was now cold and motionless, and would soon putrefy. That would have been a far harder belief to invent and make popular.

As another general principle suggested and illustrated by the belief in a life after death, and the desire for a good life there, we may note the general weakness of beliefs founded on ideas in comparison with beliefs founded on repeated habits of perception and action or memory of repeatedly perceived events or repeatedly experienced acts. A man may believe in the heaven described by the New Testament and by the pronouncements of his church in the sense that he has no conscious doubts about it and would emphatically reject any view contrary to it, and yet not believe it nearly as strongly as he believes that the shoes he is wearing are black or that certain movements of his arm will put food into his mouth.

Primitive farmers may have been certain that seeds would not grow unless the right incantations were said, but they were not so certain of this as they were that the ripened grain would not turn into sand on the stalks.

Among theories all arrived at via ideas, supernatural theories

and superstitions may be even more acceptable than scientific theories, but between expectations rooted directly in perception and action and expectations derived from thought, the former have superior power to compel belief and produce conduct in accord with the belief.

Science is a hybrid from this direct knowledge gained from perception and action mated to imaginative and abstract thinking as subtle and daring as that of poets or theologians. Using a different metaphor, we may say that by its procedure of verification it keeps anchored to the former so that it may risk any hypothesis; and that (changing the metaphor again) it makes all its hypotheses out of stuff that is of the same flesh and blood as what one senses, sees and touches and what our muscles act with and upon. Science is thus adapted to the world of nature to a degree of intimacy, thoroughness and certainty which philosophy, theology, poetry and religion have hitherto not attained. It thus commands a belief more like the plain man's belief in what he sees, and less like his belief in what is comfortable for him to think.

The belief in and desire for life after death suggests a third issue—that of the value of ideas about super- or extra-natural facts in general. Scientific evidence in favor of life after death would consist in the occurrence in the natural world of spiritistic phenomena or other events which could be predicted more accurately by assuming that persons lived after their bodies were dead than by assuming that they did not. But if they lived in a supernatural world having no influence upon the natural world which science studies, science would have no suggestions to make about who lived there or for how long or in what manner. It is in such a supernatural world, which never (or only occasionally by a miracle) disturbs the course of the natural world, that men do live after their bodies are dead, according to the religions which are acceptable to intelligent people of recent times. What is the value to mankind of a belief in this sort of life?

Its value to men as present or future denizens of such a supernatural world science cannot profitably discuss since it has no information about the nature of such a supernatural world, and cannot even assume that men would be any better prepared to

live in it by believing in it than by disbelieving while they were inhabitants of the natural world.

Its value to men as inhabitants of the natural world will depend chiefly upon other concrete particulars. A belief that whoever dies fighting for Mahomet will after death cohabit with houris *ad lib* was probably demoralizing and destructive to human welfare in the natural world. A belief that whoever fulfills certain formal obligations of ceremonial and penance will, in spite of much dishonest, cruel and selfish behavior in this world, be made happy in the supernatural world, can hardly be other than an unmitigated nuisance to the welfare of natural men. A belief, on the other hand, that the injustices of the natural world, whether accidental, inadvertent, or deliberate, will be counterbalanced in some supernatural world may do good by supporting the decent behavior of men with the hope of eventual justice elsewhere. It may, of course, do harm by causing good men to relax their efforts to attain justice for themselves and others in the natural world.

Benjamin Kidd ['94] wrote a popular book a generation or more ago arguing that the promises and threats of certain religions in respect of the supernatural had the effect of stimulating morality and improving welfare. This may be doubted. Promises and threats concerning what the supernatural has in store for men in accord with the sorts of natural lives they lead are often consonant with the morality of the place and time, and with the fundamental morality of all places and times; but they are also used to support the interests of medicine men, shamans, priests, church organizations, rulers and others who control, in whole or in part, propaganda concerning the supernatural. If men had, during the past hundred years or thousand years, lived in the belief that the death of the body was the end of the person, who can be sure that they would have been less moral?

If, in the hundred or thousand years to come, men over the world should retain unchanged their present beliefs about life after death and its rewards and punishments, or if they should increasingly believe that the fate of all men rested entirely with nature, including themselves and other men, and that what justice and mercy is done will be done by us in this world—which would be better? It is a hard question.

Five facts may be noted, two well-known, two where common opinion is ignorant or in error, and one where knowledge is lacking: (1) We should not use the supernatural as an excuse for doing less well than we can. It was bad to let people suffer from smallpox, typhus, tuberculosis, septic operations and useless pain, assuming that supernatural forces would compensate them.

(2) The churches have been urging good works in this life more, and preparation for a supernatural life less. They have presented stimuli to men's good natural impulses more and relied on promises and threats relating to life after death less. They are increasingly favoring the improvement of the natural world by the virtuous use of natural forces.

(3) Some persons of mean and brutal natures living selfish and depraved lives assert disbelief in a supernatural world and have no affiliations with the bodies of religious believers in their communities. But they seem to be exceptional. Criminals in general, according to the investigations of Havelock Ellis and others, are as often believers and communicants as non-criminals. The village drunkard, rake, or crook who avoids the churches may do so partly because his character is so well-known that he would be made uncomfortable there, partly because, by a perverted logic, his disbelief serves him as an excuse for not being a decent man, and partly because the avoidance permits him to respect himself as not a hypocrite.

(4) The intellectuals who are agnostics (or, occasionally, disbelievers) in spite of resulting difficulties with friends and risk of general unpopularity, have probably deserved extremely high ratings for private and public virtues. These, whom we may call "conscientious objectors" to immortality, are men and women whom all the world except the ignorant or bigoted, honors.

(5) Certain people in recent years have accepted the denial of supernaturalism and life after death as a dogma in much the same way that their grandparents accepted its affirmation. Many of them are followers of Marx or Lenin. What net effect, if any, this has had and will have upon their contribution to the good and ill of the world is as yet unknown. Their so-called "scientific materialism" (which would be accepted by very few expert sci-

entists or materialists) and their economic and social doctrines seem in combination to induce a spirit of self-sacrifice and loyalty to their fellows combined with a calculating, ferocious and bigoted hate toward others. But this seeming may be illusory in respect to both the nature of their behavior and its causes.

Another general problem concerns the proper use of hope versus resignation in this and similar cases. Whatever the total effect on welfare of belief in life after death may be, its help to worthy souls in enduring injustice, calamity and bereavement can hardly be doubted. Just as, in the natural world, we gain comfort at a present injustice by the hope that the future years of life will atone, or at the present absence of loved ones by the hope that in time we shall have them with us again, so when the injustice is beyond this world's power to cure and when the absence is caused by death, comfort comes from hopes for supernatural compensation. It seems cruel to lessen either hope merely because the probabilities do not fully justify it.

Some guidance may come from a consideration of hopes for the *natural* future. How far shall we tolerate hopes that the *natural* world will be better, kinder and more just to any individual or group than it probably will be, and when shall we shift from hope for the best to resignation to the probable? One essential feature of the problem is the fact that the person's hopes are themselves creative forces in the natural world. Being part of him they help to determine his behavior. A player whose probability of winning is .60 if he has strong hopes of winning, may have a probability of only .40 if he is resigned to losing. A patient may live because he expects to live, and die if he expects to die. Hope, more than probabilities warrant, is probably also on the whole favorable to experimentation, creative work and forward-looking activities, as contrasted with playing safe, preserving past gains, and living for the present.

On the other hand, unwarranted hopes obviously will, on the average and in the end, bring disappointment and consequent discouragement, and they will lead to imprudent and wasteful activities. Moreover, it is easy to overestimate the satisfyingness of hope in comparison with that of resignation when both deal

with the natural world. Hope involves more strain or tension, and is more exciting. Pagan experts in the art of making oneself comfortable advise us to take the goods the Gods provide and keep hopes within such bounds that pleasant surprises will be somewhere nearly as frequent as the unpleasant. Hope may suffer repeated disappointment as it springs eternal in our breasts. Hope for goods after death from supernatural sources has the great advantage that it cannot be disappointed during life. We can maintain it all the more strongly as the natural world mistreats us.

Expectations of supernatural influence are thus different from expectations of such influence during one's life, i.e., in the natural world. The former are somewhat like the pious hopes of scientific men that in generations to come the forces of wise, honest, just and benevolent men will rule the world far more than they do now, and that the forces of accidents, pathogenic organisms and other diseases, and stupid, vicious, and ill-willed men will be so reduced that no harm can come to a good man and no injustice to anybody in this natural world. A greatly enhanced natural action of truth and goodness in the remote future is functionally a good deal like the supernatural action of a good God after death.

Such hopes for a heaven on earth may be used rarely as an anodyne to dull us to present suffering, or as a day-dream to indulge us in relief from the hard work of building a better world. On the other hand they often serve as a stimulus and reinforcement to that work, and as a deserved justification of it. Only hardened pessimists and misanthropes would deny this hope to good men engaged in good works because the chances were above fifty-fifty that the forces of evil will triumph.

May not the same be wise in the case of the hopes of a better supernatural world after death when held by good men engaged in good work?

Hopes for supernatural events, being themselves natural forces, vary in their concrete details and accompaniments and consequences according to the persons who entertain them. The natural value of the belief in life after death will then vary enor-

mously with persons and conditions. Some may be bettered by having the belief destroyed. To destroy or weaken it in some others would be like killing all the animal pets of little children to make fertilizer. To destroy it in certain others might even be like teaching mothers to hate their children or thinkers to hate the truth. Whatever is done to the belief in any person should be done, as always, with the consequences of the action in view.

Chapter 7

THE MEASUREMENT OF WANTS AND SATISFACTIONS

The measurement of preferences, wants, satisfactions, desires, aversions, pleasures, pains, happiness, misery and the like suffers from most of the difficulties which characterize mental and social measurements in general, and from certain special difficulties from which the measurement of mental abilities and achievements are free. The only system of measurement which has been widely used for them is, of course, money. It has important limitations. Opinions concerning the possibility and practicability of measurements of a person's wants and satisfactions more direct and more widely applicable than by the money he would pay to "satisfy" the former or "obtain" the latter would vary widely. At one extreme would be a few who would in general eschew efforts to put the different wants of a person, say for the satisfaction of hunger, sex, and self-respect, into any exact order of magnitude or scale of amounts, or to put the similar wants of different persons into any such order or scale. At the opposite extreme would be a few who would insist that any want or satisfaction which exists at all exists in some amount and is therefore measurable, how exactly and how commensurably with others, we cannot tell until we have tried. This small group, with whom the writer sympathizes, point to the successes of physical science in measuring the subtleties of electrical phenomena and making various forms of energy commensurate. The great majority of thinkers about ethics, economics, government, sociology, history and other humanities would be charitable toward attempts at measurement, but skeptical toward the calculus of affection, approval, a good conscience, etc. by dollars and cents or by any other scale, and very pessimistic about the attainment in the sciences of man of anything like the measurements of length, volume, mass, temperature, electric potential, current and the like.

Before considering what is possible, it will be profitable to note what is actually done now. For any one person in a given condition of body and mind except as concerns the want in question, any two wants or preferences, W_1 and W_2, may be compared in respect of "strength." Judgments are made in the forms: "$W_1 > W_2$"; "W_1 is approximately equal to W_2"; "$W_1 < W_2$"; "W_1 and W_2 are both so great that I have no opinion concerning which is greater." *

Nobody doubts this in the case of varying amounts or intensities of the same sort of want, such as hunger, thirst, desire to stop work, homesickness, or craving for praise or affection. So we may pass to the case of two wants that are qualitatively different but in the same person. It is true there as well. So an observer with adequate data can reasonably assert that to John Doe at 10 A.M., January 1, 1940, the desire to intermit work and smoke a cigar for 10 minutes was approximately equal to the desire to intermit the work and smoke a pipe, and less than the desire to intermit work and telephone to his girl friend. The observer may also be able to assert that the aversion against having both legs cut off and the aversion against being permanently insane are indistinguishably great in John Doe—that he does not think of these events as equally bad, but simply as both incalculably intolerable.

There are perhaps some W's which are essentially incommensurate for John Doe, though moderate in amount, as, for example, the desire for a smoke and the desire to say a prayer; but the behavior of a person confronted by such alleged incommensurables will, I think, justify a statement that for him $W_1 >$ or $=$ or $< W_2$. The evidence for this appears in the fact that no matter how remote and dissimilar W_1 and W_2 may be, increasing one and diminishing the other soon causes a preference to appear. So the desire for a smoke and the desire to pray which never have competed before may arouse only an impotent bewilderment when preference is required at their average strengths, but in a person who is very fond of smoking and has been deprived of it for a day and whose desire to say a prayer is barely above

* The facts concerning such immeasurably great desires and aversions are presented in a later section of this chapter.

zero, the preference will be as indubitable as that between an overpowering desire to smoke and a slight desire of the same sort. Indeed persons can often be found in whom one of two alleged incommensurable wants is zero or negative so that the W_1 must in their case be greater than W_2.

We may conclude, therefore, that, for any one organism in any one condition, all possible wants can be put in an order of magnitude, save that, toward the extremes of desire and aversion, there may be and probably will be undiscriminated imperatives of demand and rejection. At many points along the order of magnitude, there will be, of course, two or more wants having the same place or rating.

A certain point in this order of magnitude is a true and absolute zero in the sense that the fact in the person has approximately no strength or intensity and may be called an aversion to the event in question as appropriately as a desire for it, being properly called indifference, or 0 preference.

The question of the extent to which the desire and the aversion sections of this order are true opposites, so that a certain degree of desire nullifies or cancels a certain degree of aversion may be deferred.

We can and often do define degrees of strength at various points along this order of magnitude for a given person as we define degrees of temperature by the freezing point of water, the freezing point of alcohol, the melting point of lead, the boiling point of water, etc. So the reader knows roughly on different occasions that he wants a drink of water enough to drink it when offered, enough to walk a mile to get it, or enough to pay a dollar for it, that he wants the thrill and memories of a certain game enough to spend an afternoon and five dollars therefor, that he wants the security of a certain amount of insurance for a year for his family plus certain resulting self-respect *et al.*, enough to pay $500 a year, or about 6 cents an hour, for it. Rightly or wrongly, the reader may define his aversion to being blind as so great that he would prefer death. From "I do not care a straw" and "I would not give a pin" to "I would cut off my right hand," "I would give every penny I own," and

"I would give my life" there are customary points of want by which the intensities of other wants are defined.

All that remains to be done to have an adequate system of measurement of the wants of an individual is to equate the difference between the zero or indifference point and some definable degree or strength of preference, with the difference between that and some definable greater degree or strength, and so on. We can then add, subtract, and average degrees or strengths of want or preference, and, since the zero of the scale is approximately just not any of it, can use the "times as much" judgment and the full arithmetic of multiplication, division, and percentage.

To what extent such equating is possible for any given person, I do not know; and the possibility may vary with persons. The most important available means of trying to obtain such equal units of difference in the strength of wants or amount of preference is of course *via* the monetary units used in the exchange of commodities, services, etc. But it will be instructive to consider first two other possibilities. Suppose electrodes to be so adjusted to John Doe that they cause him no discomfort save when he receives a shock, and suppose that he pays for this, that, and the other satisfaction by receiving 1, 2, 3, etc. shocks, all physically equal, and far enough apart so that late ones in a lot produce the same physiological effect as early ones (except for such unavoidable slow adaptations as may occur in a person treated to a rather steady diet of shocks). In this and later cases we will assume that John is not idiotic, insane, intoxicated, or distracted from consideration of his wants. John Doe will very quickly be familiar with the shocks and competent to bargain in terms of them. Intelligent experimentation will establish an equation of the value for John Doe, in such a condition of him as may be used, of any given satisfaction as 1, 2, 3, 4,.....*n* shocks. Among others, the equations for various amounts of money, for shocks that are physically more intense (i.e. for their avoidance), for the quenching of various physiological cravings, and for release from specified forms and lengths of labor could be determined. Differences found equal in such units of shock would be approximately equal in a perfectly real

and intelligible sense; namely, that they would be obtainable by the endurance of equal numbers of the shocks. If John Doe in condition A would bid just 2 shocks to eat a gram of chocolate, 6 shocks to smoke a cigarette, 10 shocks for a bath, and 20 shocks to be freed from an hour of work, we can meaningfully and probably usefully say that his want for a bath was as much greater than his want for a cigarette as that was greater than his want for the chocolate, and that he wanted freedom from an hour of work more than chocolate, smoke and bath combined.

Such a want- or satisfaction-meter in terms of shocks is not merely fantastic. Moss ['24], Warner ['27 and '28], Warden ['28], and others, have used standard shocks, though not in just the way described above, to measure the strength in animals of hunger, thirst, sex-longing, and the desire of the female to be with her young, and have obtained important results.

Needle pricks, blows, etc. would, of course, replace the shocks more or less well. For a person kept continually in a state of thorough hunger or fatigue, units of 1 gram of bread or 1 minute of rest could serve somewhat the same purpose, though these have certain disadvantages.

A different way of attaining equal units of a sort would be by experimentally equating so many satisfactions of want A against so many of want B, and against so many of want C, and so on, either directly or by using shocks and their avoidance, sums of money, foods, drinks, amusements, applause, and anything else that was convenient. Suppose that John Doe is in condition A during enough thousands of experiments to give data as follows:

He wants 1 occurrence of B as much as 2 occurrences of A,
He wants 1 occurrence of C as much as 2 occurrences of B,
He wants 1 occurrence of D as much as 2 occurrences of C,
He wants 1 occurrence of E as much as 2 occurrences of D,
He wants 1 occurrence of F as much as 2 occurrences of E,

and so on for G, H, I, J, K, L, M, etc. Calling the difference between L and the average of F and G 1000, we have $A = \frac{1}{2}$, $B = 1$, $C = 2$, $D = 4$, $E = 8$, $F = 16$, $G = 32$, etc. Wants intermediate in strength between these may be found and scaled by such experimentally determined equations as $3D = 4C$,

$2E = 3D$, $3E = 4D$, etc. The number will refer to differences from the true zero with a negligible error if A is a very slight want, such as the average of the following (for ordinary people in ordinary conditions): to add a half a cent to one's property, to smoke a cigarette, to eat two grams of chocolate, to avoid a certain pin prick, to smell a sweet rose for 2 seconds, to see a child happily at play, and others different in kind but of similar slight magnitude.

Where this barter of n occurrences of the satisfaction of one want against $n \pm N$ occurrences of the satisfaction of another is direct, we have an unimpeachable method of scaling wants provided only that the sum of n satisfactions of a want is the same regardless of the sequence in which they are taken. Since, by hypothesis, the person is in the same condition at all occurrences, this condition is fulfilled.

A scale of this second sort could be made for intense wants and satisfactions, which might be troublesome to equate against shocks. When the number of shocks is great, it may be hard for anyone to administer them and for anyone to appreciate their unpleasantness.

Consider now the money bids made by John Doe in condition A for the gratification of the wants point by point along the order of magnitude determined for him. If he bids 10c, 20c, 30c, 40c, etc. for W_1, W_2, W_3, W_4, etc., in what sense can we infer that $W_2 - W_1 = W_3 - W_2 = W_4 - W_3$, that $W_1 + W_3 = W_4$, $W_1 + W_2 + W_3 = W_6$, that the average strength of W_9, W_{10} and W_{11} is equal to W_{10}, that $W_4 = 2W_2$, $W_8 = 8W_1$, etc., etc.? Concretely, suppose that he is in condition A on a hundred occasions, and on each is given $1.00 to spend, and that he spends it on one occasion for $10W_1$, on another for $8W_1$ and $1W_2$, on another for $7W_1$ and $1W_3$, on another for $2W_5$, on another for $1W_1$ and $3W_3$, on another for an installment of one tenth of W_{100} for future delivery, in what sense can we use the resulting equations to infer that the quantitative relations of the intensities of the wants in question correspond to the quantitative relations of the monetary payments. If the amount of preference represented by each 10 cents is the same regardless of the position in which it appears in the order of payment, the correspondence

may be regarded as complete. The equating of wants by money payments is then equivalent to their equating by direct barter in the second method.*

In a scale for amounts of preference the steps from 1 to 2, 2 to 3, 3 to 4, 4 to 5, etc. are, of course, not equal in the sense that the smoking of a cigarette *is* eating two grams of chocolate or one tenth of seeing a movie. No more does the scale for volume mean that a 50-foot steel tape *is* 50 wooden foot-rules or 16⅔ linen yard-measures. It is the abstract feature of intensity or amount of want, gratification, or preference that we are concerned with.

We have occasionally spoken as if the scale of wants would be equivalent to a scale of the satisfyingness of their gratification or fulfillment. In experimental scaling where the person whose wants are being measured has had abundant experience of their satisfaction this will be the case with extremely few or no exceptions. In particular, in the equating of a certain number of W_1 against a certain number of W_2 the strength of the wants is estimated by the person by his expectations from their satisfaction. In general, in so far as the intensity of wants is due to past experiences of their satisfaction, the correspondence will be close. Strictly speaking, however, the methods of scaling by shocks and money payments give scales of wants or preferences rather than of amounts of satisfaction.

I venture to remind the reader of two obvious limitations upon scaling. All scaling fails when the person's wants are so imperative or "infinite" that they cannot be rated as multiples of other wants, or even be put in an order of magnitude. All scaling for any given person in any given condition will suffer in precision from failures to keep him in that condition during the observations and experimentation, and will depend for its precision upon the impartiality and precision of the observations.

* There is a possibility of disturbance in both cases if the want is for the possession of some object or use of some service the exchange value of which is known to John Doe. He may then bid for it with the idea of selling it, or may not bid above the market price knowing that he can gratify the want for that outside the experiment, and so pay more or less than he would if he considered only his own want for it. We have tacitly assumed that the conditions of the experiment exclude the influence of exchange value and "consumer's surplus."

On the whole it seems possible to turn the order of magnitude of the "finite" wants of a given person in a given condition into amounts in definable units which can be reasonably and profitably added, subtracted, multiplied, divided and expressed as multiples or fractions one of another. This does not, however, get us very far with the measurement of wants in general. For, in strict logic, the order or amounts found for a certain man in one condition give no certitude concerning the order or amount for that man in different conditions, or for other men in that or other conditions; and in fact the order or amounts may change greatly from one person to another and from one condition to another.

It is this variation between different conditions of one person and between persons, not any essential immeasurable quality in human preferences, which hinders quantitative studies of wants. To discover whether, over a ten-year period, John Doe's desires to have friendly companionship (or his satisfactions from having friendly companionship) were 1½, 2, 3, 4, or 5 times as strong as his desires to hear music (or his satisfactions from hearing it) might be a long and difficult job. To discover whether these desires in R. Roe were .1, .2, .3, .4, etc. as strong as in J. Doe might be an even longer and more difficult job. To use measurements in units of money, shock, avoidance, etc. in such comparisons we need to know changes in the value of money, shock, avoidance to the person from one condition to another and differences in their value to different persons. If we work by equating N satisfactions of W_1 against $N + K$ satisfactions of W_2, we must find some W as a base which can be assumed to be equal in spite of differences in condition or between persons.

It is possible that the search for such W's will be a profitable enterprise. For example, the addition of N units of general purchasing power might be found to give approximately equal satisfactions to John Doe irrespective of all conditions in him except wealth. The absorption of S grains of water might be found to give approximately equal satisfactions to all persons who were equally dehydrated. But none have been as yet validated for use.

Nobody has scaled accurately any considerable number of wants of the same person in the same conditions, partly because

the information is not in and of itself of sufficient importance. Nobody has scaled the wants of the human species, or any considerable part of it, for praise, power, freedom from fear, music, stories, jokes, sweet tastes, soft beds, intoxicating drinks, children, animal pets, sex indulgence, romance, or anything whatsoever, because the difficulties are appalling. Thinkers realize the importance of such measurements, but lack the facilities to make them.

They therefore do the best they can in the case of scientific problems in psychology, ethics, government, sociology, penology and the like, using judgments of greater or less which seem probable, such as that the average prudent modern European adult from 60 to 70 wants security more than excitement, or that the youth of 1940 want security in respect of the avoidance of hell and purgatory less than the youth of 1540 did, or that the average present American family wants a $300-a-year home plus an automobile more than a $500-a-year home and no automobile.

What is probable, or even certain, to one thinker may, however, be dubious to others. So Veblen's belief that the leisure classes want self-approval and the admiration of others so much more than beauty, the welfare of others, and other goods over and above subsistence, sex indulgence and safety that they spend most of their surplus in "vicarious consumption" and "conspicuous waste" has not been accepted by all. So the assumption made by Bentham, the Mills, and other high-minded rationalists that all normal men and women have a strong desire to think out a logical, consistent plan of life and pursue it at least so far as it does not interfere with other wants, seems fantastic to the working politician, advertising man, or psychiatrist.

Indeed, except for the self-evident cases where a positive want is compared with indifference or an aversion, and the uninstructive cases where imperative or "infinite" wants are compared with obviously weaker ones, it is hard to find judgments about the magnitudes of wants in different persons or different conditions of the same person which have been satisfactorily demonstrated.

Those who make quantitative investigations need units and

scales competent to express and make comparable the magnitudes of wants, satisfactions, etc. of the same person in different states, different persons in the same (or approximately the same) state, and different persons in different states. Such units and scales would be valuable as a language in which to discuss human nature and behavior even if practical difficulties prevented any wide use of them in actual measurements. Our opinions about the amounts of wants, satisfactions, pleasures, pains, and other facts of preference might become more useful if they could be stated in terms of such units and scales, even though they remained as subjective as before. It was advantageous to express opinions about the age of the earth in years rather than as old, very old and extremely old, even when such opinions were very rough estimates.

So we may profitably consider further the possibilities mentioned above and some others.

MONEY PAYMENTS

Money payments by a person in different states but with the same wealth and income and no known reason for changed esteem for the total of what money will buy may not unreasonably be used to compare wants (and satisfactions in so far as he has learned to pay for things in proportion to the satisfactions he gains from them). If such a person is willing to pay a dollar if necessary, but no more, for a certain book, for a certain concert, and for a certain added stylishness in a pair of shoes, and two dollars if necessary, but no more, for a certain added stylishness in a hat or for a hundred cigarettes, he or she may be said to have wanted the first three equally and to have wanted the added stylishness of the hat twice as much as that of the shoes. The added satisfaction from possessing and wearing the more stylish hat, if it lives up to its promise, may be said to approximate the satisfaction added by two cigarettes a week for a year. Such a person might learn to estimate his desire to take a day off from work, to feel that he had given a fit and proper annual contribution to his church, to wear a new suit for three weeks instead of an old and shabby one which would, however, have lasted that long, to spend a Sunday at the beach, to have cream in his

coffee for a year, or to stop a certain toothache, by the limit he would pay, if necessary, so as to equate all against his desire for concerts or cigarettes or against his average desire for what a dollar can buy.

But such estimatings require powers of abstraction and imagination which may work imperfectly; and they may give different results from those which would be found by confining the person in an experimental environment where the prices of things could be shifted at the experimenter's will. So a person who is sure that he would never pay five cents for a cigarette might do so if he could not have one otherwise, and some other person who is sure that he would go barefoot rather than lack tobacco might in reality suffer the craving rather than the ignominy.

In cases where a person has had experience of having had to pay widely different amounts of money on various occasions or go without the satisfaction, his estimates deserve more trust; but such cases are rare.

The money unit will, I think, be useful in measuring wants over a far wider range of phenomena than those to which they have hitherto been restricted. In a sense any satisfaction that can be bought with money is measurable in money units, and workers in other sciences than economics should recognize and make use of this fact. Its possibilities with proper precautions and interpretations should be thoroughly explored. Science should not, however, be content to make the most and best use of money units, nor should it be disturbed by the alleged subjectiveness of satisfactions and annoyers.

THE USE OF INTRINSIC UNITS OF SATISFACTION, DISCOMFORT, DESIRE, AND AVERSION

Consider first the want for water of a person in a specified state (say 24 hours after satiation with water, all spent resting in a temperature of 70° F., eating at will of plain white bread), the annoyance of that state during its last hour, and the satisfaction from the ingestion of so much water as reduces the want to zero.

If we should use this amount of want or this amount of satis-

faction as a unit with which to compare and to which to refer other amounts of want and of satisfaction, and should assume that it was the same amount in John Doe whether the experiments occurred in 1935, 1936, 1937 or 1938, whether John was richer or poorer, more virtuous or more vicious, wiser or less wise, how large an error would we make?

We do not know. The way to find out would be to identify the physiological facts in the man corresponding to the specified state and the changes in them produced by the ingestion of the water. If these were the same on the different occasions, there would be no reason to suppose that the want, annoyance, and satisfaction were not the same on the different occasions. These physiological facts are at present inaccessible. On general biological grounds, we may expect that the differences would be small.

How large errors would we make if we assumed that the amounts for Richard Roe subjected to the same experience would be equal to those for John Doe? The way to find out would be the same, by comparing the physiological facts in Richard and in John. If all men show the same patterns for the thirst and its abolition, their amounts of want, annoyance, and satisfaction may be treated as equal. On general biological grounds, there is greater probability of differences among men than within one man, in tolerance of dehydration, in the sensitivity of the neurones to the conditions of other parts of the body, and in satisfaction at the existence or the restoration of normal functioning. None the less the patterns would probably be much alike and the consequent amounts of want, etc. much alike.

Moreover two important features of the differences between persons might do relatively little harm. Suppose that persons differ in the amounts of satisfaction they experience when the specified state is abolished by sufficient water, and differ in the same ratios in the amounts of satisfaction they experience from any and all satisfying changes. Then the use of the proposed unit is valid for all comparisons of different persons with the limitation that every measure of any person needs to be multiplied by a factor expressing his power of having greater satisfactions in general. Similarly for differences in the amounts of annoyance.

Now for many purposes our lack of knowledge of what these factors are and failure to use them may do little harm or may even do some good. The failure will result in our treating the greatest satisfactions of John, Richard, *et al.* as equal, their median satisfactions as equal, and so on to the greatest discomforts. In the administration of benevolence and justice, this might prevent our restricting John to less than the best the world could give him, because his best was far above Richard's. Such restriction might conceivably in no way benefit Richard; and the sensitive John's unearned increment of satisfactions runs the risk of being balanced by an excess of misery from the discomforts of life.

There is still another instructive possibility. Suppose that persons differ in the amounts of satisfaction they experience when the specified state is abolished by sufficient water, and differ by the same absolute amounts (not ratios, as in the previous case) in the amounts of satisfaction they experience from any and all satisfying changes. Then the use of the proposed unit is valid for all comparisons of different persons with the limitation that every measure of every person needs to have added or subtracted a quantity expressing his power of obtaining always a certain minus or plus of satisfaction compared with the average person. If this possibility were real, the amounts to be so added or subtracted could be determined for various persons by observing the zero or indifference point for each. The most easily satisfied person would have zero satisfaction and zero annoyance in a situation which would be lower on the scale than the situation which produced zero satisfaction and zero annoyance for the least easily satisfied person. If we call the condition producing zero satisfaction in the average person 0, some persons will then be satisfied by states of affairs which produce discomfort in others.

No such simple scheme of differences is real, but there probably are differences consisting in a more or less general greater satisfiability of some persons than others; and a hundred states of affairs which are on the whole indifferent to the ordinary person may average a substantial enjoyment to some and a sub-

stantial discomfort to others. These differences are of great importance in human affairs, but they are too specialized and confused and ill-known to be allowed for in the use of our proposed unit of measure.

Ordinary business men, statesmen, teachers, physicians, or clergymen explicitly or implicitly compare the amounts of the wants, aversions, satisfactions, discomforts, pleasures and pains of different persons, putting them on scales running from indifference to extreme amounts. They act on the basis of such judgments as "A wants that block of stock or piece of land much more than B does"; "Mrs. C. is satisfied by flattery a little more than Mrs. D."; "E must have felt twice as severe pain as F"; "G dislikes mathematics more than any other pupil I ever had." "In intensity of desire to help their fellow men, I would rank the five men in the order K, H, L, J, I." Their scales are very crude; their judgments are doubtless subject to error; they would perhaps not defend their procedures if criticized. But they do make such judgments, and we may profit by examining their practices and the theory involved. We all use such judgments unhesitatingly unless we are made critical by the difficulty of proving that the judgments are valid, or by the difference between them and judgments of physical magnitudes, or by philosophical or logical scruples about knowledge of other minds than one's own.

They, and we, judge the direction and amount of a difference in the wants, satisfactions, etc. of two persons by the behavior of the persons and by any other observable facts about them.

A's want for X is judged to be great, and greater than B's, because A keeps watch of the prices on X, responds differently when X is mentioned, has a special need for X, etc., etc. C's enjoyment of flattery is judged to be more than D's because C shows more emphatic signs of enjoyment and is moved to buy, consent, grant favors, etc., more by flattery than D is, etc., etc.

The same sort of facts which lead us to judge that A wants X, lead us to an estimate of the intensity of his want for it. The same sort of facts which lead us to judge that E and F are afflicted with pain lead us to estimates of the amount of E's pain, the

amount of F's, and the amount of the difference. Whatever facts lead us to think that a person has a preference are able to lead us to some rough estimate of the amount of the preference. The facts are of the same general nature as those which lead us to think that one person's repulsion at snakes or enjoyment of a pun is greater than another's.

Two facts support these practices. The first is that they work. The judgments are not chaotic and futile, but reasonable (in the sense that competent judges agree far above chance in such judgments) and profitable (in the sense that we keep alive and well and happy better by accepting them than by accepting their opposites or by making no such judgments at all). This is a sufficient justification for science to proceed to refine and extend and safeguard such judgments.

The second fact is that fundamentally our comparisons of length, volume, mass, temperature and other physical magnitudes are no better off—that they, too, rest upon human judgments; only the agreement here is very much closer, and the measurements are simpler and more direct. We know and measure men's wants, pleasures, etc. as we know and measure their heights and weights and body temperatures, by data of our senses treated by our intellects. We know that the voltage in circuit A is 1.4 higher than in circuit B with great certainty; we may hope to know that the satisfaction in person A is 0.4 thirstads (calling the satisfaction of the experience described on p. 162 in the case of the average person, one thirstad) greater than the satisfaction in person B in the same general way but much less surely. In the treatment by our intellects, analogical reasoning which uses the person's direct experience of his own life may play a part, but this has little to do with the comparisons of the magnitudes of wants, pleasures, etc. in different persons. A social scientist's direct experience of his own life gives him a realizing sense of what people call pain, pleasure, desire, aversion, fear, hot, cold, long, short, heavy, etc., etc.; but such direct experience does not greatly help him to invent scales for pain, pleasure, desire, heat, length, or weight. This second fact may serve as an antidote to squeamishness about efforts to measure what is alleged to be inaccessible.

"INFINITE" DESIRES AND AVERSIONS

The desires of animals, including man, vary in strength from mild preferences easily counteracted by some competing attraction to absolute, uncompromising drives which take complete possession of the creature—categorical imperatives which exclude self-denial. The latter may be called "infinite" in the sense of immeasurably great to the person who possesses them (better, who is for the time possessed by them).

Such infinite desires are most obvious in abnormal persons such as the man in the asylum who chopped off his hand with a hatchet, cried "alcohol, alcohol for my arm," and when the excited and confused attendants brought the alcohol, drank it! But they occur more or less normally in extreme hunger and thirst, in sex desire, in cravings for the relief given by drugs, and in the body's demand for sleep.

Specially rational minds may reduce these immeasurable desires to measured amounts and put them in comparison with the sums of lesser wants. But many persons do this rarely. The drunkard who in his actions prefers his want for alcohol to the sum of his wants for the welfare of his family, the approval of his friends, the self-respect of his better moments, etc., probably does not make the calculation and choose the alcohol. He simply at the time of temptation acts upon an absolute, unrestrained, obsessional desire.

In an experiment, persons were asked to state the number of days they would spend in jail at hard labor (but with no disgrace to them) in order to gratify various wants, one of which was "to spend a year with Byrd at the South Pole." One person, who seemed entirely sincere, reported that he would spend ten years in jail for that privilege! And in fact that item was included in the experiment because a boy among a thousand who were tested by my staff at about age 14 and followed thereafter made three desperate attempts to hide on Byrd's ship. He was unutterably happy when his pertinacity was finally rewarded. Such cases probably mean that the wants in question are almost immeasurably great.

The case is even clearer for aversions. Let the reader con-

sider what sum of measurable benefits to himself (or to himself and all others, for that matter) would induce him to be blinded and have both legs and both arms cut off. Unless he is well advanced in years or is a superman for rationality and benevolence, he will promptly refuse what a million dollars could buy, or ten millions, or a million millions.

To many persons, even a minor mutilation of one's body, or insult to one's nature, or a deprivation from some customary enjoyment, seems intolerable, as in the experiment described below in the case of (A) 60 students and teachers of psychology and (B) 39 persons under 30 years of age, mostly college graduates, all of whom were destitute recipients of public relief, and so presumably very sensitive to the value of money. The 39 persons of group B were all used to psychological tests and questionnaires and cooperative and sincere in their replies.

For how much money, paid in cash, would you do or suffer the following? Write the amounts on the dotted lines. You must suppose that the money can be spent on yourself only and that whatever you buy with it is destroyed when you die. You cannot use any of it for your friends, relatives, or charity.

.....1. Have one upper front tooth pulled out.
.....2. Have all your teeth pulled out.
.....3. Have one ear cut off.
.....4. Have your left arm cut off at the elbow (right arm if you prefer).

and 47 more, the last four being

.....48. Suffer for an hour pain as severe as the worst headache or toothache you have ever had.
.....49. Have nothing to eat but bread, milk, spinach and yeast cakes for a year.
.....50. Go without sugar in all forms (including cake, etc.), tea, coffee, tobacco, and alcoholic drink, for a year.
.....51. Lose all hope of life after death.

Table 10 lists some of the mutilations, deprivations, etc. which were valued and gives after each (1) the median amount demanded by the students and teachers of psychology, (2) the

TABLE 10

VALUATIONS OF CERTAIN MUTILATIONS, DEPRIVATIONS, ETC.
[DATA FROM THORNDIKE, '37]

Item	Median amount demanded		Percentage reporting that no sum would suffice	
	By students and teachers of psychology	By young recipients of relief	Students and teachers of psychology	Young recipients of relief
Have one upper front tooth pulled out	$ 5,000	$ 4,500	23.3	20.5
Have all your teeth pulled out	1,000,000	750,000	46.7	41.0
Have one ear cut off	No sum	1,500,000	61.7	38.5
Have your left arm cut off at the elbow (right arm if you prefer)	No sum	2,500,000	70.0	41.6
Have a little finger of one hand cut off	75,000	200,000	35.0	30.8
Have the little toe of one foot cut off	10,000	57,000	25.0	25.6
Become entirely bald	750,000	75,000	43.3	28.2
Have one leg cut off at the knee	No sum	40,000,000	70.0	41.0
Have smallpox, recover perfectly, except for about 20 large pock-marks on your cheeks and forehead	No sum	1,000,000	50.0	33.3
Become totally deaf	No sum	100,000,000	75.0	46.2
Become totally blind	No sum	No sum	76.7	53.8
Become unable to chew, so that you can eat only liquid food	No sum	10,000,000	63.3	41.0
Become unable to speak, so that you can communicate only by writing, signs, etc.	No sum	15,000,000	71.7	46.2
Become unable to taste	1,000,000	5,000,000	45.0	41.0
Become unable to smell	300,000	150,000	36.7	33.3
Have to live all the rest of your life outside of U. S. A.	200,000	150,000	16.7	5.1
Have to live all the rest of your life in Iceland	No sum	1,000,000	50.0	25.6

TABLE 10 (*Continued*)

Item	Median amount demanded		Percentage reporting that no sum would suffice	
	By students and teachers of psychology	By young recipients of relief	Students and teachers of psychology	Young recipients of relief
Have to live all the rest of your life in Japan	1,000,000	500,000	36.7	17.9
Have to live all the rest of your life on a farm in Kansas, ten miles from any town	1,000,000	300,000	40.0	15.4
Have to live all the rest of your life shut up in an apartment in New York City. You can have friends come to see you there, but cannot go out of the apartment	No sum	60,000,000	73.3	38.5
Eat a dead beetle one inch long	5,000	5,000	21.7	15.4
Eat a live beetle one inch long	25,000	50,000	35.0	30.8
Eat a dead earthworm 6 inches long	5,000	25,000	20.0	17.9
Eat a live earthworm 6 inches long	10,000	100,000	31.7	33.3
Eat a quarter of a pound of cooked human flesh (supposing that nobody but the person who pays you to do so will ever know it)	1,000,000	100,000	45.0	25.6
Drink enough to become thoroughly intoxicated	100	50	6.7	7.7
Choke a stray cat to death	10,000	10,000	35.0	30.8
Let a harmless snake 5 feet long coil itself round your arms and head	500	100	10.0	5.1
Attend Sunday morning service in St. Patrick's Cathedral, and in the				

TABLE 10 (*Continued*)

Item	Median amount demanded		Percentage reporting that no sum would suffice	
	By students and teachers of psychology	By young recipients of relief	Students and teachers of psychology	Young recipients of relief
middle of the service run down the aisle to the altar, yelling "The time has come, the time has come" as loud as you can until you are dragged out	100,000	1,000	31.7	10.2
Take a sharp knife and cut a pig's throat.....	1,000	500	18.3	20.5
Spit on a crucifix ...	300	5	23.3	20.5
Have nothing to eat but bread, milk, spinach and yeast cakes for a year.....	10,000	25,000	15.0	7.7
Go without sugar in all forms (including cake, etc.), tea, coffee, tobacco, and alcoholic drink, for a year.....	1,750	2,000	10.0	10.2

median amount demanded by the young recipients of public relief, (3) the percentage of the students and teachers of psychology by whom no sum was deemed enough and (4) the similar percentage of the young recipients of relief.

Doubtless actual cash offers much lower than the amounts stated would have been accepted, if made. But many of these statements of "no sum" would, I think, have been duplicated as responses to real offers. At all events they and also the absurdly high demands expressed in dollars, testify to a strong tendency of human beings to consider some of these events as immeasurably repugnant.

THE USE OF EQUALLY OFTEN NOTICED DIFFERENCES

One of the hopes of psychology was to obtain equal units of sensation, and one of the proposed methods of doing so was by treating any difference in, say, sweetness which one could just barely perceive as equal to any other barely perceptible dif-

ference in sweetness. If these just perceptible or least noticeable differences in, say, sweetness can be treated as equal, it is possible to form a scale for any one person in any one condition running from 0 to that which is so sweet that no sweeter sensation can be had. The physical stimuli causing 1, 2, 3, 4, 5, 6, etc. units of sweetness, or sensed pressure, or sensed heat, or sensed length, could be used to produce and define them. If, for example, person A in condition Alpha can just barely distinguish .1 mm. from no length at all, .2 mm. from .1 mm., .34 mm. from .2 mm., .52 mm. from .34 mm., .75 mm. from .52 mm., 1.02 mm. from .75 mm., 1.34 mm. from 1.02 mm., 1.7 mm. from 1.02 mm., etc., then the sensations known as 1, 2, 3, 4, 5, etc. can be produced in him by showing him lines .1, .2, .34, .52, .75, etc. mm. long. The differences in physical lengths corresponding to equal differences in sensation may be very unequal, in this case becoming much greater as the sensation increases.

In the actual determination of equal units of sensation for any person by this assumption it becomes desirable to shift from the least noticeable or barely perceptible differences to very small differences that are equally often noticed or perceived. For the person's variability of response to any external difference is very great. Two lines l and $l + k$ in length being presented a hundred times, $l + k$ may sometimes seem much longer than l, sometimes barely longer, sometimes equal to l, and sometimes even shorter. There are no units of barely perceptible difference of sensation always and regularly evoked by the differences between L_1 and $L_1 + K_1$, L_2 and $L_2 + K_2$, L_3 and $L_3 + K_3$, etc. Moreover, the mind does not make its sensation or perception of l by the addition of so many tiny sensations of length and its perception of $l + k$ by adding so many more. A person's judgment of the difference between $L + K$ and L is not based on a direct comparison of them, but is a response to the two stimuli $l + k$ and l which is mediated by complex and hidden cerebral processes.

What can be found is only that $L_1 + K_1$ is perceived as greater than L_1, $L_2 + K_2$ is perceived as greater than L_2, $L_3 + K_3$ is perceived as greater than L_3 *in the same percentage of the trials.*

Two externally equal conditions L_a and L_b will not be always

felt as equal, but sometimes L_a will seem greater, and sometimes L_b. Any plus difference, no matter how small, will tend to increase the percentage of perceptions of "greater"; on the other hand differences far greater than that ordinarily perceived will not cause 100 percent of perceptions of "greater."

In the case of preferences, wants, satisfactions, annoyances, pleasures, and pains it is equally often noticed differences that concern us, not least noticeable differences.

I shall give a very incomplete account of this matter for the following reasons: (1) The logic of measurement and comparison by the percentages of differences that are observed to be +, 0 and — is subtle and not adequately explored. (2) The facts concerning actual cases of such measurement and comparison are numerous but are much disturbed by "chance" or "accidental" variations and are often not relevant to our present problem of measuring wants, satisfactions, pains, etc. (3) What most readers of this book will desire and need is a general notion of what may be expected from such measurements made by scientists who understand their theory and technique, not an understanding of that theory and technique.*

If the same person in the same condition prefers A to B in 75 percent of his choices between them, and B to C in 75 percent of his choices between them, we know at least two things about his preference for A over B and B over C. (1) In neither case is the preference very great, since it is so often reversed; (2) the order or preference is almost certainly A B C. This latter has been found again and again by experimental comparisons of A and C in such cases. We also (3) know that the preference of A over B is equal to that of B over C in the particular and limited, but possibly very instructive and useful sense that it occurs

* The method of treating as equal differences which are equally often noticed by a specified observer or group of observers was used early by Cattell and others. A simple account of the procedures will be found in Thorndike ['13, Chapter VIII, especially p. 122 f.]. A more refined technique is presented by Thurstone ['27] and elaborated by Horst ['32]. The treatment when not all of the *n* differences are judged by all of the N judges has been described by Thorndike ['16]. For results obtained by the use of this method in the measurement of degrees of value or merit and preferences of various sorts, see Thorndike ['10, '11, and '13A] and Horst ['32].

equally often. Cases where A is preferred over B by K percent and over C by K + A percent (or by K — A percent) also give valuable information. So also do cases where A is preferred over B by K percent, and B over C by K + A percent (or by K — A percent). The fundamental fact is that percents of difference in preference, satisfaction, pain, etc. between 50 and 99 are in some relation to the magnitude of the preference, satisfaction, pain, etc. Other things being equal, the greater the difference, the oftener it will be felt, observed, acted upon, or otherwise be influential in behavior.

The method of comparing the magnitude of differences in wants, satisfactions, pains, etc. by such percentages is flexible and applicable in a great variety of cases. For the comparison of W_1 with W_2 over ten years of a man's life we may take a thousand samples of choice at random from those ten years. For the comparison of W_1 with W_2 in a group of n persons in a given condition, we may use a small number of samples (conceivably only one) for each person and still obtain a reliable determination for the group. We may, if we do not misunderstand what we are doing, profitably compare things which seem to ordinary opinion incomparable. For example, if 80 percent of college seniors get more enjoyment per hour from reading Galsworthy's novels than from reading Thackeray's, and if 80 percent of them get more enjoyment per hour from tennis than from handball, the differences being moderate in amount in all individuals, then in a certain real though limited sense the two differences are equal. Access to Galsworthy's novels rather than Thackeray's and to a swimming place rather than a tennis court will be in a certain sense equal boons to the college seniors.

If I get more pleasure from coffee than from tea, and from salted butter than from unsalted, and from *The Times* than from *The Herald-Tribune,* in each case in 73 percent of the trials, the differences in pleasure all being of moderate amount, then in a certain real, though limited sense, the three differences are equal and my loss of pleasure would be as great from restriction to tea as from restriction to unsalted butter or to the *The Herald-Tribune.*

The method is specially suited to differences which are small

and dubious, such as differences in the preferences among certain foods, articles of clothing of equal price, poems, or minor discomforts. It can, however, be made applicable to differences of any magnitude, by inserting intermediate steps.

Its acme of utility is reached where we can assume that the real magnitudes of the difference in the comparisons for one person in one condition, or for one person in a certain sampling

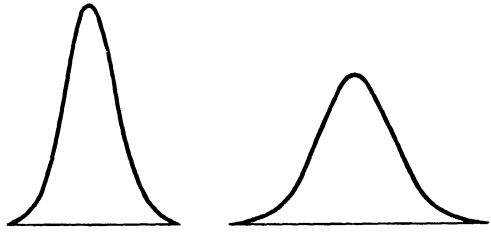


FIG. 10. Type of distribution to which variable traits in individuals often roughly approximate. The two diagrams represent the same "normal" form of surface, the only difference being in the variability.

of conditions, or for a group of persons all in the same condition, or for a group of persons in a certain sampling of conditions, if we knew them, would be distributed symmetrically and approximately as shown in Fig. 10, the bell-shaped surface of frequency which is characteristic of so many living phenomena, individual and social.

For example, there would be only a small risk in assuming that the greater satisfaction from 11 cc of water than from 10 cc to a man on a thousand occasions of equal dehydration would approximate such a distribution; or that the greater satisfaction to a thousand men equally dehydrated on one occasion would do so. Similarly for the greater pain from a slightly greater electric shock, and for other cases where the causes of variation in each of the two sets of wants, satisfactions, etc. are numerous, independent, and not greatly different in the magnitude of their effects.

It would, on the contrary, be very imprudent to assume that the greater preference for the Christian than for the Jewish re-

ligion, or for the Republican rather than the Democratic party was so distributed in a thousand men. These differences are due to a few causes, often intercorrelated, and differing greatly in the magnitude of their effects, such as parentage and friends in the former case, and geographical location, parentage and

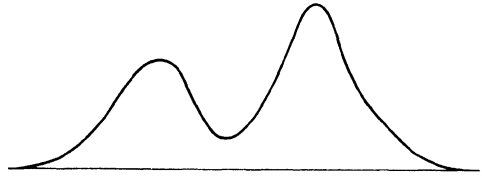


FIG. 11

occupation in the latter. The distribution may well be bimodal as shown in Fig. 11 or much skewed as in Fig. 12 or otherwise very different from the type shown in Fig. 10.

In general I conclude that we do measure and compare quantitatively desires and aversions, satisfactions and discomforts, preferences pro and con, within a person and between persons, but that we measure them crudely and with the possibility of

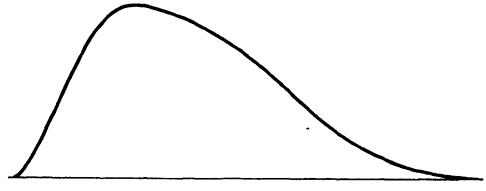


FIG. 12

large errors. Science may prudently begin with the best that we have and hope to invent better want-meters as it invented balances, clocks, thermometers, and the like. It may hope to handle the large personal equations in dollar estimates of wants as it handles the small personal equations in timing star-transits. It may make appropriate use of theorems concerning the equality under certain conditions of equally often noticed differences in wants. Nobody denies that the average desire of a random

thousand adults under ordinary conditions for air to breathe, liquid to drink and a bed to sleep in is greater than their desires for a rose to smell, gum to chew, and a toothpick to play with. In time we may be equally sure whether the rose is preferred to the chewing gum, and even concerning the order of preference among a score of roses. We may have faith that behavior parallels and reveals the strength of desires and aversions, satisfactions and annoyances, and that science can learn to use facts of behavior better and better.

This optimistic conclusion will meet with criticisms.

CRITICISMS OF MEASUREMENT OF PLEASURES, PAINS, DESIRES, AVERSIONS, SATISFACTIONS, ANNOYANCES, AND PREFERENCES

Some of the criticisms that have been made have already been answered. One important one has not. This is to the effect that one pleasure (say, of eating) is qualitatively different from another (say, of hearing music), that one aversion (say, against being beaten) is qualitatively different from another (say, of being ridiculed), and so on; that each qualitatively different sort of pleasure, pain, desire, etc., requires a quantity scale of its own; and that the amounts on one scale are not comparable with those on another, just as amounts of length are not comparable with amounts of weight, or of temperature, or of electrical resistance.

Both parties must agree that there are qualitative differences, and that for a complete description or inventory of, say, the reader's pleasures from eating an apple and from hearing an opera, at least two different scales (probably more) must be used. When we say that the reader's pleasure from hearing an opera is n times that from eating an apple, we must not imply that it is identical with his pleasure from eating n apples. But the two may be comparable in *amount* of pleasure. And they certainly are comparable in amount of preference, if in fact the reader does make identical sacrifices to hear one opera and to have n apples to eat.

Whether they are comparable in amount of some general quality of pleasure depends upon whether a common element exists in the two "pleasures." The usage of language suggests

that there is, but language may easily mislead; and no competent student of measurement would assume that we should or could measure on one scale any experiences whatever, provided only they were called by the same name. The useful criterion is serviceability for thought, prediction, and control. We cannot tell in advance. Man could not have told in advance that the motions of men and the heat of their bodies could properly be put on one same scale, or that lightning and loadstone were quantitatively comparable, but that lightning and Jove's wrath were not.

When a common quality is easily experienced in almost perfect isolation (as in the length of a very thin stick, or the increasing heat of the same bar of metal), we can readily scale it, and can then perceive it and treat it even though it is obscured and complicated by mixture of other qualities (as in the length of a horse and wagon or the heat of ice). Nobody has yet found any clear and convenient way to isolate one quality common to many experiences and reasonably called pleasure or pleasurableness, and it may be better always to take account of many sorts of it. But physiology and bio-chemistry may isolate such a quality in the near future.

Of two things, we may be sure. If science can devise a useful scale for the amount of a quality, whether it be a very special or a very general quality, amounts of that quality are measurable and comparable, no matter how incomparable they now seem. Unless science can do so, the fact that we now think they should be measurable and comparable will not greatly alter our treatment of them.

The real force of the criticism is as a warning against restricting, mutilating, and confusing our treatment of pleasures, pains, desires, etc. by providing too few scales, and especially by presuming to measure varying amounts of a certain quality in things none of which possess any of it. An error of this sort was made by those in the past who treated the scale for amounts of pain as a negative continuation of the scale for amounts of pleasure. There are important facts in opposition to this.

On the whole, we may conclude that one scale will be applicable to all amounts of preference, though it will, of course, no

more describe all preferences fully than one scale of length describes fully all the characteristics of all men, ants, light rays, and planetary orbits. Nor will it be applicable in certain cases without expert control of its use; nobody, including John Doe himself, may be able to decide by how much he prefers the consolations of religion to those of alcohol. Nor will it be free from indeterminacy among certain "infinite" preferences for or against. Nor will it be free from the observational difficulties of comparisons between two states of a person, and between two persons, which were discussed in the previous section.

The preference scale is perhaps all that is essential for progress in the social sciences; but we may usefully assume that certain experiences differ in the amount of some one quality, call it desire or want, which is a frequent accompaniment of preferences, and is often highly correlated with their amounts. Common sense uses such a scale or gradient; the sciences of economics, politics, and government assume it in their reasonings about particular desires or wants. The same is true for amounts of some one quality, call it dislike or aversion.

Whether this is a negative extension of the desire-want scale is uncertain. The common view has been that it is, but certain facts lead me to think that it is not. Since the cases where we seem to need to add or subtract desires and aversions can be treated as well or better by dealing with the amounts of preference, it seems to me best to leave the desire scale and the aversion scale as starting from the same point or area of indifference but not necessarily being in exactly opposite directions and meaning two mathematically neutralizing quantities.

Scales for the amount of satisfaction and annoyance, will, by certain definitions of these qualities, amount to a single preference scale. But if satisfaction and annoyance are defined as the favoring and disfavoring attitudes of the organism on which its preferences are largely based, they may need two scales. And if it is desired to reproduce in the measurement such particular qualities as most of us have in mind at the words contentment, enjoyment, gladness, irritation, discomfort, and misery, they may need more than two separate scales for the amount of pleasure and the amount of pain. Moreover, there are biological facts in favor of

making one scale for sensory or "bodily" pains such as itches, hunger pangs, gripes, sorenesses, stings, nausea, "shooting pains," etc., and another for the "mental" pains of fear, shame, remorse, nostalgia, etc. The "painful" quality which is actually common to all these may not be much more than their tendency to be annoying and cause preference against. When a person rates certain pangs of hunger and certain pangs of regret as equally painful, he may be doing little more than calling them equally objectionable, that is equally preferred against or contra-preferred.

The psychology of pleasures has been so little studied that it would be rash to guess what common strands various groups of them have, or to decide whether all of them have any common strand. The pleasures of taste and sex, of bodily play, hunting, capture, conflict and victory, of sound, color and rhythm, of thought and expression, of rest, relaxation and peace; of sociability, giving and receiving affection, and intimate friendship, of public approval and self-respect—all these are alike in that they ordinarily cause satisfaction and are preferred above zero, and may be alike in some further unitary element or feature. But this last is certainly not obvious and emphatic.

Another important criticism has been made by those who in general actively favor quantitative studies. They have forestalled their critics in showing that in certain cases A may seem greater than C though A seems less than B, and B seems less than C. Similarly in certain cases X may seem less than Z though X seems greater than Y, and Y seems greater than Z. These inconsistencies are, of course, often caused by errors of observation, including self-observation, but such errors may not account for all of them. They are probably caused in part by the fact that the condition of the person or persons is not the same when $A > C$, as when $A < B$ and $B < C$. They are probably in part errors in the sense that the A, B, and C are not really the same in the two sets of comparisons. But there may be, as very rare occurrences, cases where such a direct comparison and indirect comparison disagree without our being able to trace the causation of the disagreement, though it doubtless has some natural cause.

The value of this criticism is as a warning against attributing to human estimates of pleasure, pain, desire, etc. a logic and a business-like accounting which they lack. Our untutored estimates are biological rather than logical, and even the most sophisticated ratings, rankings and other judgments, if they are honest, will show inconsistencies in logic and bookkeeping.

I venture a third criticism of the scales of preference, desire, aversion, satisfaction and annoyance, which, so far as I know, has not been put forward hitherto. It is that no fundamental, natural, biological unity parallels any one of them. Take the preference scale as an example. A person's amount of preference for and against may be shown now by approach and retreat, now by reaching and withdrawing, now by swallowing and spitting out, now by smiling and screaming, now by laughing and weeping, now by preserving and destroying, buying and selling, approving and disapproving, and so on for scores of instinctive and acquired behaviors, and thousands of combinations thereof, often of a very artificial nature dependent upon very specialized customs and circumstances. His amount of preference often has to be inferred from an elaborate survey of many diverse courses of action. If we could see some balance in his brain on the two pans of which various considerations pro and con were piled, or some flow of something which was augmented or diminished by such considerations, it would be easier to believe in the unity of preference. For some simple sessile animal that ingests or discards what the environment presents preference is a unity, and variations in the vigor of its sucking in or waving away may be a scale for its amounts of preference. But in man the unity is made almost *ad hoc* by definition; the scale has to be constructed by ingenious study; and it seems too much imposed on nature and too little derived from it.

The best answer to the criticism will be the pragmatic one of what good comes from the use of the scale. Provisionally we may note two facts: (1) For treatment of the life of man in the state of present civilization, any adequate preference scale will probably have no simple natural unit back of it. The scale is imposed on nature only to the extent that man has imposed business, gov-

ernment, and other features of civilization upon nature. Any useful scale of preferences must fit man and his works, as well as the rest of nature.

(2) The contrast with demonstrably valid and useful measurements is not so great as the criticism leads one to think. The scales of electrical resistance, conductivity, and impedance, for example, are not so simple as the scale of length; few, if any, scales of purchasing power have been in natural units; very important work was done in measurements of electrical currents and atoms before their "natural" units were discovered, and was a necessary means of discovering them.

THE MEASUREMENT OF NEEDS

The measurement of needs is in certain respects easier than the measurement of wants, satisfactions, pleasures, etc. Men are much more alike, though far from identical, in what they require in order to have normal health and growth and to do specified amounts of physical and mental work, than in what they enjoy.

The bad results of a given deficiency in water, carbohydrates, proteids, vitamins, calcium, iodine, sleep, or exercise of certain muscles, can be estimated more or less well from loss in weight, failure to gain in size, weight, or strength, atrophy, lowered resistance to certain diseases, etc. Since a slight excess in the supply of foods, water, oxygen, sleep, etc. usually does little or no harm to health or efficiency, it is fairly easy to provide for most variations, both intra- and inter-personal, by the factor of safety of a generous allowance. The food needs of extreme variations, as in tuberculosis, diabetes, various glandular disturbances, pernicious anemia, etc., can also be more or less well measured. Needs for sleep, muscular exercise and sex indulgence are not so well measured, the criteria for mental health, growth and efficiency being less well established and defined than that for physique, but science may be trusted to make progress here also.

It is probable that doses of company, friendship, affection, entertainment and other subtle forces are needed for both physical and mental health, and that the needs in respect of these will be measured in due time.

Adequate criteria for mental health and efficiency will involve

satisfactions and avoidance or reduction of pains and other annoyers and so re-introduce the problems of measuring wants. An expert in nutrition can measure the food needs of an army or a college, but only from somewhat narrow criteria. The morale and fighting power of the army and the work and spirit of the college may depend on the satisfyingness of flavors as well as the number of calories. The body will absorb a vile hash of food and ashes as fully as the same foods served so as to gratify customary tastes, but no sane dietitian would serve food so. For efficiency in labor, family and community activities, etc., a certain degree of contentment is needed as truly as a certain intake of chemicals.

Experts now consider that babies need fondling and human play as truly as food and sleep. Psychiatrists teach that mental health requires affection, romance and restraint. Sociologists consider that a person who does not feel that he belongs to some human group and that the group belongs to him is maimed as truly as if he had lost a limb. These and other alleged needs can be measured if enough inventiveness and care are put to work. For any defined standard from mere survival and production of viable offspring to an *n*th degree of health, happiness and usefulness, it is theoretically possible for science to find out what things are needed and to measure the amount of each that is needed.

Chapter 8

MENTAL DYNAMICS

In thinking about human nature we use many other terms than abilities and wants; for example, emotions, interests, propensities, thought, feeling, action, intellect, character, temperament, sensation, perception, imagination, attention, memory, reasoning, suggestion, obsessions, delusions. I shall not review the facts about these which are available in standard textbooks of psychology.* Nor shall I rely upon knowledge of them in succeeding chapters of this book. They form an extensive array of facts concerning the detailed nature of the situations to which man is sensitive, of the responses of body and mind which he makes, and of their conditions. All of these facts are important—some for teachers, some for physicians, some for musicians, some for parents, some for physiologists and biochemists, and so on. The reader of this book has learned or will learn those which are most important for a student of sociology, government, law, economics and business, and a worker for welfare. He is concerned especially with the mental forces which have created the social order, which sustain it, and which can, within limits, improve it.

This chapter will add to the general scheme of mental dynamics of chapter 2 and the account of abilities and wants of chapters 3–7, certain facts and principles concerning the physiology of abilities, wants and propensities, their evolution, the influence of rewards and punishments, and the influence of custom.

THE PHYSIOLOGY OF ABILITIES, WANTS, AND PROPENSITIES

If we had perfect knowledge of a human body including the workings of the billions of cells (called neurones) which compose

* For example, Woodworth, R. S.: *Psychology,* and *Experimental Psychology* and Dashiell, J. F.: *Fundamentals of General Psychology.*

a man's nervous system, we should presumably have perfect, or nearly perfect, knowledge of him. His abilities, wants, and ideas are presumably events in time and space which an omniscient physiologist could read in the structure and activities of his neurones more completely and accurately than a psychologist or historian can read them in his words and acts—more completely and accurately even than the person himself can report them from his introspections.

Whatever exceptions religions or other supernaturalisms take to this probably should strengthen it as a general rule for natural science and common-sense practice. They are presumably of the nature of miracles and are to be treated as such. If we wish to change the person by natural means whose efficacy we can predict we must use physiological avenues, getting our access to the person through the peripheral cells in his eyes and ears, the central cells modifications of which cause his memories and knowledge, and the like. If the person's abilities and wants are to change the world, they can do so only by taking shape in the man's body, especially his brain, and so influencing his speech and acts and the further course of his ideas.

All this is a healthy article of faith for scientific students of human nature and a useful guide to research. It permits us to hope for a time when we may control thought and passion better than we now control the action of the kidneys or heart.

Present knowledge of the workings of the neurones is however so scanty that physiology, physiological psychology, bio-chemistry and other more specialized sciences offer little that the historians, economists, statesmen, judges and educators can use in their respective lines of work. We cannot now tell from examining a man's brain whether he spoke English or French, whether he knew as much physics and mathematics as Einstein or as little as Bernard Shaw, whether he was a general in the army, or a private, or a bishop of the church. We do not know fully how a neurone differs from other cells in structure. About its activities we know still less; and about the detailed relations of these to impulses, ideas, wants, abilities and other so-called mental facts we know next to nothing. The facts and principles of sociology, economics, government and other sciences of man can be derived

from the biological science of the brain to only a small extent. In the main they have to be derived from external behavior, and will have to be for long years to come.

The help that is given by biological science may be roughly inventoried as follows:

1. It rules out certain doctrines or lends strong support to arguments from the external behavior of men in ruling them out. For example, a population instructed in the development of the brain in the individual and in the race could probably not be persuaded to believe in the transmigration of souls and to act accordingly. Nor could physiologists of today believe that the soul ruled the mind from its seat in the pineal gland, or that mathematical ability, musical ability, love of children, sociability, and desire for approval are localized each in a separate part of the brain. The former of these beliefs was possible for Descartes, and the latter for the able and reputable scientists Gall and Spurzheim in the 19th century.

Education until a generation ago, and business theories about personnel almost until now, assumed the existence of faculties of memory, reasoning, concentration, and the like which operated like machines, regardless of the content upon which they operated, and which could be strengthened equally for work with all by work with any one sort. Experimental and correlational psychology finds that such training of such faculties does not occur, and present knowledge of brain anatomy and physiology strongly suggests that it could not occur.

2. Biological science of the brain warns us against exaggerating logical consistency as a force in human life. The brain of a logician craves consistency because it has been specially trained to seek and enjoy it. But the brain in general seems an organ to maximize comfort rather than consistency. The brains of animals in general, of children, and of most men upon one occasion or another would quite cheerfully and without a qualm say either "yes" or "no" or both to "A is not not A." This cherished truth and germ of progress for the logician is in fact as dull as ditch-water to the ordinary brain. The dog seizing another's bone may think "It is his" and also "It is mine." A child's doll is to it both a thing of

rags and a person to love. A man may feel the sanctity of life so strongly that he will not permit physicians to administer euthanasia to the most wretched incurables and also so weakly that he votes for the wholesale murder of war. A man may at the same election vote for a principle in one guise and against it in another. The biology of the brain warns us against "logical" doctrines of the causation of human affairs, such as the doctrine of the social contract, or the doctrine of a progress from promiscuity through group marriage to historical forms of marriage, or the doctrine that man computes expectations of pleasures and pains and chooses the alternative with the highest balance. The brain of the theorist might have caused him, had he been inserted amongst primitive men by some miracle, to have bargained labor for protection with some suitable candidate for kingship, but the actual resources of the brains then active were the determining facts. It is easy and convenient and in so far forth "logical" to think of promiscuity as the first stage of sex relations in *homo sapiens*, but the ease and fluency and consistency of a story of events does not make it true, or add much to its probability.

3. Biological science prepares us to expect and accept queer events in a man's history and queer appetites, prejudices, etc. in him. Why do we go more or less insane every time we go to sleep and get cured by waking up? Why does the intensity of an impression not only make us remember it but also make us retain the connection between it and what was associated with it? They are explainable, if at all, as consequences of brain physiology.

4. Biology encourages us to operate on man not only by economic incentives, laws, education, rewards, punishments, precept, example, persuasion, suggestion and other social agents, but also by surgery, drugs and other direct physical and chemical agents. In certain circumstances, a quarter of a grain of morphine is better than a vast amount of sympathy. The population of certain areas will probably be more benefited by putting a little iodine in their salt than by giving each of them ten dollars a year. Of two "identical" twins, one born normally, the other with a breech presentation and the use of forceps, the cranial

contents at age 13.2 years were 1468 cc. and 1342 cc., the "Mental" ages were 13.1 and 6.7, the I.Q.'s consequently 98 and 51, and the "Social" ages, 15.0 and 7.4.* Possibly with the advance of knowledge surgical interference after birth may remedy the harm to ability apparently done by the treatment at the time of birth.

Our expectations from direct physical and chemical action should not, of course, be used to relax useful social measures, nor should we indulge in vague optimism about the miracles of biological science. But we should appreciate and support honest and competent work along these lines as a most productive long-time investment for welfare.

5. Biology reminds us that the harmony of action of the cells in the body whereby each cooperates with others to keep the person, and through him the species, alive is far from perfect. We may indeed think of many cells in the body as acting primarily to keep themselves alive and unimpaired, and only secondarily to preserve men and man. We may go so far as to assert that all the knowledge, wisdom, art, music, games, and sports in the world are in a sense by-products of action taken fundamentally to maintain neurones and groups of neurones in the standard of living to which they are accustomed!

Taking this point of view we find that in most men in most circumstances the total organization keeps the component neurones in proper subordination and coordination so that the whole person lives and gets what he wants within the limitations set by the rest of the universe, but that in persons suffering from certain dissociative diseases one part of the person sacrifices the whole to itself, and that something of the sort may occur in all of us to some extent. Freud's speculations concerning the Ego or organized person and what he calls the Ids, which are dramatizations of fragmentary and elemental parts of human nature, have at least some basis in biology.

6. Finally, the facts of neurology, meager though they are, help to protect the sciences of man from mystical and magical doctrines, and warn us that the neurones cannot do certain things.

* K. P. Bradway, '37, *Birth Lesions in Identical Twins,* the American Journal of Orthopsychiatry, vol. 7, pp. 194–203.

They also inform us more or less well concerning the improbability of certain doctrines. For example, doctrines about instincts, learning, senility, and suggestion, which can be translated into terms of sensitivity, conductivity, connection, facilitation, refractory period, humoral discharges and other known activities of neurones are, other things being equal, preferable to doctrines which rely upon fields of force, tensions, equilibria, valences, barriers, libido, specialized energies and other activities not as yet demonstrated in the neurones.

It is known that the brain, special cord, and nerves, including the sympathetic nervous system, are an enormously complex system of connections between sense organs on the one hand and motor organs and glands on the other. The nervous system consists of billions of neurones each of which can be stimulated at its dendritic end, can conduct to its other end and can then do something which can stimulate some muscle fiber or the dendritic end of some neurone which it touches or is near to. Perhaps a neurone acts like a core conductor. Probably it is also itself a gland and discharges a substance more or less peculiar to itself.*

It is known that some abilities and wants are localized functions of the nervous system depending normally upon the action of particular groups of neurones. Injuries which interfere with the transmission of activity along these strands and chains of neurones weaken or destroy the ability or want in question. Other neurones may in some cases be able to replace those which did the work and restore the ability or want. The abilities and wants whose biological bases are thus known are in general relatively humble matters of sense perception, movement, and bodily appetites. Such abilities as intelligence, self-control, statesmanship, ability at music, art, business, law or medicine, and such wants as for companionship, approval, mastery, truth or beauty are unknown as to location, except that the cerebral cortex has much to do with all of them, humanity in general being apparently dependent upon an adequate and healthy cortex.

Lashley has argued that location in the cerebral cortex counts

* For an account of this neuro-humoral theory of the action of brain cells see Parker, '32, '35 and '36.

for very little, any one part of it being able to do more or less well the work of any ability. This seems extreme. Very few neurologists would expect the neurones that were most active in a man's musical activities to be identical with those most active in his work as a lawyer. Probably Lashley himself would not. But it is almost certainly true that one same cerebral neurone plays a part in hundreds of abilities to which we give different names, that much the same end result may be produced by many different activities in the human cortex, that most of the arrangements and activities of its neurones which correspond to the abilities which are important in economics, government, education and philanthropy are extremely complex. There are three possible exceptions—intelligence, sanity, and linguistic ability. The hypothesis has been advanced that the degree of intelligence depends upon the *number* of possible axone to dendrite connections in the cerebrum or certain parts of it. It could be argued that the ability to keep sane (or, more exactly, free from certain sorts of insanity) was a function of the health of the cerebral associative neurones. It can be argued that the so-called speech center has an important relation to linguistic ability as a whole as well as to the operation of the mechanisms of making articulate sounds.

THE EVOLUTION OF ABILITIES, WANTS, AND PROPENSITIES

The original nature of man, and consequently such features of his behavior as are caused by his genes acting in the environments in which they developed, are products of evolution. This is as true of man's abilities and wants as of his bones and blood.

His intellect is probably a simple though momentous variation from the general mammalian type, caused by a great increase in the number and complexity of the associative neurones. His linguistic ability is probably a consequence of this development in cooperation with the ability to move the throat and mouth parts in a great variety of ways. His capacity to acquire manual skills is probably a consequence of the intellectual development plus erect posture, bipedal locomotion, opposable thumb, and the ability to move the forearm, hand and fingers in a variety of ways. Except for the intellectual components, his

manual skill is equaled or exceeded by the similar ability of many primates. Mathematical, musical, graphic, scientific, mechanical and other abilities of man are developments from intelligence, language, and manual dexterity with the aid of training. The primates, man's nearest physical relatives, coming from a common parentage of perhaps ten million years ago, represent a condition between generalized mammalian abilities and those of man.

The forebears of many human propensities and wants can be seen in most mammals. They make love, care for their offspring, fear strange loud noises, are stimulated to mastery by certain situations and to submission by others, and often indulge in entertainment, that is, non-utilitarian activities. We may safely assume that wild mammals in their ordinary environments enjoy doing much of what they do, including what they do that does not produce offspring or the enjoyments of food, safety and rest. The primates are, here again, more like man, especially in their enjoyment of novel sensations, curious exploration, and other forms of mental activity for its own sake.

These general statements about mental evolution are not of much use in the sciences of man or the work of human engineering. But if they are particularized into natural histories of the details of maternal care, mastery and submission, courtship, fighting, etc., they become much more so. The genes, so to speak, know nothing of such general terms or facts. The evolutionary link between mastery in cattle and mastery in man is not between enjoyment of and indulgence in dominance in general in cattle and in man, but between such particulars as enjoyment of leading the procession or indulgence in poking a fellow cow out of your way in cattle and similar particulars in children and men.

A particularized evolutionary psychology helps us to understand why the same person who will attack you if you run away from him may run away from you if you attack him, why falling prone before somebody is never a sign of triumph over him, why the voice of love is low while that of hatred is loud. It perhaps helps us to understand why orthodox military science has taught that two opposing bodies of troops would never meet and fight to death, but that if one could somehow be induced to keep on a bit

longer than the other, the other would always flee.* It perhaps helps us to understand why the perceived misery of one sufferer arouses more emotion than a printed report of the misery of a thousand.

Such a particularized knowledge of evolution has made but little progress. C. O. Whitman, forty-odd years ago, showed what should be done by tracing what he called "the pause before taking the bait," a very definite unit of behavior, from lower forms through to the birds and mammals, noting its exaggeration in the pointing of dogs and other slight variations of the common motif. The scratch reflex, done with the hind leg by dogs and cats, done by any leg by monkeys, and restricted to the forelimb in man, is another such particular strand provided for by the genes. The history of the sexual embrace is more or less known; so too are some of the facts of courtship. Laughter can, I think, be shown to be two distinct things with two distinct roots, one in the chuckle of enjoyment, the other in the cry of triumph. But the evolution of behavior is, in the main, still to be written. The chapter on early man, say, of a quarter of a million years ago, is almost a blank.

The historian, James Harvey Robinson, observing some of the traits which man shares with the primates, asserts that "Problems of economics, government, law, ethics and the like would be vastly illuminated by a comprehension of our simian nature. And if we viewed our neighbors and ourselves as big monkeys, trying to do our best under the limitations imposed by our simian heritage, we would not only have vastly more understanding of human behavior and its frailties, but would also be far more full of understanding, tolerance, patience, and perhaps, hopefulness." ['37, p. 176]

This is, I fear, rather optimistic. The study of man himself, especially of his original unlearned tendencies, will be directed and supplemented by study of his simian heritage usefully but rather moderately. One great difficulty is that science has not yet found out what our simian heritage of ten million years ago

* The Greek phalanx and the Roman Legion formation were thus inventions which enabled their side to get this balance of advance.

was—for example how much of it was like that of the brutal baboon, and how much like that of the kindly chimpanzee. I shall report some of the facts about the latter.

The coordinated behavior of mastery and submission or dominance and subordination has been studied in various primates by Maslow and in the chimpanzee by Yerkes and his associates, but the details of the evolutionary changes in it have not been worked out. Yerkes is convinced that the facts will be profitable to students of government. He writes,

"The principle of dominance is universal in the life of the chimpanzee. Every social group presents an empirically established dominance-subordination hierarchy or order which appears to function governmentally. This order is not permanent, but changes with physical condition, age, and the outcome of behavioral competition. Physical prowess and intelligence seem to be its chief determinants. Such a system of social relationship necessitates cooperation, but it does not necessarily imply unselfishness, altruism, nor any semblance of the voluntary subordination of the individual will and desire to the welfare of the group. It seems not improbable that dominance is the basic and all-pervasive principle of chimpanzee socialization and social organization. It asserts itself shortly after birth, and no species-environed individual can escape its operation. Subordination implies compulsory cooperation which often is in the nature of servitude, for the dominant chimpanzee may command of its subordinate the surrender of food, shelter, mate, or whatever is desired. There is, I suspect, no more promising approach to the comparative, genetic, and experimental study of problems of government than that afforded by the dominance-subordination relations in chimpanzee society." ['37, p. 265 f.]

The maternal behavior of the chimpanzee, as reported by Yerkes, is like that of the human mother in kindliness and in stimulation to bodily exercise and learning, but perhaps not much more so than is that of the mother cat.

A common and striking form of mutual aid in the primates is grooming, and this would possibly manifest itself in man if ade-

quate stimulation were provided by the conditions of his life. I quote from Yerkes' account of this possible simian root of sociability, cooperation and good will.

"Grooming is used in this report to designate a pattern of social behavior whose essential features are visual examination, search and manipulation of the skin and hair of a companion with fingers and lips, removal of dirt, dandruff, scabs, parasites, and other extraneous materials, and their conveyance to the mouth of the groomer, whose lips, tongue, and jaws meanwhile may have been in motion, with sound production; as if in anticipation of something to be swallowed. Commonly, swallowing ensues, if the object is not disagreeable. Such behavior is conspicuous in chimpanzee, which for purposes of comparison will be used in this report as type. Such familiar expressions as flea-picking, hair-dressing, skin-treatment, toilet-making, frequently are used to refer to forms or aspects of the pattern of primate behavior which has been described. Auto-grooming, it should be remarked, is exhibited by many vertebrates, but throughout this report the term will be used consistently to designate a form of social behavior."

"This hasty survey of the occurrence of grooming in the order primate from prosimian to ape may be summarized thus: Grooming, as social activity, is strikingly exhibited by many types of monkey and by chimpanzee. It occurs less frequently and in less complex form in various other primates. In the prosimian it appears more closely to resemble the skin care or treatment observed in other mammalia than it does that of monkeys. Whether or not genetic relationship exists among these several varieties of grooming, it is indicated that the pattern increases both in complexity and in social significance between prosimian and anthropoid ape. Therefore it is of peculiar interest and importance for phylogenetic theory to discover whether the pattern, or anything functionally analogous to it, is exhibited by man. To this inquiry we may now address ourselves . . . 'Lousing' or 'delousing' possibly stands as the human counterpart of grooming.

"Delousing is mentioned more or less casually by many writers, but by no one to my knowledge has it been fully and carefully

described. Quite evidently it has been regarded, with mixed amusement and disgust, as an odd and revolting practice devoid of scientific interest and importance. Doctor A. L. Kroeber has written me: 'It is exceedingly widespread as a cultural phenomenon in primitive life, especially louse-eating. I think it is always accompanied by pleasant affects. All American Indians, so far as I know, follow the practice. It is also a motif that is common, with the same affective associations, in the mythology of all continents.'

"In the following description I shall attempt to assemble the essential features of delousing as they appear in the relevant anthropological literature. The hair of a companion, irrespective of sex, is examined visually, and with the aid of the fingers, for parasites and other foreign objects. When a parasite is found it usually is picked up and either popped with the finger nails, and thereupon carried to the mouth and swallowed, or instead crushed by the teeth before swallowing. Anticipatory lip and jaw movements, with production of mouth sounds, so conspicuous in chimpanzee, have not been reported for man. More likely this indicates lack of careful observation than the absence of these features of the anthropoid grooming pattern.

"The following from Malinowski . . . is typical of the anthropological references to delousing among primitive peoples. Of the Trobrianders this author writes: 'They inspect each other's hair for lice and eat them—a practice disgusting to us and ill associated with love-making, but to the natives a natural and pleasant occupation between two who are fond of each other, and a favourite pastime with children.' . . .

" 'Flea-picking' in monkey, 'grooming' in chimpanzee, 'delousing' in man are functionally identical patterns of response. They are complex expressions of the visual acuity and manual skill which are peculiar to the primates. They may well be basically natural or inherited and only secondarily cultural; but in either event they are biologically important as conditioning comfort and health, highly socialized, strongly motivated, and accompanied by marked positive affects. The student of phylogenesis, with special interest in the evolution of human social service, may very well suspect that cultural developments and

transformations of the variously named forms of grooming in infra-human primates have given origin to the tonsorial artistry, nursing, surgery, and other related social services of man." ['33, pp. 4 to 12, *passim*]

The evolution of mind is complicated by the fact that man is essentially a domesticated animal, so that selection is for survival under the special conditions of domestication. It is true that he has domesticated himself and that the benefits provided and conditions imposed upon each generation by previous generations are natural to man to the extent that they are man-made. He is not selected to fit living as a servant of dogs or cows or horses, in the way that these domestic animals have been selected to live as his servants. None the less he has been selected to live in a family or tribe of hunters, or pastoral or agricultural community, with interests and ideals, approvals and scorns, fears and glories which may deviate from the original human patterns as truly though not as much as a man's ideals for his horses and cows differ from the "natural" ideals which horses and cows have for themselves.

The adaptations to this self-domestication in the shape chiefly of conformities to tradition in opposition to inborn proclivities are not transmitted but only favored by selection. Their establishment in the genes may consequently be very slow. And as a matter of history very little has been demonstrated concerning human selection by the death or celibacy of certain sorts of people.

In man, the political or social or economic supremacy of one variety over others may have various consequences. But about all this little is known. For example, where the versatile ability of the Athenian Greeks came from and where it went to, nobody can say.

Some competent thinkers take the hand of evolution more or less for the hand of God, arguing that evolution works on the whole for welfare, or is at least more dependable than our interferences with it. Such a creed is a fairly good one, as moral creeds go. But it should be accepted with full awareness of the errors and inadequacies of evolution. It may be instructive to note a few samples of these:

The human eye is not a very good optical instrument. Man has bettered evolution's work greatly by microscopes, telescopes, and corrective glasses.

Man has many useless or harmful vestiges like the vermiform appendix.

Evolution has no partiality for man, and is now busily developing viruses which may exterminate him.

That it has any preference for the more civilized and humane parts of man rather than his baser wants, is very doubtful. Evolution did not select for survival the versatile and sensitive abilities of the Athenian Greeks, or the solid administrative and legal abilities of the Romans.

These are samples of well-known errors and inadequacies. I add a few less known.

Inspecting carefully the body surface of a fellow primate, and eating the vermin discovered thereby is a quaint form of early mutual aid, the disappearance of which from the life of civilized man is surprising and probably on the whole unfortunate. If this had been preserved as an act of refined politeness, the ravages of typhus fever might have been much reduced!

A tendency to eat rats, which was presumably a part of a general omnivorousness of early man, has disappeared except from a few cultures. This is a beautiful case of how misguided evolution and civilization can be. If man does not kill himself by national wars, the rat may kill him. Some of his most dangerous enemies are certain rat-borne diseases. Man should have continued to eat rats, cooking them thoroughly and never breeding them as domestic animals or in rat sanctuaries, but making their flesh a more and more fashionable food, the rarer it became, until they became extinct like the wild pigeon! Suppose, in addition, that the energy which was spent in hounding heretics, Jews, Mormons, suffragettes and harmless eccentrics had been put into crusades against the rats!

It is fit and proper that man should regard himself as the best work of creation or evolution, but this should not blind him to defects. An outstanding change from the other mammals to the primates in the matter of social behavior is, as Zuckerman has

emphasized, the shift from the decent periodic absorption and indulgence in sex to the possibility of an almost incessant preoccupation with it. Man has also the unenviable distinction of being able to commit rape, sex union in most animals being impossible without the consent of the female.

Nature overdid sex in the primates. The false doctrine that the original nature of man is right and that the "naturalness" of a want is its adequate justification is especially false in the case of sex. The substitution of other occupations and interests for a large percentage of the typical primate's sex activities (often called sublimation) is evidence of superiority in men. It makes them more useful and happier. A large part of the work of civilization has consisted in remedying nature's mistake by this, that and the other expedients of varying efficacy and merit. No perfect remedy has yet been devised.

Most of the lower animals for most of their lives respond to the actual perceived situations they encounter with few or no ideas about them. Man on the contrary has a large fund of ideas, by which and in which he reviews the past, foresees the future, makes models of things and events, finds entertainment, works out reasons and conclusions, and expresses truth. This life of ideas is man's glory, but it is not an unmixed blessing. Ideas can review the past but they also perpetuate the mistakes and follies of the past. They enable man to foresee the future, but they also subject him to hopes which can never be realized, to useless and harmful fears of things which do not exist and events which cannot occur. They provide entertainment in one of its noblest forms, but also entertainment that is mean, nasty, degrading and demoralizing, as the simple plays of the lower animals rarely are. They help man to find and keep not only the truth, but also superstitions and delusions.

Slowly the world has found the way to distinguish the good from the bad and indifferent ideas about what is and what will be. The way is the way of science; its test is the power to predict. Man had ideas for perhaps a half-million years before he learned to make much use of them for his own good. It was a series of wonderful triumphs when he learned that the sun would shine long and warm again, that spring would follow

winter, that the plants would grow, that the seed would germinate, that all this happened by no deity's caprice, that no sacrifices or ceremonials were required to cause them to happen, that the revolving years were functions of the number of days and nights. Nor do all men have these ideas yet.

His success in working with ideas has had extreme ups and downs. Egypt won much and lost much of it. Ancient Greece won more and lost it. The way of science seemed a few years ago to have been adopted by all the intellectual leaders in all civilized nations, but great nations are now seeking to deform science into a slave of passions and prejudices. Good ideas can be killed by bad. The fittest need not survive.

The world is seeking a way to distinguish good from bad ideas about what ought to be, something which will guide thought about values as the natural sciences now guide thought about events. This search is perhaps the most important job for thinking men. Some discussion of it will be given in chapters 13 and 14.

REWARDS AND PUNISHMENTS

For our purposes, the word reward may be used to name any satisfying thing or event which is considered by the person whom it satisfies to be the consequence of certain behavior on his part. The word punishment may be used to name any annoying or unwelcome thing or event which is considered by the person whom it annoys to be the consequence of certain behavior on his part. These meanings are somewhat narrower than those commonly attached to the two words, for they require that the person to whom the reward or punishment is given should favor or disfavor it. What is given as a reward but not enjoyed by the recipient is psychologically not a reward.

The traditional doctrine of common sense and of all the sciences of man was that rewards and punishments were the positive and negative halves of one same scale or gradient, closely alike in potency. Recent experiments with men and animals prove that this doctrine is false in certain important respects. A reward accompanying or immediately following a modifiable S → R connection of which it is the reward, strengthens it; and this action is direct, inevitable, uniform, and ubiquitous. A punishment

under the same conditions exerts no corresponding weakening force. Except when and as it causes the person to shift to the right behavior and receive a reward therefor, the punishment has no beneficial effect comparable to the strengthening by a reward. Man has no inhibiting reaction comparable to the confirming reaction.*

Some pains, strains, irritations, anxieties and other positive but vague discomforts arouse actions likely to abolish or relieve them by virtue of connections inherent in man or early learned by him in the ordinary course of experiences. Others arouse only a miscellany from his repertory beginning with what has been connected with some similar annoyance, and spreading, if the annoyance persists, to include one after another of his responses to pains, etc., of all sorts. He may never hit upon the cure, or the best palliative, or even a moderately good one; he may hit upon it but not form a lasting connection with it. So early men were at the mercy of toothaches; and modern neurotics may be at the mercy of hidden causes of their indigestions, spasms, paralyses, or impotence.

Annoying lacks similarly range from those which easily and almost infallibly arouse ideas of what will relieve them or actions which will relieve them (such as thirst) to those which may remain blind and erring in many creatures for many or even all their days (as the annoying lack of love or loved ones).

The remote and indirect effects of rewards and punishments do not show so great a superiority of reward over punishment as a force to improve behavior. A punishment may inform us that a certain response for a certain situation is bad, nearly or quite as

* A punishment may be useful by preventing or counterbalancing the satisfyingness of the consequences which the mental connection, act, habit, or tendency would have if left unpunished, and so preventing the confirming reaction from occurring. For example, if a child is caught in the act of grabbing and eating his sister's candy and is punished then and there, the total consequences may fail to evoke the confirming reaction which the taste of the candy alone surely would have evoked. But to be effective in this way the punishment must be administered before, or along with, or only an instant later than, the pleasant consequences of the vicious behavior. Immediate vengeance and retaliation, as in returning blow for a blow, thus have certain merits which are lacking in delayed vengeance and retaliation, as in returning a raid by a counter-raid, or a blow by action in a law court.

well as a reward informs us that a certain response for a certain situation is good. The idea of a punishment like that of a reward may become associated with a certain S → R so that the occurrence of that S will arouse an expectation that the R will bring the punishment.

Certain punishments can attach fear, shame, repulsion, or other attitudes to certain things, places, conditions and acts, and so cause them to be more avoided than hitherto, in the same way that certain rewards can attach security, pride, joy, voluptuous sensation, etc., to them. Even in remote and indirect effects, however, punishment is inferior in certain ways.

The reward leads from the wrong to the right; the punishment only leads from the wrong. The reward stimulates to active and possibly progressive life; the punishment is depressing and discouraging. In so far as it operates by fear and the like, punishment uses dangerous mental drugs. The expectation of a given reward or punishment may reasonably be expected to operate by virtue of the power which that reward or punishment has in its actual occurrence; and in this the reward has an advantage. These remote effects of rewards and punishments need and deserve much more study than they have received. But it is highly probable that investigation will demonstrate a substantial balance in favor of rewards. Certainly when both the immediate and remote effects are considered together psychology now offers a strong argument in favor of rewards rather than punishments, except for reasons of great weight.

Although the sciences of government, law, economics, business, philanthropy and education have not altered their theory of reward and punishment as the positive and negative halves of one same scale, they have in practice more and more favored the former. Reformation is set over punishment; punitive and restrictive legislation is deprecated; bonuses replace fines; corporal punishment has almost disappeared from schools. These changes have been caused, at least in part, by discoveries that rewards succeed better than punishments. A general growth of humanitarianism has also been in their favor.

Psychology recommends that punishment be used only when and as it can be proved to be effective. It has the best chance of

doing so when it evokes some beneficial act, next best when it evokes some emotion whose connection with the situation is beneficial, next best when it evokes some beneficial decision.

In the case of government, psychology emphasizes the importance of making a community attractive to the able and good rather than unpleasant for those who are incompetent or vicious, and of encouraging the good in each person rather than repressing and discouraging his evil traits. Governments can and should work by education, persuasion, example and other forces of encouragement and reward as well as by coercion. Coercion itself can use punishments less.

A man may be coerced into abstaining from the use of morphine or heroin by threats of punishment supported by actual punishment as occasion requires. Or he may be coerced into abstaining by the fact that he can nowhere buy them. A man may be coerced into loyal behavior by threats, or by such experiences that the idea of doing anything rebellious or treasonable never occurs to him. The second method has been used profitably in the ruler-ruled relation between policemen and children. Transfer to another environment in which good behavior will be rewarded has been found a useful form of coercion in the government of a school. It is not appropriate for forms of misdoing which are contagious, and in the case of children who are inherently vicious has only the merit that repeated misbehavior in five or six different environments is an impartial indication of that fact. But it often works well.

A treatment which operates by punishing a given behavior may sometimes by a slight modification operate by rewarding the absence of that behavior. So of a bonus for superior quality of work compared with a fine for inferior quality. The pecuniary consequences may be the same in the long run, but the former is psychologically better. The attitude of the man who is proud of never having received alms is subtly different from that of the man who has fear and repugnance at the thought of receiving alms.

The law is rightly skeptical about restrictive and punitive activities, but has not yet progressed far with alternatives. We have no benefactor law as a counterpart for criminal law. Personal

freedom and the respect of the community are rewards for good behavior and do so operate in the minds of men, confirming decent law-abiding conduct day in and day out more than we think. But the law does little to encourage this. Its voice is threatening and its acts are punitive. Not the law, but Mr. Carnegie, rewards heroes. Not the law, but Mr. Nobel, rewards benefactors.

In civil suits damages are both a punishment of the wrong-doer and a sort of reward of the wronged, but the picture is blurred by notions of compensation for an injury suffered. The fact that if a person does what is right he is in a safe position to exact damages from anybody who wrongs him probably has some beneficial influence in business dealings, but very little otherwise. The fact that virtue has as a reward a low probability of being successfully sued for damages probably never enters the head of ninety-nine good men out of a hundred. The rewards of the business virtues lie more in the esteem of other men. The effects of threats of punishment by the loss of a civil suit and the exaction of damages as deterrents from bad acts as neighbor, employer, manufacturer or trader are undoubtedly real, but, it may be conjectured, not so great as would be expected from the older view of punishments and threats thereof as infallible inhibitors. Contracts made on the stock exchanges are the most inviolably kept of any in the world, presumably because a man knows that he must keep them to succeed, even to remain, in the business and retain the respect of his associates, does so day after day with a sense of propriety, and does not even entertain the thought of doing otherwise.

Economics has paid little attention to punishments. Its explanations of the production, distribution and consumption of wealth have used chiefly rewards, except in so far as the pains and privations treated by it under the head of disutilities may be conceived as punishments for not working or for working, trading and consuming unwisely. Economists would admit as forms of economic "friction" vengeful acts to ruin a competitor or abase an employer, and other punitive behavior of various sorts, and would note that such departures from singlehearted devotion to obtaining the highest rents, wages, interest and profits which the

market permitted would injure economic welfare. They would not concern themselves with them much beyond that. They would, in general, on observational grounds be suspicious of what we may call permanently forced labor as in slavery, serfdom, or convict camps. But they have not, to my knowledge, demonstrated the causes of the inferiority of such forced labor or made detailed comparisons of work motivated largely by reward (as under piece-work and bonus systems) with work motivated largely by punishment (as in the case of child labor where the parents take the entire wage). I conjecture that historical inquiries and planned experiments would both show a substantial advantage for motivation by reward.

Business, in contrast to government, has operated largely by rewards. The shift from the status of feudalism to the contract of the modern world was to some extent a shift from use and wont supported by threats and punishment to experimentation supported by hopes and rewards. Business was especially permeated by the reward principle. The business man who organized and managed natural resources, capital and labor to produce and market something people wanted (called variously an entrepreneur, enterpriser, or undertaker) did so for reward under no threats. Each successful transaction was validated by reward. Pecuniary punishments either led the entrepreneur to do something which was rewarded, or quickly put him out of business. The owners of capital who loaned it did so for reward. The entrepreneur could not exact forced loans by threats and punishments as kings could and did. The workmen labored as a rule for rewards, often for the specially definite pecuniary rewards.

The employer-employee relation was, of course, influenced at the start by mental attitudes and habits transferred from the father-child relation, the lord-peasant relation, and the master-apprentice relation. A certain amount of punitive control by business managers, especially by foremen, resulted from this fact and from the general qualities of human nature. But recognized principles of good practice in manufacturing and commercial enterprises minimize this.

Piece-work payments are pro-rata rewards for regular work; there are bonuses as rewards for extra performance; there are

special rewards for high scores in attendance and punctuality, for length of service, for useful suggestions and inventions. The reward of promotion comes to those who are competent. The reward of a chance to start a rival business was once common for those who could amass a little capital.*

Employees should encourage the use of rewards in business and industry since it is probably greatly to their advantage. If they have any childish yearnings for the older regime, where a boss was esteemed and obeyed because he could lick any workman, and where there were no efficiency experts to tell you how to earn more for the company and for yourself but only a good bawling out and the threat of being fired, they should restrain them.

The public should use the principle of reward in dealing with industry and business. Other things being equal, we should trade where we get the best service and buy what has the most value. If we reward those who cheat us we will be increasingly cheated. If we reward those who entice and flatter us, it will be useless to complain that business is dishonest. So far as business is concerned, the ultimate consumers can be pawns or kings, slaves or rulers, almost at their own choice. In most cases if they will take the trouble to find out what a just price is for a given article, not try to get it for less and go without it rather than pay more, they will have only just prices to pay. This is the equivalent of rewarding business for its useful services to them, the rate of reward being enough to insure the service. If they try to punish business in general for its alleged sins present or past, they will run a grave risk of punishing the wrong persons and practices, of pulling some racketeers' chestnuts out of the fire, and of shocking and disrupting the activities they are trying to improve. The cases which do not come under this rule are, of course, certain monopolies having a public interest. Control or regulation involving threats and punishment is more appropriate for these. But even with them the Brandeis plan of re-

* This is now relatively rare, the average employee of General Motors having about as good a chance of succeeding with a rival company as a peasant in 1400 had of becoming lord of a manor! But there may be new lines of business ready to reward the entrepreneur with small capital, as the moving-picture business did only a short time ago.

warding a utility company by permitting higher dividends to its stockholders in proportion as the price of the service is lowered seems sound.

The treatment of the blind, deaf, crippled, insane, feeble-minded, and other victims of misfortune has had a very varied history in which punishment has played no small part. These victims of misfortune happened in many cases to be poor. Provision for them both from public funds and private gifts became confused with provision for paupers. The paupers were often so as a result of unwillingness to work (or at least this was thought to be the case); and consequently the treatment in poorhouses was considered partly as a punishment for unwillingness to work in the inmates and as a threat to those outside. The poor who were also blind, deaf, crippled, insane or feeble-minded were treated somewhat in the same way, though most of them surely had been punished enough by their afflictions. Such stupid punishing of the unfortunate is now universally condemned by experts, but the use of punishment in the case of idlers, drunkards and bums is still common. It is more defensible than many uses of punishment. But theoretically the means of curing an idler is to somehow or other get him to work and reward him therefor. Similarly the best means of curing a drunkard is to reward him when he is sober. A psychologist is therefore skeptical of the value of making the idler miserable by confinement, poor food, and petty tyranny when he does work in the workhouse or jail, and of making the drunkard similarly miserable when he is sober. But the practical difficulties in the way of rewarding the rare good impulses of persons who are on the whole worthless are very great. The doctrine of rewarding good impulses is sound but it is here a counsel of perfection which will be hard to put in force. Something can be done and is being done by special privileges (including money payments) for specially good work and behavior.

Mention should be made here of the worthless men and women who get themselves sent to an institution in the winter for the same reason that rich people go to Florida and for whom it is not at all a punishment but a form of stealing from the public. A word may also be in order concerning the persons whose deeper

selves, according to the psychoanalysts, choose insanity in preference to the burdens of meeting reality. Certifying them to an institution as insane may be a reward to their baser parts.

Certain practices of philanthropic agencies connected with the limitation of their activities to the extreme sufferers among the unfortunate are theoretically capable of improvement. Samples of what is often done now are: to refuse relief until a family has used up all its savings, to give little or no care until a person has actually become insane or contracted tuberculosis or the like, and to weigh the intensity of the misery much more heavily than the merits of the person. Such practices as these three have the merits of assuaging our discomfort at the thought of innocent misery and of being convenient for the officers administering charity, but are too superficial and undiscriminating.

It would not be difficult to compute for each person what may be called a quotient or coefficient of merit or deservingness which would be essentially his achievement divided by a composite of his abilities and good fortune. Persons with higher merit quotients could properly be rewarded by society, whether they were rich or poor. The rewards would presumably be both honorific and pecuniary. The deserving rich would on the whole use the pecuniary parts of their rewards well and the deserving poor would probably prize the honorific parts of theirs dearly. This would really only be doing more accurately and systematically and widely what many well-managed charitable agencies have done in the case of those who appeal to them. It uses help as a reward for merit and a preventive of misery, not merely as an undiscriminating palliative for extreme misery after the event. A somewhat similar measure, the accomplishment quotient, has done good service in schools, and would do more, except for the folly of parents who would rather have their children labeled intelligent but shiftless than dull but hard-working!

In general, the maxim "Reward good behavior" is as nearly a golden rule as any that psychology has to offer human society. A paramount question about any person, group, institution, reform, or method is: "To what does he or it attach the confirming reaction?"

One reasonable test of the general goodness of a social order

is the infrequency of punishment. If there is much punishment, it is probable that either the people are inferior or the governmental, economic, and social arrangements are inferior, or that both are.

A change in the theory and practice of living to the effect that all good tendencies should be rewarded and no bad tendencies should be, leaving punishments as a secondary and relatively unimportant matter, has much to recommend it. It is not only ungrateful and unjust to leave intelligence, industry and virtue to be their own rewards; it is unsafe and foolish, and, for the world as a whole, suicidal. By any reasonable view of human nature and history, society's primary duty to itself is to favor and encourage its better elements. Next in order is to cease paying bonuses to bad tendencies, to quit admiring ostentation, supporting indolence, paying money for flattery, submitting to brutal force, and conniving at injustice.

There doubtless will always be need for punishments and threats of punishment, but the extent to which they have been reduced in intelligent families and in schools during the last two or three generations, apparently to the benefit of all concerned, gives promise that much can be accomplished in government, law and religion. Punishment is in general not only inefficient but expensive; it may debauch the persons who inflict it, and give a much-desired notoriety to those receiving it.

FAMILIARITY AND NOVELTY

Each nation likes its own customs, though others abhor them. The Esquimaux like rotted fish. We do not, but the explorer Stefansson after habituation liked it very much. The greatest enthusiasm at a concert is likely to be aroused when the star sings "The Last Rose of Summer" or "Suwanee River." Many persons feel an observable satisfaction in being in their own beds or chairs, in hanging their hat on the same hook or filling their pipe in the same way, though they would have enjoyed equally a different sort of bed or chair or procedure had they used it. These are samples of facts which have led students of human nature to think that familiarity breeds enjoyment rather than contempt.

In many cases it *must* tend to do so because the familiar experience or response has been frequently and intimately associated with some satisfier. For example, eating edibles which have an unpleasant taste or none at all can produce the abatement of hunger and the comforts of a filling and filled stomach. An infant thus will like its customary food for this reason if for no other. And so will the hungry Esquimaux. The sight and feel of one's lair, bed, chair, or accustomed spot becomes imbued with the relaxation, rest, and security with which it is associated. The frequent performance of any reputable social and religious custom which is validated, even sanctified, by the approval of parents and friends and by the inner consciousness that one is doing and being what is fit and proper *must* in so far forth become satisfying. Moreover, the frequent evoking of a response by a situation not only makes that situation likely to evoke it, but also associates with that situation an impulse to make the response. Not to make the response involves a certain annoyance. To give way to the impulse, if not positively enjoyable, is at least preferable to restraining it.

There may be also an intrinsic tendency for mental connections which frequent occurrence has caused to operate readily to become satisfying thereby. In favor of this possibility are the experiments of Maslow which are summarized below and such observations as the following made by the Webbs in their study of Soviet Communism: "At various times since the Revolution, there have been experiments in common arrangements, in which groups of students or other unmarried persons, and sometimes families, joined together in dispensing with separate housekeeping, separate kitchens and often separate meals. Some persons looked forward to a time when the family would cease to be the unit for housing accommodation. Some of the new dwellings that were being provided in connection with great industrial enterprises, as for instance at the Molotov Automobile Works at Gorki, were actually laid out as communes. But it was soon found that such arrangements were unattractive to the mass of the workers and their wives, and the family unit of accommodation was reverted to." ['36, vol. 2, p. 936]

One would suppose that for these Russian families the previous

associations of family meals, etc., would have been less satisfying than the previous associations of group meals, etc., as at parties, celebrations, and picnics. So the facts seem to require an intrinsic tendency for what had been done often to become satisfying.

Maslow ['37] arranged that a group of fifteen young women should have certain experiences frequently during ten two-hour periods and make certain choices indicative of preference after these experiences. All was under the guise of learning and work. No subject was aware of the real purpose of the experiment. On the whole, what had been experienced or done frequently was preferred. For example: "Subjects used fountain pens throughout the experiment, being warned of fines if they used pencil. On day 9, pencils were piled on the table along with the clip, bands, paper, etc. The experimenter waited until someone noticed and mentioned the pencils on the table. 'Oh, yes! The experiment's about finished now. If you wish you may use pencil or pen. It makes no difference to us. Only if you use pencil, keep on using it; if you use pen, stick to that.'

"At the moment they were working with mimeographed material for which ink is undesirable, since it tends to run and blot. Eight subjects used pencil (U), seven continuing to use pen (F) in spite of the inconvenience and inefficiency (47 percent).

"After 30 minutes of this, they began to copy sentences on the glazed white cards which take ink well. For this all but 4 subjects (73 percent) switched back to pen and ink, in spite of the fact that instructions had been to choose either pen or pencil, and then not change. In the control experiment 0 percent used pen in any of the tasks. All used pencil for cards and papers." ['37, p. 177]

Not enough is yet known to enable a psychologist to predict when the attractions of novelty, curiosity, adventure and the like will outweigh the attraction of the familiar and habitual. The following principles are of some help:

There must be enough familiarity in the novelty to enable the mind to grasp it.

Novelties of perception have a wider appeal than novel ideas or acts. For example, new shades and combinations of colors in clothes, flowers, etc., are commonly liked.

Novelties of action have a wider appeal than novel ideas. Learning to ride a bicycle or drive a car is liked better than learning to understand a ball-bearing, chain-drive, or internal-combustion engine.

If it is not necessary to keep the mind on (that is, pay attention to) a situation or response, an almost infinite repetition of it is tolerable. Walking is not monotonous if one is interested in the deer he is hunting; the uniformity of the sand of the desert does not irritate a couple in love. In general greater intelligence will tolerate and require a greater percentage of novelty in ideas and problems. Many enjoy dominoes who do not enjoy chess, and vice versa. The feeble-minded can enjoy tag more than tennis. The popular story, play, or picture often does little more than decorate a familiar theme with new names, places, and incidents. The element of "harmless surprise" is a specially desirable form of novelty from early infancy, causing laughter or pleased admiration in addition to its gentle titillating shock to the nervous system.

The craving for novelty has much resemblance to the craving for certain habit-forming drugs; and its strength in modern man seems out of all proportion to its utility and to any demand for it by man's genetic constitution. Whole civilizations have lived happily with far less than a tenth (probably less than a hundredth) as many novel experiences as Americans of today have. Novel experience is a form of excitement, contrasting with the calm satisfactions of health, security, power, approval, and affection, and more exciting than the bulk of mental and physical activity. It is essentially fatiguing. Persons who have had much of it often cannot be contented without it. To satisfy them the dose often has to be increased.

What then are reasonable amounts of novelty to provide for various sorts of persons and what novelties shall they be? I will give as good answers as I can, but cannot guarantee that they are right.

By the nature of his genes and the laws of his learning, a man repeats what he has done, especially if it has profited him, and enjoys these repetitions when they are unforced and fluent. But he has also certain instincts of visual, manual, and oral explora-

tion of objects to which he has no habitual response. He has further a tendency to be pleased and laugh at harmless surprises such as the formation of a soap bubble or its later bursting, or the unexpected happenings in a tale that he hears told. We may conceive of events in the neurone apparatus in his brain as including habitual functionings, which as a rule give moderate peaceful satisfactions allied to the pleasures of eating, digestion or rest; and novel stimulations, which as a rule give exciting satisfactions allied to the pleasures of pursuit, hunting, or fighting (real or mock). A man eating unknown food in a foreign restaurant, and having something suddenly swell in size when put into his mouth, may exemplify the latter.

In the life of a cow the former would make up perhaps 9,999 parts out of 10,000. In the life of the chimpanzee as portrayed by Nissen, the former would make up perhaps 999 parts in a thousand, and the novelties would be mostly rather gentle, like finding a nut in a queer place or encountering a new hold in a wrestling match. In the life of an English village community five hundred years ago, the former would make up not much less. But in the life of a village of today, novelties abound. The child sees them on the wayside billboards as he rides to school in the bus and hears them in the classroom and on the playground. The radio provides the family with them all day long. A single copy of a magazine has hundreds. The factory work of the father may be repetitive, but he has a greater variety of experiences in reading his tabloid newspaper than his great-grandfather had in all his work. We may have too much novelty. We may have more than is needed for entertainment and recreation, more than is good for health and efficiency.

Qualitatively, many of the novelties are too stimulating and exciting. They are likely to spoil the taste for simpler pleasures and dull the sensibility to more intellectual pleasures. They also in my opinion are likely to dull the enjoyment of even their own sort of novelty, and cause people to require stronger and stronger doses.

The original exploratory tendencies of man and his enjoyment of thought for thought's sake have borne wonderful fruit in technology and science, and the novelties of science have in general

great social utility. The passion for novelty in facts, principles and powers of prediction and control can hardly become excessive. But even here there may be a danger. Two-hundred-inch telescopes, atom-splitters, measurements of the movement of the universe, fishing up incredible monsters from the sub-conscious, improving society by eugenics—these are all commendable projects, but men of science should not lose their ability to work happily with less exciting ones.

In art, music, literature, philanthropy, and government also the passion for novelty seems to need restraint. Doubtless the old can be improved and should be. But it is improvement not novelty that is desirable. Joyce's *Ulysses* contains over 1500 new words. Does any one book need so many? Roosevelt's government has produced scores of new varieties of governmental agencies. Are they all improvements?

CUSTOM

In spite of the claims of novelty specified in the previous section, everybody from psychologists to poets agrees that most men are much bound by custom. There is much less agreement about the reasons why the force of custom is so strong and about the ways in which it operates. Nor will an open-minded and impartial inquirer be able to agree perfectly with himself about these matters. In spite of the apparent superabundance of facts about the potency of tribal, community and personal customs, not all the needed facts are available; and some of the available facts seem to conflict. Consequently one may shift in his own judgment of how much custom does and how it does it. The psychology of custom is still inadequate.

The following facts about the maintenance and alteration of customs by social groups or "closed" societies, and later the maintenance and alteration of customs by individuals, seem fairly well established.

The Customs of Groups

For a "closed society" the maintenance of a custom has certain psychological utilities. (1) Other things being equal one law, custom, habit, or response is more satisfactory than two or more,

since it gives a person less trouble to learn, remember, and operate. (2) An established custom has at least the merit that as things have been the group survived while following it. Unless directed by intelligence, the abandonment of a custom in order to gratify some impulse to which it is opposed is likely to be selfish and short-sighted. Customs are in general forces contrary to the immediate indulgence of individual wants. (3) An established custom represents the learning of the members of the group living and dead in some opposition to its unlearned tendencies. It is in a sense the school and library of the group transmitting the culture which acts as a check on instinct. (4) A society's customs are to some extent a part of the self of each of its members. They enhance his personality as compared with that of a person's in a different society, and make possible the same sort of invidious pride which is made possible by differences in physique, clothes, and possessions. (5) The shift of a society from an old custom to a new and better custom is often laborious and insecure, whereas its shift to original instincts which are worse for it is easy.

The demerits of certain customs in a changing environment need no comment.

Established customs in a society have certain psychological features which may be useful or harmful. They are made and maintained by those with most power of strength, skill, knowledge, intelligence, wealth, prestige, numbers or whatever sort. The less powerful adopt customs made by the more powerful, unless the custom concerns something to which the powerful are indifferent. The value of the custom then varies with the quality of those who have the power.

Customs in part enforce themselves because the individual is held to them by repetition and reward (and perhaps by a positive satisfyingness of the familiar act for no other reason than its familiarity). He is rewarded by a good conscience or feeling that his behavior is fit and proper. They are enforced in part by the approval and disapproval of the groups acting upon its members. If violators of a custom are applauded by those whose applause is craved, the custom is doomed. Neither age nor sanctity will

save it for long. In part they are enforced in all sorts of ways by those who have the desire and power to enforce them.

It will be seen later that the establishment of customs by the powerful and their enforcement by the craving for approval go far to explain the paradox of the present custom of changing customs in clothes, furniture, automobiles and other "fashion goods."

As a result of the facts stated so far, when a group having a certain custom comes in contact with another group which responds to the situation in question in a different way, there will be a substantial tendency for each to retain its own. So the world is full of different customs of treating the same situation. Even when a custom is acknowledged by a group to be better than theirs, they may not adopt it. And even when all other groups esteem a custom as better, one group may not acknowledge the fact.

But some customs spread like wildfire (meaning thereby that they become established in a few generations). Europe adopted tobacco smoking from the American Indians, who took over the use of gin, rum, and whiskey from the Europeans. More usefully the Europeans adopted the cultivation of the potato and of maize, and the Indians the use of horses and fire-arms. The Japanese quickly absorbed Europe's technology and science though they were little influenced by its religion. Many Negro tribes in Africa quickly absorbed the Mahometans' religion though they were little influenced by their science.

The spread of customs from one society to another has been used and is determined by psychological as well as by economic forces. The nature of some of these is known. A custom which is attached to some material object will spread faster than an equally advantageous or estimable custom which is attached to an idea or theory. It is easier to learn, because the situations and responses involved are more available or get-at-able, and its advantages are more obvious. A custom which requires a shift of a feeling or emotion is specially slow to spread, because man's loves, fears, hates, repulsions and the like are specially unavailable, hard to summon and connect with the situation in question.

A custom which is a characteristic of esteemed persons will spread faster than an equally advantageous custom which is a characteristic of a "lower" class. It is more rewarded by social approval. When a custom is taken over by conquerors from conquered, nobilities from commoners, and the like, it is likely to have special practical advantages, provide sensory pleasures, or be something which women and servants teach the young.

The Customs of Individuals

An individual takes on and maintains the customs of the social group to which he belongs except for strong pressure from contrary forces. Such customs are acquired when he is too young and too weak to resist. Except for some instinctive impulse or some example or teaching from outside the group, he will rarely even think of responding in any other way. He will, according to most anthropologists and psychologists, feel a strong aversion toward doing otherwise, and a strong contempt for persons in or out of the group who do otherwise.

Chief among the strong contrary forces are (1) instinctive cravings, as when sex craving is directed to an object forbidden by custom, (2) insanity or disorganization of the self which upsets or distorts a person's desires and inhibitions, and (3) rational thought which invents or learns what seems to it a better way of thought, feeling or action than the customary one.*

The individual who is moved by the second force would in olden times often attribute his attack upon custom to possession by some deity; in modern times he may attribute it to rational thought. The group will often be at a loss to distinguish between the products of insanity, of divine inspiration, and of rational thought. All are to it eccentricities of an alluring or alarming nature as the case may be. This is true to a large extent even of modern civilized groups. They too find it hard to distinguish the eccentricities of genius from those of madmen, and the reforms that are products of impersonal thought from those which are cooked up to glorify some charlatan, sincere or otherwise.

* There is also sometimes a misguided passion for notice and pseudo-power which is probably a composite of fragments of the instinctive craving for notice, approval and mastery in a somewhat disorganized mind.

It is a great merit of science that, if left free, it tests ideas by their power to predict events, and practices by their observed consequences. Hence science is rarely hoaxed, and rarely long neglectful of a worthy proposal for change in its customs of thinking about nature.* As the methods of science extend further over behavior and institutions we may expect greater ease and accuracy in distinguishing valuable from worthless attacks upon custom.

There is a popular misconception of the openmindedness and experimental attitude of science to the effect that the scientific mind is ready to entertain any idea and willing to try any plan. It is true that science has little reverence for customs as such, and is not repelled by ideas because they conflict with what one learned at his mother's knee, and patiently endures the labor of testing plan after plan if doing so will advance the truth. But science entertains ideas in the order of their probable merit and is always too busy with promising ideas to think about the random output of incompetent persons. It tests plans also in the order of their probable merit and has no time to try plans which have nothing to support them. For men of science to spend their time and energy in indiscriminate consideration of all ideas and plans would be criminal neglect of their duty.

Before the era of liberalism of the eighteenth and nineteenth centuries, the most impressive danger was that all people would be discouraged from trying to alter customs and their efforts thwarted if they did try. The impressive danger of the future may be that many changes will be brought about either to satisfy the desire of certain business men for profits or to satisfy the desire of demagogues for power. The misguided success of missionaries in putting clothes on Africans and South Sea islanders may be a trifle compared to a campaign of some cosmetic trust to make them use lipsticks, face powder, and the modern equivalent of corsets. The mutilation and stifling of the civilization of the Roman Empire by barbarians may be equaled by fanatics who captivate enough man-power to put disastrous changes in operation. The present is not free from such dangers.

* The worst recent case is the neglect for years of Gregor Mendel's experiments with peas and discovery of the facts concerning segregation in the gametes.

Short-Lived Customs

A person desiring attention and approval may use what power he has to start a custom of wearing a certain sort of coat or hat, playing a certain game, going to a certain resort, or the like. His or her self-esteem thrives upon imitation in such matters and upon being heralded as a leader in them. Every town of over 5000 now has persons who seek such leadership. In the nature of the case many such fashions are short-lived, since the leader must show new leadership every so-often in order to retain it and since there will be frequent rivalry for leadership. These changes of fashion are an almost unmitigated nuisance. Only by accident is there any merit in the changes. Much time and useful property are wasted and much unhappiness caused in those who are unable to keep up with the fashion.

The path shown by amateur leaders of fashion has been followed by professionals and broadened to include toilet articles, furniture, draperies, jewelry, glass, china and almost every article of wearing apparel except men's overalls and baby's diapers. Under the cover of real improvements, the makers of automobiles seem to be introducing also features of mere style to date the product. The changes are becoming more and more rapid. There have probably been more different styles of women's gloves and shoes in the last twenty years than in the previous two hundred.

There is, we may hope, a larger percentage of merit in the changes which manufacturers and traders try to make than in the amateur's efforts, but it is not large. Most of what merit there is comes from some scientific knowledge or technical invention which probably gets in vogue, and certainly stays in vogue, regardless of fashion.

Industry based on fashions has always been essentially unstable, and unsuitable for planned economical production and distribution, but a business expert's account of the present state of affairs reads like a nightmare. Nystrom, for example, reports ['29] that fashions are so unpredictable that the great majority of attempts to create them fail, and that there is a mad scramble to make the things as soon as the course of a fashion seems clear and another mad scramble to sell them before the fashion shifts.

The merchant buys from hand to mouth watching to see which way the fashion cat will jump. But in spite of this, shoes made to sell at $3 to $10 are sold at ten cents a pair to be shipped to Russia; there are hundreds of thousands of Mah Jong sets hopelessly awaiting a resurrection of that picturesque and leisurely game.

The waste of time and property is to a psychologist not so irritating as the needless misery of women and young people who have to be out of the fashion. Louisa Alcott was of the intelligentsia, and a Puritan, as immune to false pride and shame as anybody can be expected to be, yet her books show wearing unfashionable clothes as the tragedy of girlhood, as clearly as does any tale of today. Social reformers consider this matter as beneath their notice or perhaps do not consider it at all. Delisle Burns is an ardent lover of equality and of what are still called the working classes in the British Isles, and he delights in the fact that the girls of these classes no longer wear a durable but dull dress, clogs, and shawl, but can have clothes more or less like those of the rich. He fails to consider that the uniform of the working-class girl freed her from the misery of being out of the fashion as she now must be for much of the time, and from the unhealthy pride at being more, and envy at being less, fashionably dressed than her friends and acquaintances. Would it not be better to have the rich also wear the dull dress, clogs and shawl?

There seems to be no end of the invidious pursuit of purchasable distinction and vulgar approval. The reader may live to see his children weep bitter tears because they have to receive their friends in a room with the same wallpaper and chairs year after year, or ride in last year's car, or use last month's color of stockings. If governments should sell a new style of stamps each week at double the regular price, who would be approved—those who used them to show that they could afford the latest and best or those who saved their money?

The custom of purchasing approval by money deserves further notice. It is a dubious form of free enterprise at best. When a person uses his earnings to buy a productive enterprise which he has the ability to operate well and gains the approval of solid

business men by doing so, he deserves it, but it is really his ability past and present which they approve in his ownership of the property. When he buys land to acquire approval from social status, as in England in the last century, he deserves it much less, but we may blame bad social attitudes rather than him. When he buys a peerage or a senatorship by political contributions, he deserves little or none, but we may be partly consoled by the fact that he had great ability to make money and whatever other abilities are correlated therewith. But when he buys clothes which are thrown away almost before they are worn, or beds that will never be slept in, the approval he will win will be only that of the ignorant or foolish. We approve those who are in fashion because we are ignorant—ignorant of the fact that fashions are a bad habit upsetting the industry and trade, a cause of incessant misery to the poor, a vulgar device by which the rich can buy a spurious approval for good taste, when they really lack it.

Chapter 9

INDIVIDUAL DIFFERENCES

Common observation shows us that persons differ, often very widely, in every one of the abilities which man has. In intellect there are Aristotles and idiots. In art there are Rembrandts and persons whose drawings decrease the value of the paper on which they are made. If a thousand six-year-old children taken at random spend equal amounts of time and effort in learning to read or spell, some will make more than twice the progress made by others.

Common observation shows also that persons differ, often very widely, in what they want and enjoy. One man will go without a meal and stand on his feet through an evening to hear an opera which another man would not listen to if it were performed outside his window. One woman will minister to the weak and unfortunate for no reward beyond the satisfaction of seeing their happiness; another will heed their welfare no more than the dirt under her feet. Most of us prefer society to solitude, some by a very wide margin, but there are hermits for whom social contacts have zero or negative value.

Science studies the nature, causation and consequences of the differences found among individuals in anatomical, physiological, intellectual, emotional, moral, economic, and all other traits which are important for theory or practice.

QUALITATIVE AND QUANTITATIVE DIFFERENCES

Some differences we call qualitative. Such are differences in blood type, in finger prints, in sex, or in one's profession. Some we call quantitative, such as differences in stature, intellect, enjoyment of praise, or income. The clearest cases of so-called qualitative differences are those where there are certain conditions (call them A, B, C, D . . . N) which are distinguishable, and where no conditions intermediate between A and B or B and

C or A and C, etc. exist, and where A, B, C, D, etc. cannot usefully be thought of as consisting of the same thing in different amounts; and where there is little or no variation in A or B or C, etc. wherever it occurs. In such cases we describe the differences between two persons by saying that No. I has or is A, D, K, P, etc. which No. II has not or is not, and that No. II has or is B, G, H, etc. which No. I has not or is not. The clearest cases of so-called quantitative differences are those where there are certain conditions which are distinguishable by their amounts of one and the same quality, and by amount alone. In such cases we describe the difference between two persons by specifying the quality and stating their amounts of it.

The difference between qualitative and quantitative may be made less liable to misuse by considering some facts about scales for measuring human traits. A man's stature is measurable on a continuous scale beginning with a true absolute zero meaning just not any distance, and so also, of course, is the difference between the statures of any two men. We can conceive of, and do in fact find, differences of 0.00 mm., 0.01 mm., 0.02 mm., 0.03 mm. .....1000.00 mm. and beyond.

Suppose now that all human beings were either just 20 inches tall, or just 30 inches, or just 40 inches, or just 60, or just 70, and that infants born 20 inches tall expanded to 30 inches in the twinkling of an eye a year later, passed from 30 inches to 40 with equal suddenness at age 6 yr. 0 day, and from 40 to 60 with equal suddenness at age 14.0, and from 60 to 70 with equal suddenness on their twenty-first birthday. We could use our old method of measuring and expressing differences in stature, but it would seem rather pedantic; and the difference of 10 inches in stature between a newborn of 20 and a yearling of 30 would not seem the same difference as the difference of 10 inches in stature between youths of 60 and adults of 70. We should be tempted to think that the differences in stature between a new-born, a yearling, a child, a youth and an adult were qualitative, and to describe a person's stature as (A) new-born's, (B) yearling's, (C) child's, (D) youth's, or (E) adult's, and to refuse to add, subtract, multiply, divide these A's, B's, C's, D's, and E's. Being impressed by such facts as that an adult does not equal 3½ new-

born babies, we might fail to see that one E, the length of one adult from head to foot, does precisely and absolutely equal 3½ times A (the length of one new-born).

A continuous scale of varying amounts of one and the same sort of quality or fact, may be represented in nature chiefly by a few discrete amounts. So the reproductive ability of a woman is presumably a continuous variable, but appears chiefly as 0, 1, 2, ...*n* children born (plus possibly 0, 1, 2, ...*n* miscarriages).

Suppose that a continuously extending scale was represented in nature at only one point. Suppose, for example, that instead of gradations in curliness of hair from lank or perfectly straight through mild degrees of waviness to the most extreme kinkiness of the ancient Assyrians, nature provided only hair of a certain moderate curliness or none at all. Then it would seem utterly pedantic to specify the amount of curliness of any person's hair. Except for recondite scientific purposes it would do as well, or better, to say simply that he had curly hair, or just hair. If nature provided two amounts of curliness, as in lank hair *à la* Chinese and moderately curly *à la* the heroine in North European stories, we could state the facts about the curliness of any person's hair by saying whether a person had any hair, and if so whether it was curly.

Suppose now that occurrence in only one amount was the fact for amount of intelligence, love of beauty, acuity of hearing, goodness of memory, and pleasantness of voice, and that occurrence in only two amounts, zero and tan, was the fact for amount of darkness of skin. Then all varieties of persons in respect of intelligence (I), love of beauty (B), acuity of hearing (H), goodness of memory (M), pleasantness of voice (V), and darkness of skin (D), could be expressed (using K_1, K_2, K_3, etc. for the amounts) by the following ratings:

No intelligence at all, or K_1I.
No response to beauty at all, or K_2B
No hearing at all, or K_3H
No memory at all, or K_4M
No voice at all, or K_5V
A skin with K_6D or with K_7D (K_6 being zero).

There could conceivably be 64 sorts of persons (or 96 if persons with no skin at all could exist) in respect to these qualities. Using Non-I, Non-B, Non-H, etc. for those devoid of intelligence, responsiveness to beauty, hearing, etc., we have such possibilities as $K_1I + \text{Non-B} + \text{Non-H} + K_4M + K_5V + K_7D$, or $\text{Non-I} + K_2B + \text{Non-H} + K_4M + K_5V + K_6D$. (The combinations of Non-I with K_4M and of K_1I with Non-M would probably be unrealized in nature. So the actual number of varieties would be only 32.)

Each of these would be fully described or measured by a statement of the presence or absence of six "qualities" and one "quantity." But it would be just as true to call them all "quantities" since each presence is of a certain amount, and each absence is signified by stating that the amount of something is zero. Having no skin at all has the special significance of stating that the amount of darkness of skin, thickness of skin, redness of skin, or anything whatever that requires a skin, is zero in the person in question.

It would be easy to be specially impressed by any one combination, say $K_1I + \text{Non-B} + \text{Non-H} + K_4M + K_5V + K_6D$, give it a special name such as "pale speaker of wisdom" or "wise-voiced whitey," or perhaps just "prof." and use this as the name of the collection of quantities which the person really was.

We thus see that a world of continuous quantities could seem and be treated like a world of qualities if the continua did not show themselves in nature. The same could happen if the continua did show themselves in nature, but we were observant of only one or two or a few amounts of each of them. This has in fact happened often in the world's thinking.

The same argument holds good for discrete scales like those for size of family or number of teeth. If animals had either two horns or none we might well forget that a creature could be conceived with one, three, or thirty.

The universe could then really be all quantitative (It probably is) and yet appear as qualitative in spots. Abilities, wants, and proclivities are, with few or no exceptions, quantitative. Such statements as "A is a statesman; B is only a politician; C is a genius; D is not; E is sane; F is insane; G is a miser; H is a spend-

thrift; I is a typical Nordic; J is a typical Oriental," are qualitative only in the sense that they do not specify or direct attention to the quantities which they really imply and roughly measure. If they identify at all exactly any traits, combinations of traits, or personalities that exist in nature, they are statements expressible in the form of $K_1\alpha + K_2\beta + K_3\gamma + K_4\delta$ . . . etc. Such statements usually are not adequate for *exact* identification of anything, and merely suggest that the person in question is, to a considerable but unknown degree, possessive of certain characteristics and devoid of others.

Most of the nouns and adjectives by which we describe persons have the merit of calling to mind concrete examples of persons with all their quantitative traits, and so giving a sort of rough composite picture, or bill of specifications or living appraisal, of the amounts of various traits which the person in question may be expected to possess. They have the demerits of depending too much upon the hearer's experience, of arousing attitudes rather than analyzing facts, and of concealing their extremely coarse and errorful suggestions about quantities by a verbal mask. They are not qualitative in the way that the following are: A is a dog. B is a crocidile. C is a sun; D is a planet. E has malaria; F has smallpox. G is a picture; H is a song. I has delirium tremens; J has epilepsy. Water is H_2O; salt is NaCl.

In the social sciences a statement that two persons differ qualitatively with nothing added about magnitude is usually a sign of ignorance and weakness in the form of inadequacy or inaccuracy or both. Many such statements mean little or nothing more than that:—

(1a) One person has much and the other little of a certain ability, want, proclivity, or the like; e.g., "A is brave; B is a hero."

(1b) One person is above and the other below the average or common status; e.g., "A is good; B is bad."

(1c) One person has much (or little) of something of which the other person has less (or none); e.g., "A is a hero; B is not. A is an idiot; B is not."

(2) One person has a certain amount of something (call it Alpha) of which the other person possesses an unspecified amount, and

the other person has a certain amount of something (call it Beta) of which the former possesses an unspecified amount; e.g., "A had artistic ability; B had scientific ability."

(3a) One person has on the average much and the other person has on the average little of a group of related abilities, desires, etc.; e.g., "A likes mathematics; B does not."

(3b and 3c), like 1b and 1c, except that the facts concern the average amount in *groups* of traits.

(4), like 2, except that Alpha and Beta are averages of amounts possessed in *groups* of related traits.

SINGLE AND COMPOUND DIFFERENCES

As already indicated, a statement about differences between two individuals often concerns their differences in several traits. When John and Richard are said to differ in A, A may be as single or unitary as the ability to add integers or as manifold as ability to add, or ability in arithmetic, or ability in mathematics. It may be the desire to hear a certain story, or to hear a certain kind of stories, or to hear stories, or to be entertained. It may be honesty in school examinations, or honesty in general.

Any compound or multiple difference implies that several amounts have been assigned relative "weights" or "importances" and combined. The assignment of weights and method of combination may be objective, deliberate and explicit or it may be to any degree subjective, casual, and impressionistic, but it always occurs. A large amount of work is required to make a satisfactory choice of the quantities to be combined to measure intelligence, honesty, love of praise, desire for power, or the like, and to devise a reasonable system of weights to be used in combining them. This work is still to be done in the case of most compound abilities, and in almost all compound wants.

SIMPLE AND COMPLEX DIFFERENCES

At or near the extreme of simplicity are differences in stature and the like. At or near the other extreme are differences in executive ability, the desire for security, ambition, and the like. The latter are compounds in which the presence of certain com-

ponents may influence the action of other components in subtle and complex ways. The amount of one component may for example act as a multiplier to certain others as, for example, seems likely in the case of energy with abilities, or sensitiveness with certain satisfactions and annoyances. A certain minimum amount of one component may be necessary as a sort of basis to permit the action of others. Some components may act somewhat as hormones or enzymes do. The causation and organization of abilities, wants and proclivities takes place in organs of the body, especially of the brain, about whose action not enough is known to guide psychology in analyzing mental traits.

DIFFERENCES KNOWN AS TO THEIR CONSTITUTION, AND DIFFERENCES KNOWN ONLY AS TO THEIR RESULTS

As a consequence of facts stated above, the great majority of individual differences are known and measured only by their results. For example, differences in intelligence may really be differences in the number or complexity of connections in the brain, but that is only an hypothesis. Our actual knowledge of them is all by differences in the products produced (answers given, methods used, problems solved, etc.). It is as if we knew a difference in two men's statures only by differences in how high they could reach, how often they bumped their heads, how well they could see the stage in theaters, and the like. For many purposes of the social sciences, this does little harm, since they are often concerned with the consequences of abilities or wants rather than with their internal constitution. But it makes the measurement and comparison of individuals in respect of abilities and wants indirect and difficult.

THE MEASUREMENT OF INDIVIDUAL DIFFERENCES

In Chapter 7 the difficulties in the measurement of the amounts, degrees, or strengths of preferences, wants, and satisfactions so as to compare one person with another were described, as well as certain ways of overcoming them. The measurement of the amounts or strengths of emotions, propensities, interests and the like is beset by similar difficulties. The measurement of abilities is free from some of these and has been carried

further toward success, but has its special difficulties, some of which have been noted in Chapters 3 and 4.

MEASUREMENTS IN UNITS OF TIME

Almost the only mental measurements where the way is easy and the sailing smooth are those made in units of time. If individuals I, II, III and IV are measured as having done the same

TABLE 11

INDIVIDUAL DIFFERENCES AMONG 857 14-YEAR-OLD BOYS IN THE TIME REQUIRED TO SORT 48 CARDS, EACH MARKED WITH A COLORED CIRCLE (BLUE, GREEN, YELLOW OR RED) INTO 4 COMPARTMENTS BY COLOR. [DATA FROM WOOLLEY, '26, P. 72]

Number of Seconds	Percentage of Boys
Less than 30.1	0.5
30.1 to 35.0	3.0
35.1 to 40.0	12.5
40.1 to 45.0	26.6
45.1 to 50.0	23.1
50.1 to 55.0	17.9
55.1 to 60.0	9.3
60.1 to 65.0	3.9
65.1 to 70.0	2.0
70.1 to 75.0	1.3

TABLE 12

INDIVIDUAL DIFFERENCES IN THE NUMBER OF TAPS MADE IN 60 SECONDS AMONG 796 14-YEAR-OLD BOYS. [DATA FROM WOOLLEY, '26, P. 70]

Number of Taps	Percentage of Boys
201 to 220	0.1
221 to 240	0.2
241 to 260	1.9
261 to 280	5.4
281 to 300	9.7
301 to 320	19.8
321 to 340	22.5
341 to 360	18.5
361 to 380	10.9
381 to 400	6.3
401 to 420	2.9
421 to 440	0.9
441 to 460	0.5
461 to 480	0.4

task equally well in 100 sec., 110 sec., 150 sec., and 200 sec., there is no difficulty so far as the facts go. II takes 10 sec. more or 10 percent more time than I; III takes 50 sec. more or 50 percent more time than I. IV takes twice as long as I.

If the same task is repeated over and over, the number of achievements of it within a given time is similarly an easy score

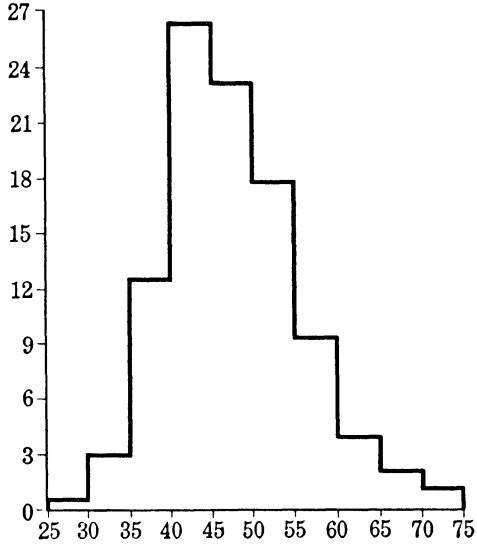


FIG. 13. Time to sort 48 cards: 14-year boys. [Data from Woolley, '26, p. 72.]

by which to differentiate individuals. The same is true of different tasks which are equal in difficulty. The number done per unit of time is transferable into the time per task.*

Tables 11 and 12 and Figs. 13 and 14, which present the scores of 14-year-olds in a card-sorting test and in a tapping test, illustrate measurements in terms of time per achievement, and number of achievements of the same task per unit of time.

Such measurements in terms of time are valuable. They are often important in industry. Ways of using time to measure

* It should, however, be noted that the provision of tasks different in nature but equal in difficulty is a prerequisite to such measurements which often requires much study and labor.

wants and satisfactions are conceivable, as if we should observe how long each person looked at a certain picture, or read a certain collection of jokes or stories, or played a certain game. The facts are clear and manageable.

But they do not go very far. In the case of abilities time serves to compare only those persons who accomplish the task perfectly, or to the same degree of imperfection. If a person cannot accomplish it, his differences from the others are measured only very crudely. It is very hard to get tests of important abilities in such shape that all who accomplish them will accomplish them equally well, that is, produce identical, or equally "good," products. So allowance often has to be made for defects or errors (most suitably by estimating the time the person would have needed to attain the perfect, or acceptable, or standard, accomplishment). Such allowances, being more or less subjective, bring in many of the difficulties which the use of time was designed to avoid.

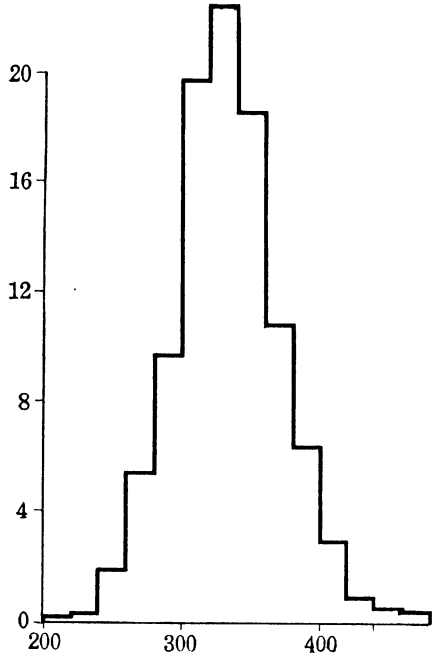


FIG. 14. Rapidity of tapping: Taps in 60 sec., 14-year boys. Right hand. [Data from Woolley, '26, p. 70.]

It is also the case that with most abilities we are much more concerned with how hard things the person can do or how well he can do certain things than with how quickly he can do things which he and many others can do equally well. For example, it is obviously of relatively little importance how quickly a physician can diagnose clear cases of measles, or how quickly a mu-

sician can play a certain piece. Similarly in the case of wants and satisfactions we are likely to be more concerned with how much a person will sacrifice to gratify the desire than with how long it will take for the enjoyment of it to give place to indifference.

MEASUREMENT OF ABILITIES BY AMOUNT OF DIFFICULTY OVERCOME, AND OF WANTS BY AMOUNT OF SACRIFICE MADE

The altitude or level of a person's ability is usefully measured by the difficulty of the hardest task at which he can succeed, success meaning a perfect achievement with some prescribed percentage of the separate items of that task.

The CAVD intelligence examination (C for completion, A for arithmetic, V for vocabulary, D for directions or comprehension of sentences) consists of sixteen sets of 40 tasks each, equally difficult (approximately) within each set and progressing from sets with which all save low-grade imbeciles succeed to sets with which only one or two percent of adults succeed. Success at any level is defined arbitrarily as performing perfectly 50 percent or more of the tasks at that level. 60 or 70 or 75 or any other percent could be used instead.

The theory and practice of measuring so-called general in-

TABLE 13

THE INTELLIGENCE LEVEL, OR "MENTAL AGE," OF 9-YEAR-OLD ENGLISH ELEMENTARY-SCHOOL CHILDREN. DATA FROM BURT, '21, P. 149 F.

Level of Intelligence	Frequency: in Percents
5 yr. old	0.2
6 yr. old	2.9
7 yr. old	9.8
8 yr. old	22.0
9 yr. old	35.5
10 yr. old	21.8
11 yr. old	5.0
12 yr. old	2.1
13 yr. old	0.7
14 yr. old	0.0
15 yr. old	0.0

TABLE 14

THE INTELLIGENCE LEVEL, OR "MENTAL AGE" OF 10-YEAR-OLD ENGLISH ELEMENTARY-SCHOOL CHILDREN. DATA FROM BURT, '21, P. 149 F.

Level of Intelligence	Frequency: in Percents
5 yr. old	0.0
6 yr. old	0.4
7 yr. old	2.6
8 yr. old	6.4
9 yr. old	18.3
10 yr. old	34.8
11 yr. old	23.3
12 yr. old	11.3
13 yr. old	2.1
14 yr. old	0.6
15 yr. old	0.2

telligence by the well-known Binet test is essentially the same as that described above. The levels are defined as "4-year-old," "5-year-old," "6-year-old".....to "superior adult," meaning

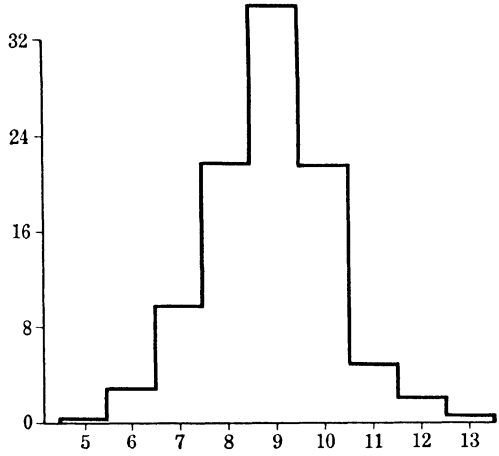


FIG. 15. The distribution of mental ages among 9-year-old English elementary-school children. [Data from Cyril Burt, '21, p. 149 f.]

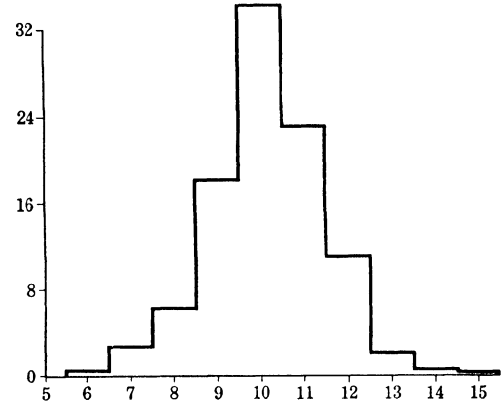


FIG. 16. The distribution of mental ages among 10-year-old English elementary-school children. [Data from Cyril Burt, '21, p. 149 f.]

the levels of difficulty at which the general run of 4-year-olds, 5-year-olds, 6-year-olds, etc., will succeed with 50 percent or more. The items being much fewer, the attainment of any given

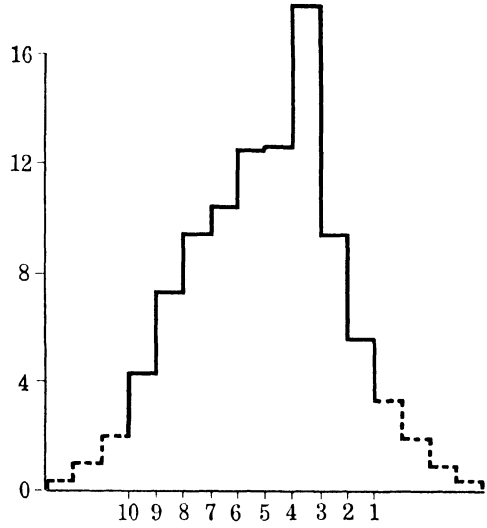


FIG. 17. Resistance to temptations to cheat. Percentages of school children who cheated in every test, in nine out of ten, in eight out of ten, etc. The frequencies of the dotted-line columns to the left of 10 are estimates of the percentages that would have succumbed to slighter temptations than those furnished by any of the tests given. Those of the dash-line columns to the right of 1 are estimates of the percentages that would have resisted even more tempting opportunities than those furnished by any of the tests. [Data from Hartshorne and May, '28, Book Two, p. 220]

level is not clearly established by the score on it or its neighbors, but is inferred from the entire performance.

The amount of intelligence, so measured, in 9-year-old English children (9 yr. 0 mo. to 9 yr. 11 mo.) in Cyril Burt's adapta-

tion of the Binet test is shown in Table 13 and Figure 15. Table 14 and Figure 16 give similar facts for 10-year-old children.

Hartshorne and May measured honesty in school children by giving them certain opportunities to cheat, lie, and steal. These ranged from those to which fairly honest children would succumb without great shock to conscience or sacrifice of self-respect to some which only a callous and habitual cheat, liar, or thief would embrace. An honesty score by levels comparable to the CAVD intelligence score could have been given to each child who took these honesty tests. The scores actually given amounted practically to that, though they were derived somewhat differently. The facts for 2443 school children are shown in Figure 17.

Hartshorne and May also gave children in school five opportunities to work or sacrifice for the welfare of others. One was by giving each child a kit containing an eraser, a double pencil in two colors, a drinking cup, a ruler, a sharpener, etc. and then later providing an opportunity for each child as follows:

> "*Pass the kits* and give time (10 minutes) for them to be examined.
>
> 'Now I want to pass on a suggestion from the principal. He says there are many schools even in our own country where the children have no pencils or interesting things such as these in these kits. He thought possibly some of you might like to help make up some kits for other children. You might put in one of these little things, or two, or three, or all ten, or the whole thing, box and all, or just the box, keeping the articles for yourself. If you want to help make up some kits for other children, just put whatever of these things you want to give in the red envelope. You may put it all in, or just the empty box, or just one or more of the things, or nothing at all. Tie up the envelope and drop it into the basket whenever you want to before you leave to-day. Please put in the envelope in any case. It is *quite* all right for you to keep any or all of the kit if you would rather. The kit belongs to you.'
>
> "(The basket is taken to the principal's office at the close of school.)" ['29, p. 62]

The child received a score ranging from 0 if he kept all to 36 if he gave away all.

In another test he had a chance to collect jokes, stories, pictures, etc. to send to sick children. He received a score running

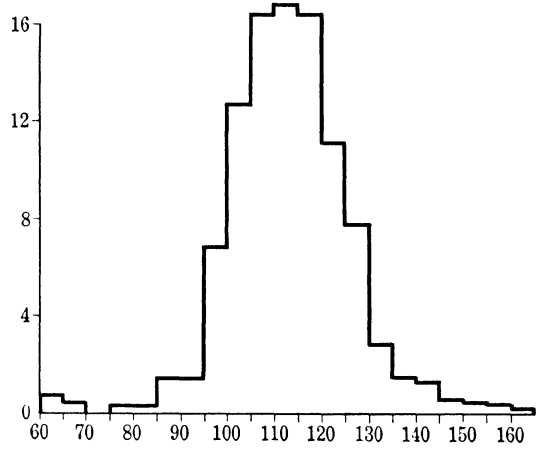


FIG. 18. Scores of 728 school children in tests of service. [Data from Hartshorne and May, '29, Book One, p. 108]

up from 0, according to what he cut out or copied, the pains he took to mount pictures, etc.

In two other tests he had a chance to work in the class for himself or for others.

The distribution of the total scores for 728 children was as shown in Fig. 18. The high scores could be attained only by giving away some of the most cherished objects as well as the least, and acting for the welfare of others when to do so was least attractive.

MEASUREMENTS BY TOTAL SCORE IN A MISCELLANY OF TASKS, SUCCESS IN WHICH IS MORE OR LESS DEPENDENT UPON A CERTAIN ABILITY

There are hundreds of psychological, educational, industrial and vocational tests answering to this description. The scores

are determined by altitude, width, and speed in various proportions. Interpreted rigorously, a person's score means only that he has the ability to make a score in the test in question and whatever abilities are perfectly correlated therewith. In spite of these limitations many of these tests are very useful in ranking persons in respect to their status in various psychological functions, branches of knowledge, skill in trades, and the like.

MEASUREMENT BY A MISCELLANY OF BEHAVIORS, SOMETIMES INCLUDING TESTIMONY ABOUT ONESELF, WHICH ARE MORE OR LESS INDICATIVE OF CERTAIN INTERESTS, ATTITUDES, OPINIONS, ETC.

There are scores of tests and questionnaires answering to this description. The Woodworth Test shown in part below is designed to measure how neurotic a person is. Often the same test or questionnaire is designed to measure many features of a person. For example, a test in which a person gives, for each of several hundred words, the word he thinks of may be used to give him scores for his interest in music, in art, in science, in the opposite sex, etc. If four boys respond to *white* respectively by "piano key," "high lights," "zinc oxide," and "girl" they might receive credits respectively for those four interests.

Concerning all such tests it may be said that they are revealing, but that no one of them reveals very much very surely. Moreover, the person who wishes to do so can in many instances deliberately misrepresent his nature by his responses. If it were desired to rank a hundred persons accurately in cheerfulness, conceit, dominance, good nature, impartiality, kindliness, shyness, sociability, temper, and timidity, or in any other ten traits of character and temperament, it is unlikely that any or all existing tests would succeed. Perhaps nothing short of an intimate knowledge of the behavior of the persons in thousands of real situations will ever accomplish that.

However, a thousand situations chosen carefully as specially revealing will be better than a random thousand, and they may conceivably be built into test series which, though artificial, will show a person's real nature.

PERSONAL DATA SHEET

Answer the Questions by underlining "Yes" when you mean yes and by underlining "No" when you mean no. Try to answer every question:

Do you usually feel well and strong?	YES	NO
Do you usually sleep well?	YES	NO
Are you often frightened in the middle of the night?	YES	NO
Are you troubled with dreams about your work?	YES	NO
Do you have nightmare?	YES	NO
Do you have too many sexual dreams?	YES	NO
Do you ever walk in your sleep?	YES	NO
Do you have the sensation of falling when going to sleep?	YES	NO
Does your heart ever thump in your ears so that you cannot sleep?	YES	NO
Do ideas run through your head so that you cannot sleep?	YES	NO
Did you have a happy childhood?	YES	NO
Were you happy when 14 to 18 years old?	YES	NO
Were you considered a bad boy?	YES	NO
As a child did you like to play alone better than to play with other children?	YES	NO
Did the other children let you play with them?	YES	NO
Were you shy with other boys?	YES	NO
Did you ever run away from home?	YES	NO
Did you ever have a strong desire to run away from home?	YES	NO
Has your family always treated you right?	YES	NO
Did the teachers in school generally treat you right?	YES	NO
Do you ever have a queer feeling as if you were not your old self?	YES	NO
Are you ever bothered by a feeling that things are not real?	YES	NO
Are you troubled with the idea that people are watching you on the street?	YES	NO
Are you troubled with the fear of being crushed in a crowd?	YES	NO
Does it make you uneasy to cross a bridge over a river?	YES	NO

Does it make you uneasy to go into a tunnel or subway?	YES	NO
Does it make you uneasy to have to cross a wide street or open square?	YES	NO
Does it make you uneasy to sit in a small room with the door shut?	YES	NO
Do you usually know just what you want to do next?	YES	NO
Do you worry too much about little things?	YES	NO
Did you ever have the habit of biting your finger nails?	YES	NO
Did you ever have the habit of stuttering?	YES	NO
Did you ever have the habit of twitching your face, neck, or shoulders?	YES	NO
Did you ever have the habit of wetting the bed?	YES	NO
Are you troubled with shyness?	YES	NO
Have you a good appetite?	YES	NO
Is it easy to make you laugh?	YES	NO
Is it easy to get you angry?	YES	NO
Is it easy to get you cross or grouchy?	YES	NO
Do you get tired of people quickly?	YES	NO

THE FORM OF DISTRIBUTION OF MENTAL TRAITS: THE RELATIVE FREQUENCY OF DIFFERENT AMOUNTS OF ABILITIES, WANTS, ETC. IN PERSONS OF THE SAME SEX, AGE, HEALTH, AND GENERAL ENVIRONMENT

In Figs. 13 to 18 three characteristics are notable: (A) From the smallest to the largest amounts of the ability, propensity, want, etc. there is a practically continuous series. All intermediate amounts occur (save for occasional gaps which would surely be filled if the number of individuals measured had been larger). (B) There is little evidence of any separation of the persons into two or more groups or species; there is one mode or common condition. (C) This commonest condition is at or near mediocrity.

Continuity is well-nigh universal in mental traits. Unimodality is somewhat less so. The tendency toward symmetry as in Fig. 19, rather than toward skewness as in Figs. 20 and 21, is very common, though not universal.

It may be noted here that the forms of distribution of eco-

nomic, governmental, legal, and theological facts about persons may be very different from those for abilities and propensities. Income is enormously skewed. Union wages in a trade rarely show a tailing out up or down. Political power was until recently distributed in most cultures with a mode near zero for

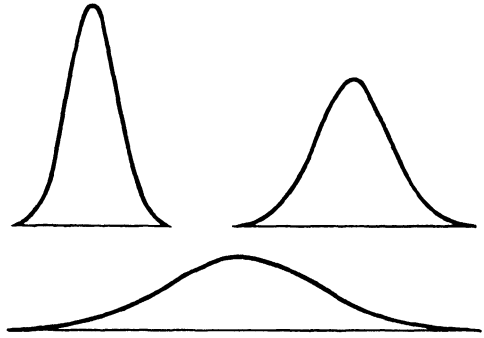


FIG. 19. Type of distribution to which variable traits in individuals often roughly approximate. The three diagrams represent the same geometrical form of surface, the only difference being in the variability.

slaves, serfs, and most women, and with jumps of increment for freemen, lords, and the high nobility. Except for rare cases of plural voting, it is now in many countries ostensibly equalized for all above a certain age, and zero for all below that age. The law scores a person as a minor or not a minor, elevates the mental age of seven years into a crucial dividing point, on either side of which all intellects are equal before the law, and operates with the two modes of 'responsible' and 'not responsible,' 'having intent' and 'not having intent.' Theology has its grades of sainthood and of sin, its heaven and hell, or heaven, purgatory and hell, its hierarchies in the transmigration of souls.

The common approximation to Fig. 19, the so-called normal distribution, is not compelled by any tendency of nature to abhor skewed or other irregular distributions. Perfectly normal distributions are rare, and the approximations vary in closeness. Nor is even rough approximation universal. On the contrary,

the strength of many wants, as for food, drink, freedom, vision, movement, may be expected to have a mode at a very high amount and to fall off at the low side in a very long skew. The same is probable for many aversions. But this should be checked.

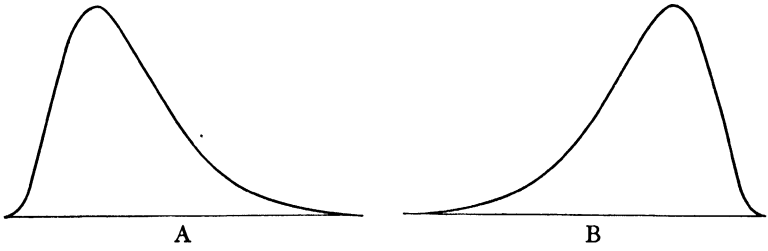


FIG. 20. Two distributions with moderate skewness

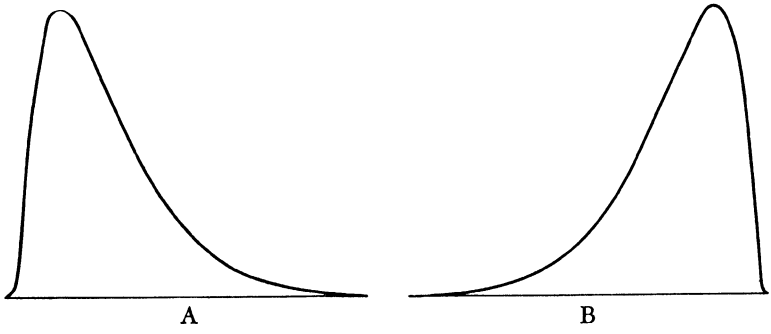


FIG. 21. Two distributions with much skewness

Fiction and popular science are full of suggestions that the distribution of wants and proclivities is multimodal, usually bimodal, that men split into warlike and peaceful, artistic and matter-of-fact, musical and non-musical, introverts and extraverts, dominant and submissive, efficient and predatory, peasant, priests, learned, and soldiers, "rentiers" and speculators, conservatives and radicals, and other more or less distinct groups. The evidence does not support these suggestions. Any arguments depending upon them are extremely risky. It is much safer to expect that the distributions will be unimodal and continuous.

Again and again in human abilities and propensities the form of the surface of frequency approximates to the bell shapes of Fig. 19, the so-called "Normal" distribution, bounded by the probability curve.

From the distribution or surface of frequency for the trait in n individuals, the distribution of the differences of the individuals one from another can obviously be computed.* There are other important statistical consequences of the form of distribution.

For the present we may consider certain more concrete and particular consequences. Consider first the use of the form of distribution of a trait in predicting the rate of progress of a political change. Let the amount of aversion to the change have always the same average, 100, and the same variability or dispersion, namely, an average deviation from 100 of 20, and consider the rate of change in annual votes when certain arguments or events overcome each year 10 units of aversion. Consider this rate for the four cases of a rectangular distribution as in Fig. 22, of a normal distribution as in Fig. 23, of an extreme skewness toward the low amounts of aversion as in Fig. 24, and of an extreme skewness toward the high amounts of aversion as in Fig. 25. Suppose that at the time of prophecy, the change received only 1 affirmative vote in a million, practically 0 percent. If Fig. 22 is the fact, the overcoming of 10 units of aversion each year will put the vote just past 12½ percent, 25 percent, 37½ percent, and 50 percent in four successive years. If Fig. 23 is the fact, the overcoming of 10 units of aversion each year will put the vote up only to about a quarter of one percent in the first year, and only to 5½ percent in five years, but in the next two years it will pass 21 percent and in two more years it will reach 50 percent. If Fig. 24 is the fact, the vote will rise to about ½ of one percent the first year and to about 14 percent in 4 years and will gain increasingly each year thereafter until a majority is reached at the end of eight years. If Fig. 25 is

* If the former is normal, the latter will be a normal distribution with mode and average at 0 and with a variability or dispersion equal to $\sqrt{2}$ times the variability or dispersion of the former.

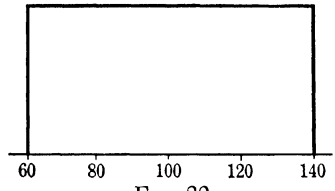


FIG. 22

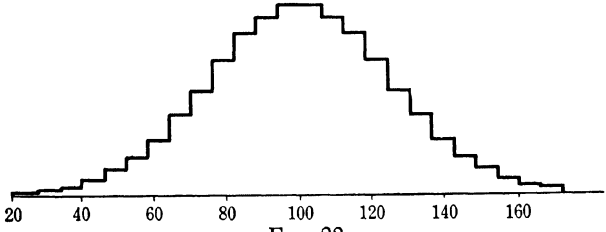


FIG. 23

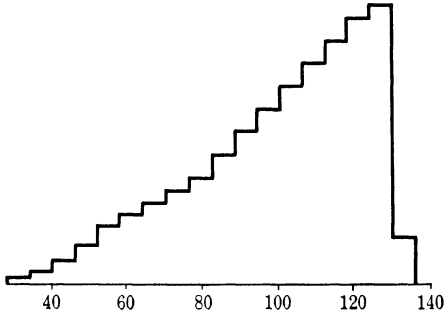


FIG. 24

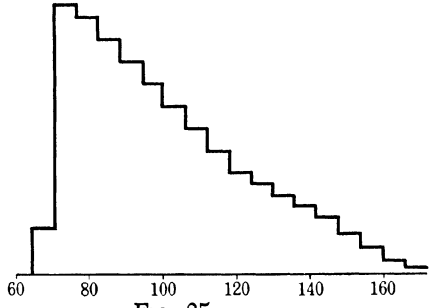


FIG. 25

the fact, there will be a large gain in the first year, and victory in the third.

In the case of Fig. 22 and Fig. 24 the progress from a majority to unanimity would need only four and three years respectively, but in the case of Fig. 23 and Fig. 25, nine and eight would be required.

Consider next the form of distribution of ability to learn mathematics in connection with the problem of grouping N college freshmen into n sections of say 30 each so as to have each section fairly homogeneous.

Suppose that, as one might hope, the distribution is somewhat as in Figs. 20 A, 21 A, and 25, with almost no persons below a certain minimum standard. Then with 180 freshmen we could have sections of the dullest, next dullest and just below mediocre that would be very homogeneous. In these the methods of teaching instructive for one would be so for all; there could be a healthy rivalry; superiority in effort would be rewarded by superiority in achievement. The section for the ablest, on the other hand, would contain talents as various as all three of these. In it, no one method probably could be suitable for all, and the teacher would be strongly tempted to neglect the brighter for the dull, or vice versa; the achievements would probably depend more on ability than on effort. This section would very possibly include one pupil abler than the teacher, but in no other need he either fear this or hope for it! *

Consider finally the difference in consequences between continuous unimodal distributions like Figs. 13 to 21 and 23 to 25 and distributions with a secondary mode at the upper or lower extreme or at both extremes as in Figs. 26, 27 and 28. If the distribution is, or is thought to be, like Fig. 26, man can hope to find natural leaders, experts, and superiors easily, and an aristocracy is rather easily workable. If it is like Fig. 27, the imbeciles, defectives, perverts, unemployables, and the like exist as classes to be found and dealt with as such. They can be described in words and legislated for without subtlety or

* As a matter of fact the selection for collegiate education in the United States seems to be so much a matter of economic status and parental devotion or ambition that the cut-off at the low end is not at all abrupt.

mistake. Having dealt with its obvious top and bottom a society can more or less comfortably neglect the variations between, no matter how great they would be found to be by careful study.

THE APPARENT AND THE REAL FORM OF DISTRIBUTION

The real form of distribution of a mental trait may be obscured or falsified by ignorance or misapprehension or misuse of the scale and units by which amounts of the trait are measured.

The following examples illustrate chiefly ignorance:

The score obtained by a person in the well-known intelligence test Army Alpha used with literate recruits in the United States Army during the World War was the number of items done

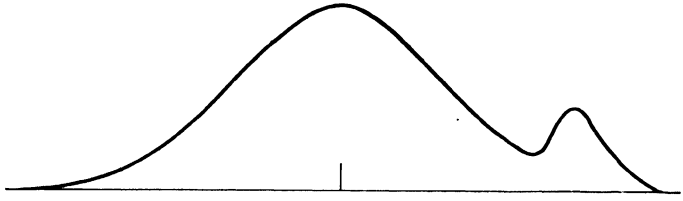


FIG. 26. A distribution with a second mode near the highest ability

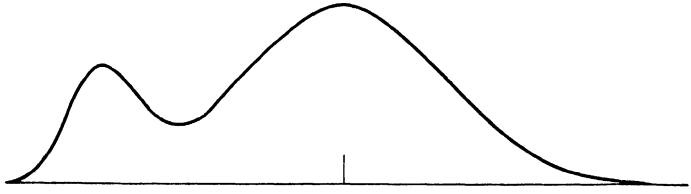


FIG. 27. A distribution with a second mode near the lowest ability

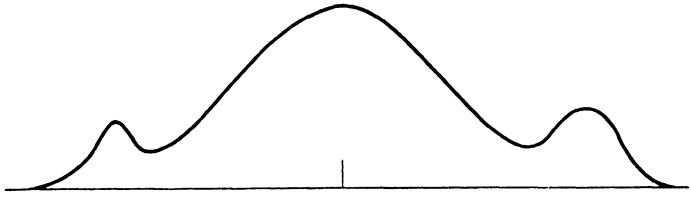


FIG. 28. A distribution with two secondary modes

correctly within a specified time, each being multiplied by a credit number. The distribution for adults or youths over 12 according to the score does not tail out as much as it should at the high end because the experts who analyzed the scoring did not give large enough credits for the hardest of the items. Later investigations show that the successful performance of one of

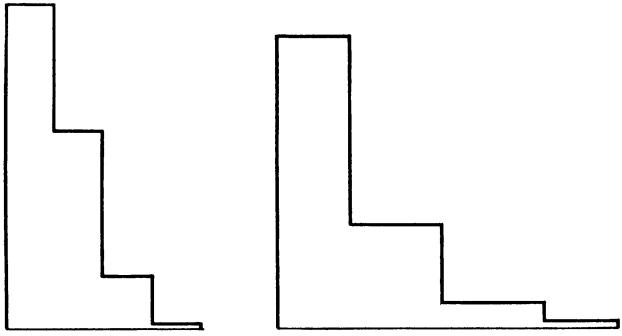


FIG. 29A. The upper tail of the scores of 9th-grade pupils in an intelligence test, taking the scores at their face value

FIG. 29B. The upper tail for the same group of pupils when the scores are expressed on a scale whose units are equal

these represented a greater increment of intelligence than the success with the average item of the same sort. This defect is characteristic of many intelligence examinations. Fig. 29 shows the upper tail of the distribution of pupils in grade 9 by one well-known test when the scores are taken at their face value (Fig. 29 A) and when they are transformed into terms of units that are equal or nearly so (Fig. 29 B).

The following example illustrates chiefly misunderstanding. Suppose the population of age 50 were distributed according to the number of times each had been convicted of crime. The distribution would consist chiefly of zero scores. But these zero scores would represent really a very wide range from persons who had just barely escaped conviction to saintly heroes. Perhaps nobody would misunderstand the surface of frequency in

this particular case, but in subtler cases zero scores and perfect scores have been misunderstood. They almost never should be taken at their face value.

Fig. 30 for the age at marriage of skilled male workers might cause misunderstanding in anybody who failed to consider that

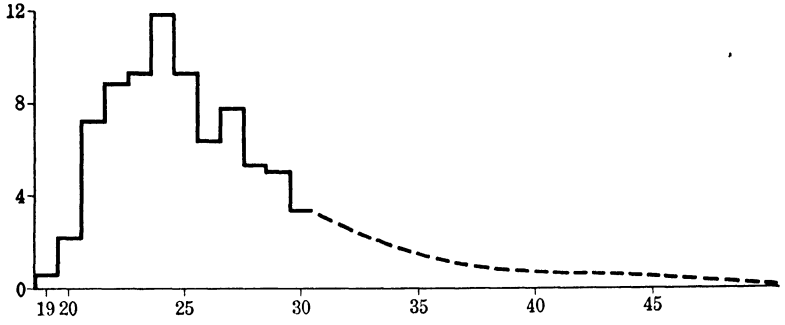


FIG. 30. Age at marriage of the skilled male workers who were married in York, England, in 1898 and 1899. There were also marriages at ages later than 50, not shown here. [Data from Rowntree, '01, p. 400]

it represents a mixture of first, second, and third, etc. marriages. Many flattened or skewed surfaces of frequency are due to the mixture of things that would be better kept separate.

The following illustrates chiefly misuse. The annual receipts as wages or salary of males aged fifty would be very greatly skewed toward the high end. With a mode near $1000 the upper extreme would exceed $200,000. Does this mean that the ability for which employees are paid has really a range upward from its most common amount that is over two hundred times its range downward? In one sense, Yes, namely in the sense that the men in question had the ability to get the salaries in question. They probably got them also without coercion or favoritism. They may well have earned them in the sense that their services added 200 times as much to the general welfare or to the profits of their employers, or to both, as did the services of the $1000 men. But in the sense that these men have two hundred times as much of anything usefully describable as an intellectual or moral trait or combination of traits as the average

man has, the answer is probably 'No.' We may have a very high opinion of the genius and expert in industry and trade, but deny that he has two hundred times as much managerial ability, or organizing ability, or planning ability, or business foresight, as the average man, or ten times as much as the $20,000 man. We may think that the world could well afford to pay a certain man of affairs even a million dollars a year rather than go without his services, and yet insist that, though his services were worth five hundred times those of the average man he did not have five hundred times as much of any conceivable mental ability. The ability to earn five hundred times as much need not imply the existence of five hundred times as much of the same ability. So also for fifty times as much, or five times as much.

What the form of distribution of executive ability, or organizing ability, or business foresight, or legal ability, or musical ability, or domestic ability is cannot be read off from the distribution of amount of money received. Measures in terms of money are very valuable. They are often the best available for studies of abilities. But it is a misuse of a salary scale to assume that it signifies an ability scale with exactly corresponding quantitative relations.

The probability is rather that if the amounts of an ability in individuals are defined and measured by their power to attain other results of importance, the measurements in terms of the money prices paid for their exercise will not show corresponding quantitative relations.

In the case of wants, satisfactions, and services, the money scale is much more likely to represent the scales which other sorts of considerations would establish. Data are scanty since people very rarely have to pay what they would be willing to pay in money, and since measurements other than in money are practically non-existent. We should, in my opinion, not be very skeptical if the distribution of the strength of wants in individuals for jewels, alcohol, morphine, praise, popularity, power, beauty or whatnot shows very great skewness when expressed in terms of the gross amount of money, or the percentage of one's income, or the percentage of what income-balance re-

mains after subsistence is provided for, that one will pay to gratify the want. We should be cautious in assuming that the strength of the want varies among individuals as the price that could be extorted would vary. But there can be extreme intensities of wants such as do not occur in abilities. Certain wants indeed seem to be infinite in certain persons in the sense that it seems utterly intolerable to the person to lack the desired satisfaction or endure the hated aversion.

As a final example consider the following: Children from a little under 2 years to a little over 4 years were observed, with respect to how often they came into conflict one with another during ten sample periods of 15 minutes each in the Nursery School or Day Nursery which they attended. The scores for number of conflicts by way of aggression showed a range from 0 to 42 around an average of 13.4. The zero scores here *do* represent a general pacifism in the sense that the child did nothing aggressive in a general environment which led the other members of group to average over 13 aggressive acts, and led some members to engage in over 40 such. A count of one, however, may mean any one of a wide variety from merely reaching for another child's toy to knocking the child down and urinating upon him! Those responsible for the observations wisely refrain from using the numbers in ways depending upon the equivalence of the units. It may be noted that if, as is probable, the more extreme aggressions, such as "biting, pulling hair, steps on, jumps on, drops heavy objects on, chokes, calls 'You son of a bitch' (and others of a more uncomplimentary nature)" are common among the acts of the more frequent aggressors, the skewness in total amount of aggression is even greater than appears from comparing the range of 13.4 down with that of 28.6 up.

The apparent as well as the "real" form of distribution may be important for theory and practice. Suppose, for example, that the "real" ability to solve intellectual problems measured in as equal units as psychology can devise is distributed among American adults as in Fig. 31, and that this same ability in these same adults measured by the salaries which they would receive for equal time spent in solving intellectual problems was distributed

as in Fig. 32 (as it well might be), the latter would be far from useless information. On the contrary, Fig. 32 would be valuable even if Fig. 31 were unknown. Fig. 32, for example, permits comparisons within the distribution in respect of amount of ability *to obtain money for one's intellectual work,* an important

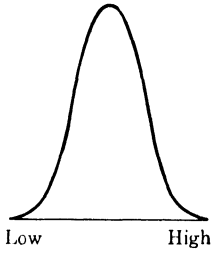


FIG. 31. The assumed distribution of intellectual ability in a group

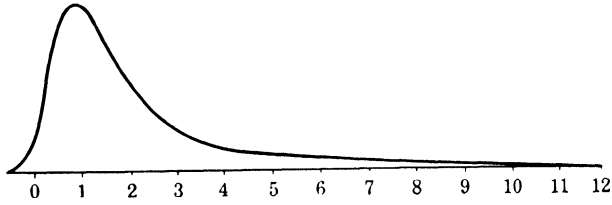


FIG. 32. The assumed distribution of the wages received by the members of the same group for the exercise of their intellectual abilities

economic fact, and comparisons outside with distributions of salaries at other sorts of work, and may be otherwise useful. Nobody should scorn any distribution of any ability, proclivity, or want which any good observer or statistician has labored to discover, even if it lends itself to misinterpretation. By paying heed to the nature of the units and scales used, we may secure its truth and avoid its temptations to error.

Special heed should be paid to the scale that is used, especially to (1) undistributed zero scores which mean in reality not a true zero or just not any of some ability, proclivity, or want, but only not enough thereof to obtain a positive score by the scale

used; (2) undistributed perfect or maximum scores which mean in reality not perfection or the greatest possible amount of some ability, want, etc., but only so much or more as tops the scale used; (3) scales on which equal distances are used to represent differences which are unknown or are known *not* to be equal.

Because we so seldom know the exact values of the different amounts which are called 1 in measurements of mental traits, we are unable to determine the exact forms of distribution of these traits among individuals. It can be safely asserted that a wide range, continuity over it, and a clustering around one chief or sole mode are very common, but whether approximately symmetrical distribution around the mode is the rule is harder to decide; whether the dispersion about the mode is usually a close fit to that in the "normal" distribution

$$\left(\text{given by } y = \frac{1}{\sigma\sqrt{2\pi}}\epsilon^{\frac{-x^2}{2\sigma^2}}\right)$$

is still harder to decide.

The form of distribution is the consequence of the causes of the amounts of the trait possessed by the individuals in question. But we rarely know much about what these causes are. If there are many uncorrelated causes of about equal influence and if each person is approximately a random sampling therefrom, the distribution will be closely like the "normal." If there is in addition one very influential cause or group of closely correlated causes, the distribution will show two clusterings around two modes, one as before and the other at a much higher or lower point on the scale. This is doubtless often the case. For example, certain causes give ten thousand babies varying capacities for vision clustering around the ordinary human status, and gonorrhoeal infection acts as a large cause to make a few of them blind; certain causes give them varying degrees of "general intelligence," and disease of the thyroid or hydrocephaly acts as a large cause to bring some of them down far from their original status. Certain causes give them, by the age of sixteen, varying amounts of knowledge of mathematics; and the decision to make mathematics a life career, leading to special study of it, and to earning a living by teaching it, sets in action a group

of correlated causes which bring some of the abler individuals to cluster around a second high mode of mathematical knowledge.

Two or more uncorrelated large causes will tend to produce two or more secondary modes in this manner. There are more complicated cases of the influence of large causes. There are those where attaining a certain amount of a trait makes further attainments easier. So knowledge of one foreign language may make the acquisition of others easier, or possessing $1000 may make it easier to acquire the next thousand. A skewness toward the high end of the scale will result. There are those where reaching a certain standard brings important benefits so that time and energy are spent abundantly until that point is reached and then relaxed. Thus there are humps in the distribution of school grade reached at the end of graduation from a common school, from high school, and from college, at the cost of the steps of the scale just below these points. There are those where opprobrium is attached to both extremes, as in certain customs.

Whatever be the form of distribution of n individuals in respect of any trait, the selection of N individuals from the n on the basis of anything related to the amount of that trait in any other way than by chance will cause the form of distribution of the N to differ from that of the n. Consequently, whatever be the form of distribution of a trait in the general population, its form in bad men, educated men, entrepreneurs, slaves, political leaders, criminals, lawyers, or any selected group is likely to be different, and is sure to be so if the selection bears any relation directly or indirectly to the amount of the trait in question. Such selective action is likely to cause asymmetry and even rather abrupt truncation.

If several groups situated at different ranges along the scale are combined, the form of distribution of the new total group will tend to show a flattening compared with the form of any of its constituents. So with stature or intelligence-test score of 8-, 9-, 10-, 11-, and 12-year-olds combined. So with the money wages of workers drawn from n communities with n different wage scales. If the numbers in the different sub-groups are

unequal and increase or decrease as one moves along the scale, the form of the total distribution will show asymmetry.

The measurement of any individual in most traits is his true status plus the influence of various errors of measurement. If a thousand persons were really identical in the trait, their actual

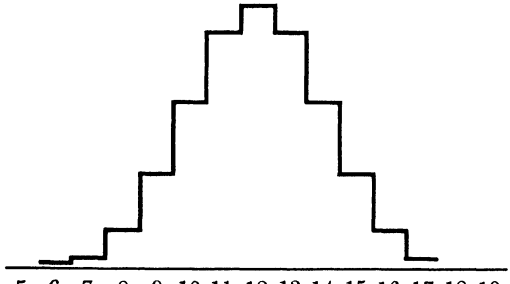


FIG. 33. The distribution of Trait A when the measurements are affected by a large chance error

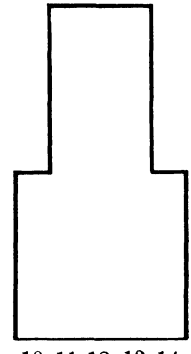


FIG. 33T. The true distribution of Trait A from adequate measurements

obtained measurements would still differ. The form of their distribution due to the errors of measurement alone would very often be continuous, unimodal, and symmetrical, following closely the "normal" form. If they were really different in the trait, their actual obtained measurements would represent these true differences plus the differences due to the error of measurement. If the latter are large compared with the former, the obtained form of distribution will have a spuriously large variation, and will be coerced considerably toward "normality."

Unfortunately, measurements of individuals are likely to be afflicted with large errors. If knowledge of the exact form of distribution is a matter of importance, the effect of reducing these errors by repeated and varied measurements should be studied.

The rule is, of course, that the true distribution is that toward

which the measurements more and more approximate as the errors of measurement are more and more reduced.

The errors of measurements themselves are usually distributed in a normal surface of frequency, and consequently act to produce a spurious normality in any set of individuals. If they

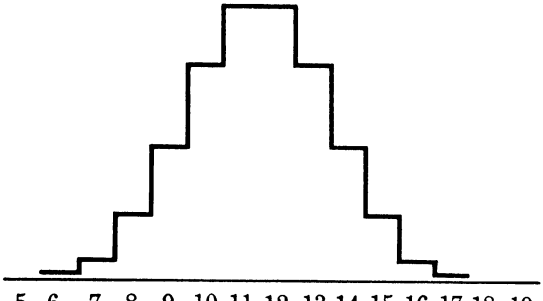


FIG. 34. The distribution of Trait B when the measurements are affected by a large chance error

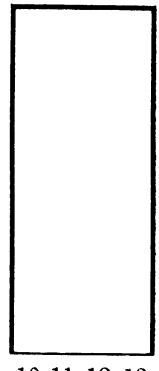


FIG. 34T. The true distribution of Trait B from adequate measurements.

are large in comparison with the differences between the real abilities of the individuals, they may produce very misleading results. For example, Figs. 33, 34, 35, and 36 are the distributions resulting which the true distributions 33T, 34T, 35T and 36T are contaminated by the action of a large variable error of measurement. Figs. 33 and 34, if taken at their face value, might easily mislead one into thinking that trait A and trait B were normally distributed. Figs. 35 and 36 might prevent awareness of the genuine skewness of traits C and D.

From all this we may state as golden rules in the interpretation of distribution tables or graphs: Consider the nature of the scale, especially any possible inequalities in its units. Consider any selective forces which may have operated in the formation

of the groups of individuals. Consider the errors of measurement and the result of eliminating them.

Manufacturers had the facts of individual differences among workingmen thrust upon them by Taylor and his followers. He wrote in 1903: "That there is a difference between the average

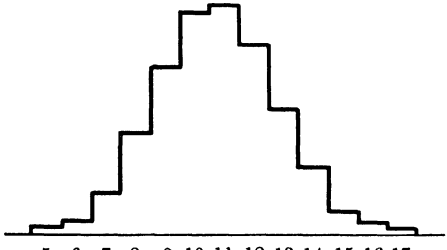


FIG. 35. The distribution of Trait C when the measurements are affected by a large chance error

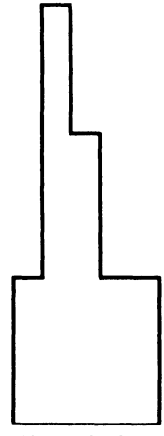


FIG. 35T. The true distribution of Trait C from adequate measurements

and first-class man is known to all employers, but that the first-class man can do in most cases two to four times as much as is done on an average is known to but few, and is fully realized only by those who have made a thorough and scientific study of the possibilities of men. The writer has found this enormous difference between the first-class and average man to exist in all of the trades and branches of labor which he has investigated, and this covers a large field, as he, together with several of his friends, has been engaged with more than usual opportunities for twenty years past in carefully and systematically studying this subject." [Taylor, '03, quoted in Hamilton, '19, p. 706]

Similar facts concerning clerical and managerial abilities have been relatively neglected.

Adam Smith disregarded the facts of individual differences when he did not actually deny them, and until very recently economic theorists have taken insufficient account of their nature

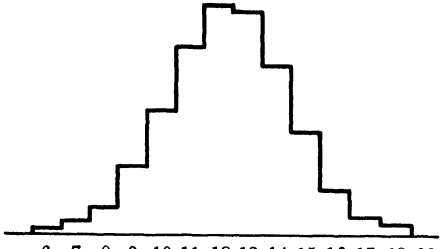


FIG. 36. The distribution of Trait D when the measurements are affected by a large chance error

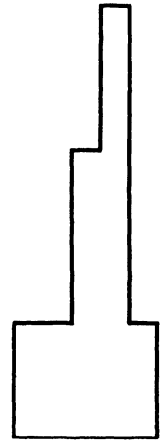


FIG. 36T. The true distribution of Trait D from adequate measurements

and amount. Even now it is possible for so competent an economist as Joan Robinson to make such demonstrably wrong statements as the following: "We may find, for instance, a large body of unskilled workers, between whose capabilities there are only small differences, while there is a clearly marked difference, on the one hand, between the quality of the best of them and of the least capable worker outside the group, and on the other hand, between the quality of the worst of them and of the most capable worker outside the group. Such gaps in nature make the demarcation of factors quite simple. But there will be many

doubtful cases, and we must not be too meticulous in putting dissimilar men or dissimilar acres into separate factors. If we take too strict a view of the degree of similarity between units which will justify us in grouping them together we shall have so many separate small factors that any productive process would require an enormous number of them, and most of our problems would become intractable." ['33, p. 108]

There are no such gaps in nature. If an economist does not base his theories upon the existence of an almost infinite number of different human factors, his problems may be tractable, but they will not concern the real world or anything closely like the real world.

The law makes sharp divisions between sane and insane, normal and idiotic, responsible and not responsible, and the like where none exist. It may be advisable for the law to do this, but it should be done with full awareness of essential falsity.

Theories and practices of government have erred both by neglecting certain important differences and by assuming that differences in sex, race, color, noble birth, etc. involved other differences which were in fact only loosely correlated with them.

Chapter 10

INDIVIDUAL DIFFERENCES (*Continued*)

THE AMOUNT OF VARIATION IN HUMAN TRAITS

In so far as it makes sense to compare the amount of variation in one trait with the amount in others, common sense judgments find that men differ more in stature than in body temperature, more in weight than in stature, more in intelligence than in weight, and more in musical ability than in intelligence. Just how much sense it makes will vary with the traits and with our purposes in comparing them. Accepting certain conventions in the matter, science supports our common-sense judgments.

Wechsler has computed the range of human differences in size, strength, amount of calcium in the blood, and many other physical and mental traits. He uses the ratio which the amount possessed by the next-to-the-highest person in a thousand is to the amount possessed by the next-to-the-lowest person in a thousand. He reports ['35, pp. 139 to 146] ratios as follows:

Normal body temperature	1.03
Calcium per unit of volume in the special fluid of adults	1.16
Stature at birth	1.21 (English males) and 1.25 (English females)
Length of head	1.22 (Egyptian adults)
Breadth of head	1.23 (Egyptian adults)
Stature, length of leg, length of femur, sitting height, height of sternal notch, length of foot, and span of arms, in various groups	from 1.26 to 1.32
Acidity of the blood, hemoglobin content, calcium in the blood of children, urea in the urine, and heat production (calories per square inch in adults)	from 1.21 to 1.32

The duration of pregnancy, sugar in the blood, phosphoric acid in the urine, heat production (calories per kilogram), red blood corpuscles, oxygen consumption and CO_2 production show ratios from 1.37 to 1.54. Circumferences of calf, chest, neck and thigh show ratios from 1.43 to 1.57.

The amount of uric acid in the urine, blood pressure, pulse rate and respiratory rate show ratios in healthy adults of 1.90 to 2.20.

Brain weight has a ratio of 1.60, and weights of heart, kidney, and liver of 2.14, 2.37 and 2.64. Various athletic and motor abilities had ratios of 1.67 to 3.18, mostly from 2.0 to 2.50.

Various intellectual traits showed ratios of 2.30 to 2.85, viz.:

Number of digits repeated correctly after a single hearing, in 236 male adults	2.50
Mental age in years of children chronologically 9 to 9.9 years old	2.30
Time required to place certain simple blocks correctly in a board with holes to fit them	2.42
Time required to perform an easy substitution test	2.85

Wechsler included no wants in his study because careful measurements are not available, but it is common knowledge that the variation is greater in some of them than in others, and that it is probably greater in many of them than in the traits of Wechsler's list. For example, the desire for alcohol varies from near zero to so great an amount that the person sacrifices his earning power, family welfare, and the approval of his friends and acquaintances for it. By any reasonable scale of units the persons who are Number 2 and Number 999 in a thousand spread along the scale vary by more than 10 to 1.

In estimating the amount or intensity of a want, proclivity or the like in a man, science is commonly concerned with its average strength over a long period, and in a normal variety of conditions. The ups and downs from day to day or minute to minute are a different problem. The wants for music, beauty, animal pets, companionship, security, alcohol, tobacco, praise, power, affection, etc., are supposed to be measured adequately in each person over a long enough time to be characteristic of

him, as child or as youth or as adult, not of any more particular part or aspect or condition of him.

This requirement of combining more observations under more conditions is one reason for the scarcity of measurements of the amount (or intensity or strength) of wants, proclivities, etc. in large groups of persons. Other reasons are the absence of convenient scales, the costliness of providing individuals with money so as to observe what they spend it for, and the general backwardness of the psychology of character and temperament, in comparison with the psychology of intellect and skill.

Wechsler's list could be extended by many abilities, especially those cultivated in schools, but not by many traits of character and temperament. I note some important extensions of it.

The ratio in the case of score in a Stanford Binet intelligence examination will be the ability of the average child of 14½ years divided by the ability of the average child of 5½ years, or the ability of the average child of 17.4 years divided by the ability of the average child of 6.6 years, or the ability of the average child of 13 years divided by the ability of the average child of 5 years. The reader may decide for himself whether the numerator is 1½ or 2 or 2½ or 3 or 4 times the denominator in these ratios. It depends upon where one locates the zero of intellectual ability. If that zero is not far below the ability to follow such directions as those shown below, the ratio is about 2 to 1:

"Make a ring like this (showing the act)." ○

"Make a line like this (showing the act)." —

"Make a cross like this (showing the act)." ×

"Stand on that paper (a sheet of paper is left on the floor)."

"Put your hands behind you."

Number of German words known by adult citizens of the United States. The ratio in this, and many other knowledge functions, will be well above a hundred. The number of vernacular words known by the 99.9 percentile man will be over twenty times that known by the 0.2 percentile man. In ready knowledge, as measured by the number of correct answers which a person could give (without consulting books or other authorities or taking more than two seconds to reason out the answer) to the millions of sensible questions which could be put to him,

the score for adults will run from near zero for some idiots to over a million and probably to over ten million. The ratio of the 99.9 percentile man's score to the 0.2 percentile man's score will be over a thousand.

In economic value to the world as a worker, the ratio for adults is theoretically infinite, since the 0.2 percentile man surely cannot earn his keep in a modern civilized community, and perhaps not in any.

In morality, in the customary sense of a tendency to have good will toward men and control bodily lusts in favor of truth, beauty and welfare, the ratio is again extremely high. In esthetic appreciation or good taste in matters of form and color the ratio is very high: in the McAdory art test, for example, an appreciable number of persons agree with the consensus of experts only by chance. In the Abbott-Trabue test of good taste in poetry the same is true.

In hunger, in the sense of the intensity of the hunger pangs caused by a stomach empty too long, the ratio is low, probably somewhere near 1½.

In appetite, in the sense of the desire for food after abstinence, the ratio is probably higher. There are one or two persons in a thousand whose appetite is so weak that they forget to eat lunch or dinner when deeply interested in some activity, and others who forget all other duties and most other pleasures at the smell of food.

The craving for the voluptuous sensation of sex after a week or so of abstinence probably varies very widely, with a ratio approaching infinity. But here, and in many other cases, the intensity of the desire cannot be truly measured by the intensity of the indulgence. The strength of forces acting against it must be considered, indulgence being a result of weakness of control as well as strength of desire. The excessive sex activity of imbeciles is a sign of less control rather than greater desire.

Pearl ['25, p. 187] has reported facts concerning the frequency of sex activity, which is presumably a product of the craving for voluptuous sensations and the craving for relief from sex tension. The range is from zero or near zero occurrences per week to over twenty-one times per week, as shown in Table 15.

Certain traits seem to be rooted in tendencies which continue the ability past zero into a negative phase and so make any ratio inadequate. Thus cooperativeness passes on into meddlesomeness and interference; poise or balance passes into neuroticism; constructiveness can be extended into negative scores representing destructiveness in play with objects, in ideas, and in criticisms.

Some wants and aversions are so strong in almost all men that the ratios of Number 999 to Number 2 are indeterminate. The desire to retain one's sight is doubtless stronger in a painter and lover of beauty than in an ordinary man, but both desires are so near infinity that nobody would dare say whether the one is twice or ten times or a hundred times the other.

TABLE 15

THE APPROXIMATE FREQUENCY OF SEX ACTIVITY IN MALES AGED 30–39 COMPUTED OR ESTIMATED FROM THE DATA OF PEARL ['25, p. 187]

Occurrences of Sex Activity per 28 Days	Percentage of Men
0 to 3	19.8
4 to 7	25.0
8 to 11	19.5
12 to 15	13.0
16 to 19	7.6
20	4.6
24	2.8
28	1.8
32	1.4
36	1.0
40	0.7
44	0.5
48	0.4
52	0.3
56	0.25
60	0.22
64	0.19
68	0.16
72	0.14
76	0.125
80	0.115
84	0.100
88	0.090
92	0.080
96	0.070
100 or over	0.060

TABLE 16

THE FREQUENCIES OF THE VARIOUS LENGTHS OF TIME REPORTED AS THAT WHICH AN INDIVIDUAL WOULD SPEND IN PRISON TO OBTAIN EACH OF CERTAIN THINGS OR PRIVILEGES (IN PERCENTS)

Inducement	Number of Days in Prison Reported										
	0	¼ to 4	5 to 9	10 to 29	30 to 49	50 to 99	100 to 149	150 to 199	200 to 299	300 to 399	400 or over
80-acre farm in New York State with a 6-room house	20	12	8	14	14	19	2	3	2	2	4
A year's cruise around the world	9	9	8	14	19	20	5	4	3	6	3
Year in Europe	8	10	7	22	12	23	3	4	2	8	1
Camp in the Catskills with 100 acres of land and a well-stocked trout brook	24	19	13	11	16	7	5	3		1	1
Cottage in Maine	23	20	9	16	17	6	3	2	1	2	1
A new Cadillac car	25	18	14	20	10	6	3	3		1	
A new Lincoln car	25	19	14	19	9	6	4	3			1
$500 in cash	8	21	11	23	15	15	4	1		2	
Chance to see Niagara Falls	54	36	7	3							
A week's good fishing, all expenses paid	51	31	12	4	1		1				
An hour's talk with Stalin	58	26	7	7	1	1					
A year with Byrd at the South Pole	58	11	8	7	2	7	2	2	1	1	1

It may seem strange that we make no use of the size of the purchases of a commodity at various prices as measures of the individual differences in the desire for it. The price that a person would be willing to pay for a certain satisfaction would indeed be a useful measure of his desire for it. But the actual prices paid are determined largely by buyers who buy to sell again. Value for use and exchange value are inextricably intermingled in the bids that are made. Also most purchases are made under conditions such that very desirous purchasers still pay little above some customary market range. They profit by various amounts of "Consumer's surplus." * There are other difficulties, such as the inability of persons who lack purchasing power to have their wants recorded. So the amounts of commodities sold at varying prices, the number of bidders continuing to higher and higher levels at auctions, and other pecuniary expressions of the magnitude of wants are not usable for our purposes.

We can have recourse to persons' opinions about how much they would pay if not allowed to resell, or for privileges which

* Consumer's surplus is the difference between what a consumer would be willing to pay for that gratification of his want and what he does pay.

TABLE 17

ESTIMATES BY 40 UNEMPLOYED PERSONS, AGED 22 TO 34, OF THE AMOUNTS OF MONEY FOR WHICH THEY WOULD ENDURE THE MUTILATIONS, DISCOMFORTS AND DEPRIVATIONS SPECIFIED

Deprivation or Mutilation	Frequencies (in Percents) of Those Estimating the Stated Amounts										
	Less than $10	$10 to 99	$100 to 499	$500 to 999	$1000 to 4999	$5000 to 9999	$10000 to 49999	$50000 to 99999	$100000 to 999999	A million or more	∞, i.e., no am't would induce them
Have the little finger of one hand cut off				5.0	10.0	10.0	12.5	2.5	20.0	10.0	30.0
Have the little toe of one foot cut off		2.5		5.0	5.0	12.5	20.0	10.0	15.0	7.5	22.5
Become unable to smell					2.5	10.0	17.5	10.0	15.0	12.5	32.5
Become unable to taste						5.0	5.0	17.5	12.5	20.0	40.0
Eat a dead earthworm 6 inches long		7.5	5.0	5.0	20.0	7.5	12.5	7.5	12.5	7.5	15.0
Let a harmless snake 5 ft. long coil itself around your arms and head	12.5	22.5	22.5	15.0	7.5		5.0		7.5	2.5	5.0
Take a sharp knife and cut a pig's throat	10.0	15.0	22.5		15.0		7.5		7.5	2.5	20.0
Have to live all the rest of your life in New York City	10.0		2.5	2.5	12.5	2.5	27.5		30.0	7.5	5.0
Have to live all the rest of your life on a farm in Kansas, ten miles from any town	2.5	2.5					20.0	17.5	20.0	22.5	15.0
Have to live all the rest of your life shut up in an apartment in N. Y. City. You can have friends come to see you there	2.5							10.0	12.5	40.0	35.0
Have nothing to eat but bread, milk, spinach, and yeast cakes for a year			10.0	7.5	7.5	7.5	22.5	17.5	15.0	7.5	5.0
Go without sugar in all forms, tea, coffee, tobacco and alcoholic drinks for a year	5.0	5.0	12.5	7.5	22.5	10.0	22.5		5.0	2.5	7.5

are not transferable, or for deprivations which are irremediable. The results of such inquiries should be accepted only provisionally, and with allowances for the differences between what people think they would do and what they really would do.

I have collected such opinions in the favored case of a group of men and women, mostly of intellect and education much above the average, who were in receipt of government relief in the form of payment for work on various projects, so that the value of money was approximately equal to all.

I report in Tables 16 and 17 sample distributions of their bids for various transferable properties and non-transferable privileges and of the amounts which they opined that they would require to endure certain sufferings. In the latter case they were instructed that the money must be spent for themselves. This was done to keep the imaginary bargains free from altruistic motives. It may have been unwise.

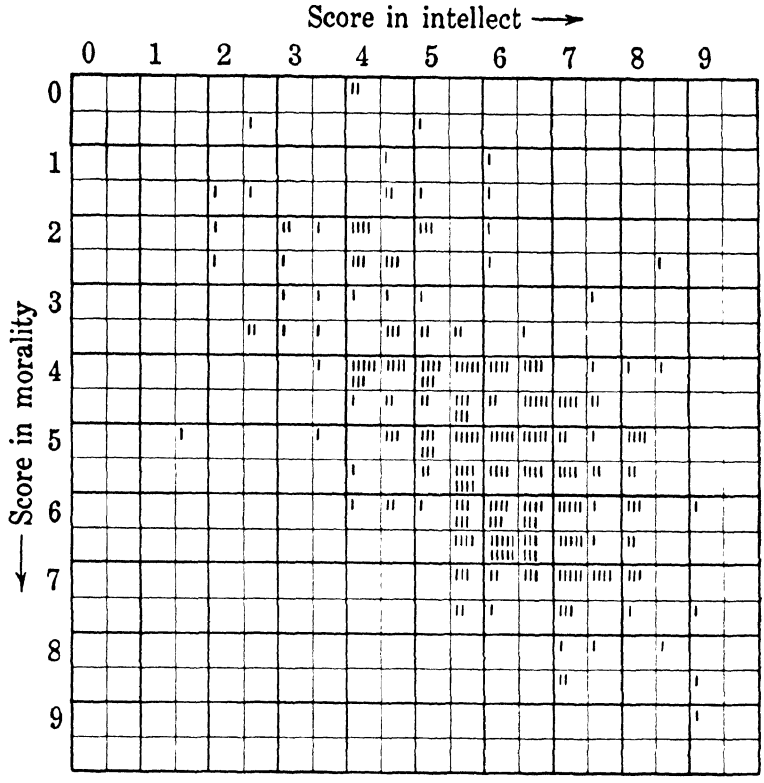
THE INTERRELATIONS OF MENTAL TRAITS

Many of both the popular and the important questions in the sciences of man concern the relations of some one mental trait to some other. Does insanity go with genius? Is virtue antagonistic to health, so that the good die young? Is ability to make money a sign of greed and predacity? Does nature compensate individuals for weakness in one ability by strength in another? How closely allied are ability to succeed in school and ability to succeed in life after school? What is the relation between the popularity which causes a man to get votes and the traits which cause him to be a good representative of his clients? Any such question requires for its answer a description of the correlation of two traits in the sense of the way and degree to which the status of an individual in the one is linked with his status in the other. This description will usually be in the form of a table like Table 18 which portrays the estimated morality of each of 269 male members of European royal families in relation to his estimated intellectual ability. Each little line represents one person. Its position from left to right across the page represents his score in intellectual ability. Its position down the page represents his score in morality. There

is a positive correlation; the abler intellects are the more moral persons. But it is far from close; r = .56.

Table 19 shows in a similar manner the relation for 197 girls between intelligence score at age 14.0 and earnings at clerical

TABLE 18

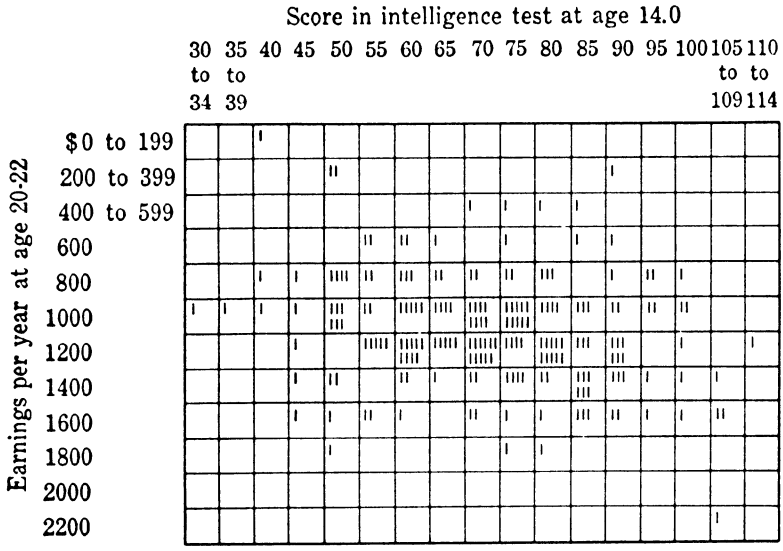


work 8 to 10 years later. There is a positive relation here but so small a one that it is not clearly apparent to the eye. A little computing reveals that the average yearly pay is $32 greater for the 96 girls who scored 75 or higher in the test than for the 101 who scored below 75. Other computing will show that about 56 percent of the girls are above average in both test score and

earnings or below average in both. r is in fact .23.* A very close correlation is shown in Table 20; r = .95.

The closeness of the relation may be summarized in a single measure (r, the coefficient of correlation). If r is 1.00 all the persons will be located along a line which will slope from a point

TABLE 19



representing the minimum scores in the two traits to a point representing the maximum scores in the two traits. If r is .95 all the persons will be located in a narrow ellipse or band the long axis of which will slope not quite so steeply as for $r = 1.00$. If $r = .00$ the persons will be spread widely about a line that does not slope at all. The values of r for Tables 18, 19 and 20 are respectively .56, .23 and .95. Antagonism between two traits will be measured by negative values of r.

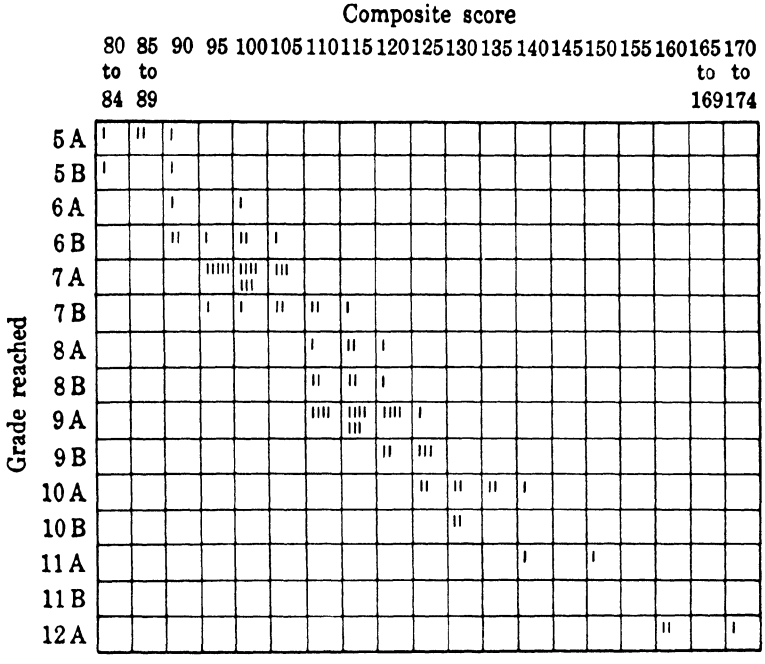
Negative correlations among desirable abilities are exceedingly rare. It is possible that there are none. The notions that quick learners retain less than slow learners, that wide knowledge goes

* If enough tests had been given to obtain an accurate measure of intelligence for each girl the correlation would have been about .30.

with little depth of understanding, that success in school implies failure in making money, that ability in science implies insensitivity to beauty are samples of superstitions disproved by the facts.

Among desirable wants and propensities there is more chance of finding such, because a person who obtains all the satisfaction

TABLE 20



he needs from a few wants may fail to develop or retain others, and a person who is sufficiently superior in a few estimable qualities to win the approval of others and self and maintain a comfortable life with other men may fail to develop or retain other virtues. The facts which would decide this matter are lacking, very few of the correlations of wants and propensities one with another having been measured. What facts there are make it probable that positive relations are the rule with desirable

traits of character as with abilities, so that energy, courage, honesty, fairness, good will, kindliness, sensitiveness, modesty, etc. are allied more often than in opposition. The correlations are, however, often very low for abilities, and are probably even lower for traits of character.

Correlations may have very great significance for the world's affairs, even though they are very low. For example, a correlation of only .20 between intellect and good will toward men means so many exceptions to the rule that a very small prejudice or obtuseness in observers of human nature will fail to see the rule, or even be deluded into thinking that they see the opposite rule. Yet it is probably much better from even a purely selfish point of view to choose our representatives by intellect than by the amount of good will toward us which they claim they have. The correlation of *that* with the reality is probably negative! A treatment of cancer which correlated only .20 with prevention and cure would fail so often that a dull or prejudiced physician might sincerely think it useless. Yet it could save thousands of lives. A correlation of .30 between a certain form of municipal government and the welfare of cities would be practically undetectable without elaborate investigation. Ninety-one percent of the welfare of cities would be due to other causes than having this form of government ($1.00 - .30^2$). It would be easy for its opponents to think of it as a negligible factor. Yet to adopt it would be a distinct advance.

The mental and social facts with which government, economics, business, education, and philanthropy deal are usually extremely complex in their causation, if not in their nature as well. It is usually desirable to learn about their affiliations even though these are loose and slender. In the prediction of the future price of a commodity, or success of a person in a certain vocation, or the like, a dozen components, no one of which alone showed a correlation of more than .30 could together provide a perfect prediction.*

To exaggerate a correlation of .20 to .40, or one of .30 to .60, is

* If each was independent of all the rest they would do so, but they are likely to have positive correlations *inter se,* which reduces their combined value.

even worse than to neglect it.* Such exaggerations occur even in able minds who trust to their experiences and memories without making a correlation table, or select cases which seem to them typical, or apply to individuals correlations computed from groups, such as residents in certain wards or communities. Experience and memory are unduly influenced by what is for any reason interesting and pleasant to experience and to remember. The only way to have cases truly typical is to take them at random. A low correlation between the score of each person in A and his score in B may easily cause one much higher between the average score of each group of persons in A and the average score of each group of persons in B.** *

THE ORGANIZATION OF A PERSON

Knowledge of the exact status of all abilities, wants, and other tendencies in each of an adequate sample of mankind plus knowledge of the correlations of each of these traits with all the others would enable science to study the organization of a person.

Such knowledge is for the most part lacking, except in the case of intellectual ability, but enough is known to justify six important working hypotheses for science and guiding principles for practice:

(1) The organization is almost unbelievably complex. Four facts will show this. If exact inventories of the natures of a million adult men taken at random from the United States were made, probably no two of them would be indistinguishable.* * * If a committee of the ablest psychologists and psychiatrists tried to plan a mental Bertillon system to classify and identify these

* The reasons why it is worse lie in certain statistical properties of the correlation coefficient whereby the increased closeness measured by K points rise in the correlation coefficient, r, is greater the more removed r is from 0, and the amount of the variation in A due to variations in B is proportional to the square of the correlation of A with B.

** In Appendix V, I show how the correlation between the intelligence quotient of a person and the number of rooms per person in his family's home might be .45 for a whole city, the correlation between the average number of rooms per person and the average intelligence quotient in the twelve wards of his city might be .90, and the correlation between the intelligence of a person and the number of rooms per person in his family's home might be zero for the persons in any one ward.

*** The nearest approaches would be certain pairs of twins.

million persons, they would not know how to begin or how to proceed; they would disagree because they would think of dozens of nearly equally good ways to begin and of hundreds of nearly equally good ways to proceed. If the correlations are surveyed to find traits which belong together because they are really nothing but manifestations of some more fundamental trait, with which each of them correlates perfectly or almost perfectly, such are very hard to find. If the correlations are surveyed to find traits which are self-contained and independent of the rest, correlating zero with all other traits, such are very hard to find.

(2) As one feature of the complexity there is specialization almost everywhere. Characters are not good or bad, strong or weak, but chock full of specificity. Honesty and helpfulness are partly allied to a general, average, over-all decency, but partly separate and distinct tendencies. Honesty itself is not unitary. Cheating in school is not the same as in games, and neither is the same as dishonesty with money. There is specialization even within school cheating. Some of the correlations found in the extensive and careful studies by May and Hartshorne were as follows:

Between one sort of school cheating and another: .53, .50, .49, .49, .54, and .41, with an average of .49.

Between one sort of school cheating and cheating on school work at home: .38, .44, and .56, with an average of .46.

Between one sort of cheating in school or on school work at home and cheating in contests: .27, .33, .10, and .30, with an average of .25.* Of what little generality there is to "honesty," part is due not to "character" *per se,* but to intelligence.

The intercorrelations of five varieties of "Service" were .20, .17, .13, .20, .27, .32, .21, .27, .12, and .12. The intercorrelations of four varieties of Persistence or "Inhibition" were .34, .32, .24, .20, .15, and .21, averaging .24. The correlations in the case of "Service," "Persistence," and "Inhibition" are for the scores made in tests of limited number and length. With perfect measures of each variety the correlations might rise to near .30.

* These are the correlations which would be found by perfect measures from many trials in many test situations, all having been corrected up to allow for the inadequacies of the tests actually given.

It is the rule rather than the exception that when a tendency, for example, musical ability, mechanical skill, appreciation of beauty, strength of bodily appetites, benevolence, sociability, curiosity, or openmindedness, is measured by careful observations and tests, its verbal unity is found to conceal a factual variety and specificity. Most of such words and phrases really refer to statistical totals or averages.

(3) Any simple classification of persons into physical types is surely inadequate and probably misleading. The most reasonable classification into bodily types is probably into lanky and stocky, but these "types" mix and overlap, and whatever intellectual, moral and emotional affiliations the two have are not very different. There are no reasonable simple classifications into mental types. The leading psychologists who have studied individual differences are careful to eschew them. They are proposed mostly by literary men and psychiatrists who are ignorant of nearly all that has been done in the measurement of correlations. That of E. Spranger is the most used. He lists the theoretical man, the economic man, the esthetic man, the social man, the man of power, and the religious man, as fundamental types. This may be a bit more useful than the traditional man of thought, man of feeling and sentiment, and man of action, but it seems to me worse. Neither does as much good to thinking as it does harm. Of the adult population of New York City probably not one in ten would be put in the same Spranger category by five experts who knew all their thoughts and behavior for five years. His list would work much better as a classification of buildings!

A student of psychiatry suggests that "human behavior phenomena are ultimately organizations of four psychological processes varying in quantity from individual to individual, and of a fifth force, the environment. The psychological processes are form recognition, organizing energy, affective drive, creative activity." [S. J. Beck, '33, p. 374 f.]. By this doctrine Napoleon, Einstein, Shakespeare, and probably Al Capone, would be classed together as having similar mental constitutions!

To be useful a type should be fairly closely like the persons who are to be classed under it and fairly unlike all others. To be useful a system, say of ten types, should be such that most

individuals should be emphatically more like some one type than like any of the other nine. If ten actual persons are chosen to represent the ten types, the average difference of all persons in each case from the person of the ten whom they most resemble should be a very small fraction of the average difference of any one person from any other, much less than ten percent of it. Useful types in zoology and botany would show a much smaller percentage than this. For example, suppose that rodents were intercompared and then compared with rat, rabbit, squirrel, or whichever "type" they most resembled.

No system of mental types has ever been validated. The system of Kretschmer classifying by body into pyknic, athletic, leptosome, and dysplastic, and supposed to be indicative of deep-seated mental constitution, has been carefully tried and found wanting by Klineberg and his associates ['34] and others, most recently by Cabot ['38].

(4) Especially misleading are classifications into two opposite types. All such systems that have been proposed misrepresent the two ends of a continuous distribution as descriptive of the natures of the bulk of the population, when they really describe only the status of one small part of a person who happens to be extreme in respect of it.

One of the least objectionable of such is the division into introverts and extraverts, but the great majority of people are neither; and if one is sure that a person is at one or the other extreme that does not tell much more about him. In either case he may be bright or dull or average, may like or dislike music, may be in any profession, may be sane or crazy. If all at the introvert extreme were thoughtful, sensitive, shy, introspective, rather melancholy, desirous of a few intimate friends, disliking general sociability, and careless of food and drink, and if all the extraverts were active, thick-skinned, forward, uninterested in themselves, joyous mixers, not averse to gluttony, the classification would not be so bad. But they are not.

(5) The best system of types will be one where the ordinary common man is the most important type, with others so chosen as to make, type by type, the greatest possible reduction in the ratio

$$\frac{\text{average of the differences of each person from the type he is nearest to}}{\text{average difference of each person from every other.}}$$

When increases in the number of types cause such small reductions in this ratio that the gain in adequacy of description is offset by the trouble of having more types to keep in mind, additions to the set of types should cease.

Any good system of types will also recognize that intermediate conditions will be very common, and make free use of them as descriptions.*

For anybody who must use some mental typology, I suggest the following as likely to do a minimum of harm:

Type

0. The common ordinary man
1. The man of thought
2. The man of feeling
3. The man of action
4. The inert, vegetative man
5. The self-controlled, well-organized man
6. The disorganized, neurotic, or hysterical man
7. The childish man
8. The brutish man
9. The saint
10. The man who likes many things and likes them much
11. The man who likes few things and likes them little.

But it will be still better to use only one type, the common ordinary man, and describe individuals by the features in which they differ from him and the amount of difference in each such feature. These facts have to be known in order to make a valid selection of the type to which he belongs, no matter what the typological system is. A statement of them is more informative than the statement that he is of such and such a type.

(6) With few or no exceptions superiority in one desirable trait implies superiority in any other. The various sorts of intelligence (with abstractions and symbols, with things and

* 'Intermediate condition' is a much better term than 'mixed type' for persons who are nearly as much like type B as like type A. Such persons are not often in any true or useful sense mixtures of A and B.

mechanisms, with people and their motives) are positively related; intelligence in general is correlated with virtue and goodwill toward men; both are correlated with skill in control of hand, eye, voice, etc.; all these are correlated with health, poise, sanity, and sensitiveness to beauty. Some of the intercorrelations

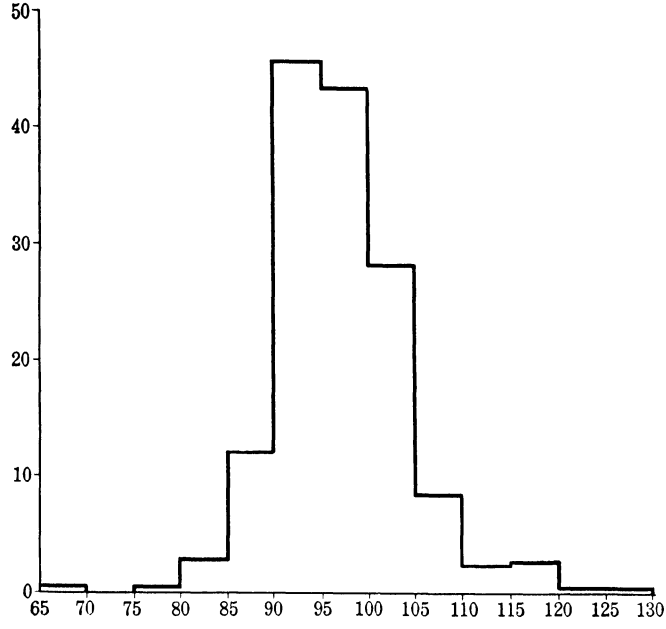


FIG. 37. Males per hundred females, 295 cities

are low, as in the case of intellect and musical ability, intellect and good taste in color and form, artistic appreciation and athletic ability, health and scholarship, but they are rarely zero or negative. There is, I think, no demonstrated case of a negative correlation in all the work so far done.

The existence of positive correlations among all or nearly all desirable traits may be caused in part by differences in the environments of the persons in question, if, as seems probable, an environment which increases one desirable trait will tend to increase others more than to decrease them; and conversely. The existence of positive correlations among the gene determiners of

desirable traits need not be a mysterious ultimate law of mental constitution, but may have developed as a consequence of like mating with like (homogamy or assortative mating). Price ['36] has shown that if "human homogamy is more marked in respect to a summation of generally desired traits, than in respect to such

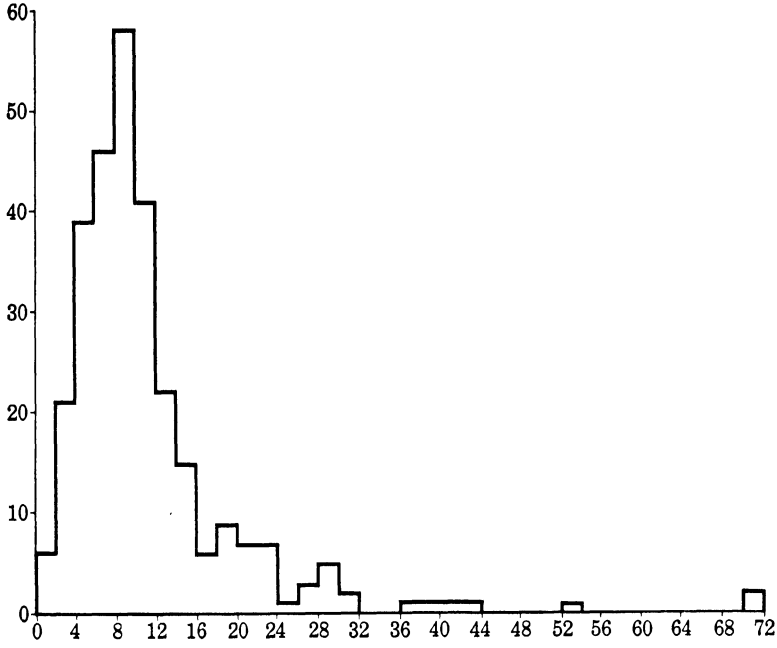


FIG. 38. Population per acre, 295 cities

traits considered singly" (which no competent person will doubt), there will be positive correlations among desirable traits which otherwise would have zero correlations.

As a consequence of the fact that desirable traits are positively correlated, a composite of a person's scores in all desirable traits will not be at or near zero for everybody, but will show a substantial variation. If the relative importances of all these desirables were known, they could be given appropriate weights in the composite so that it would be a true index of the total goodness or merit or desirability of the person. Even with the fallible

weights which must now be used, such an index would be very useful. Its application would lessen the injustice of damning individuals in general just because they are dull (as teachers have done), of damning them because they are shy (as psychiatrists now do), of damning them because they are not cheerful, self-confident mixers (as sales managers often do), and other like bigotries. Its application would also prevent the fantastic notion entertained by some sociologists that when the entire make-up and history of each man is considered, one man is as good as another.

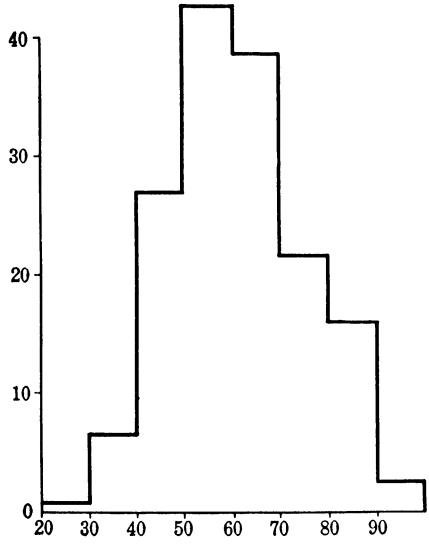


FIG. 39. Percentage of persons 16 or 17 years old attending school, 310 cities

The measurement of a man by such a general human value or quality scale and the subscales for intellect, character, special abilities, health, energy, and temperament, disposition, or whatever one calls the rest of man's make-up, from which it was constituted would not do all of the work which a full inventory of him would do for estimating his nature and value to the world, but they would do a large part of it.*

INDIVIDUAL DIFFERENCES IN COMMUNITIES * *

It is obvious that villages, cities, and nations differ widely in wealth, manner of life and other important respects. The more

* The treatment of human mental variations in this chapter does not do justice to the vast amount of work that has been done since Galton began to study them sixty years ago. It may be supplemented conveniently by Part II of Volume III of the author's *Educational Psychology* ['14] and Anastasi's *Differential Psychology* ['37].

* * For a more adequate treatment of individual differences in communities see Thorndike, '39C and '39D.

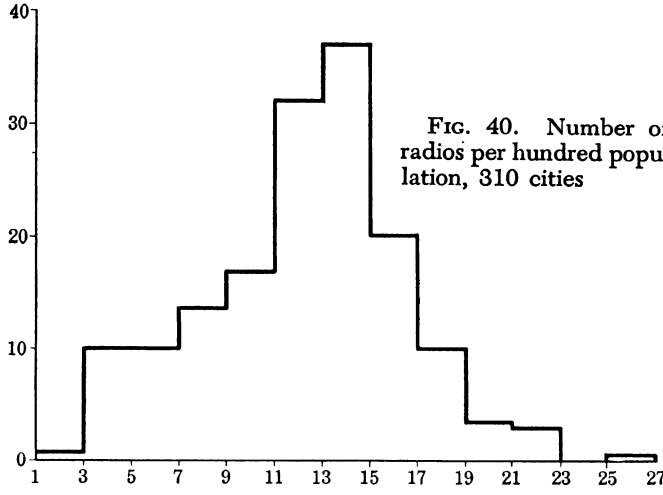


FIG. 40. Number of radios per hundred population, 310 cities

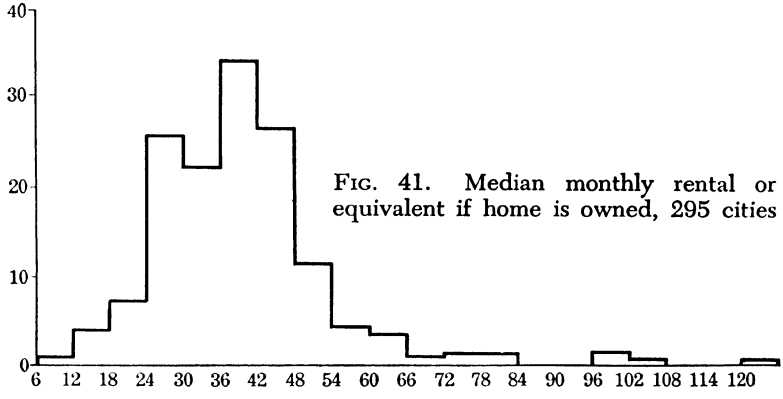


FIG. 41. Median monthly rental or equivalent if home is owned, 295 cities

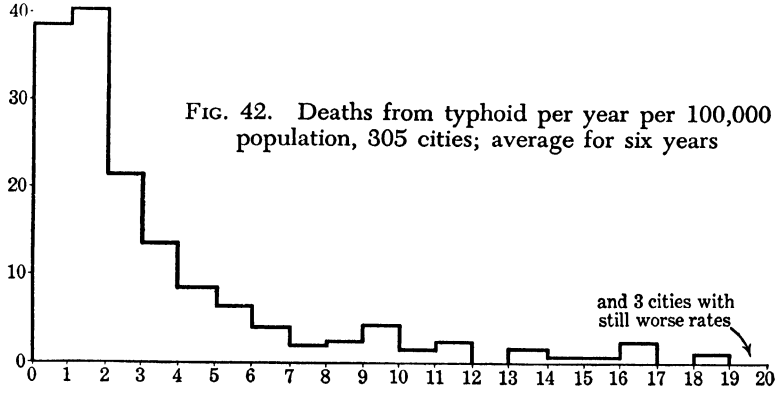


FIG. 42. Deaths from typhoid per year per 100,000 population, 305 cities; average for six years

TABLE 21

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	77	56	59	55	37	70	47	42	44	22	25	41	46	24	54	74	30	43	59	64	53	17
2		53	54	31	30	66	51	24	18	14	09	25	40	-05	15	63	09	-05	63	66	42	12
3			51	46	41	46	52	39	20	19	22	40	51	23	24	60	04	29	39	45	63	31
4				34	46	48	37	36	17	17	29	39	23	34	56	63	34	32	32	33	44	06
5					32	32	50	79	58	-05	35	38	37	56	66	52	67	50	20	23	47	25
6						36	31	22	06	-06	34	17	23	08	33	44	26	25	18	24	54	02
7							59	27	26	39	-07	33	59	14	16	75	08	10	44	57	57	25
8								70	38	-01	14	25	40	11	21	50	30	04	43	37	46	32
9									70	08	18	35	27	54	57	54	71	31	27	07	41	37
10										9	19	53	25	70	64	59	74	49	30	22	27	52
11											27	33	16	15	21	26	03	33	13	21	09	-06
12												28	21	34	61	13	37	51	-03	29	30	06
13													64	60	54	61	48	44	25	22	43	13
14														36	45	65	33	32	30	38	47	10
15															61	47	69	68	-08	03	26	26
16																66	75	69	20	32	36	09
17																	54	48	47	56	62	33
18																		61	17	13	27	29
19																			-04	16	46	20
20																				62	23	24
21																					46	17
22																						45
23																						

1. Infant death rate reversed.
2. Typhoid death rate reversed.
3. Per capita public expenditures for schools.
4. Per capita public expenditures for libraries and museums.
5. Percentage of persons sixteen to seventeen attending schools.
6. Per capita public expenditures for recreation.
7. Rarity of extreme poverty.
8. Infrequency of gainful employment for boys 10–14.
9. Infrequency of gainful employment for girls 10–14.
10. Frequency of home ownership (per capita number of homes owned).
11. Per capita support of the Y. M. C. A.
12. Excess of physicians, nurses, and teachers over male domestic servants.
13. Per capita domestic installations of electricity.
14. Per capita domestic installations of gas.

15. Per capita number of automobiles.
16. Per capita domestic installations of telephones.
17. Per capita domestic installations of radios.
18. Percent of literacy in the total population.
19. Per capita circulation of *Better Homes and Gardens, Good Housekeeping,* and the *National Geographic Magazine.*
20. Death rate from syphilis (reversed).
21. Death rate from homicide (reversed).
22. Per capita value of asylums, schools, libraries, museums, and parks owned by the public.
23. Per capita public property minus public debt.

one studies them the more differences one finds. It is indeed safe to say that they differ widely in almost every trait which a community can have. In the case of the three hundred and ten cities of the United States having 30,000 or more population in 1930, the variation in each of several hundred traits at or near that date has been measured. Figs. 37 to 42 show samples taken at random.

In these cities the variation is usually continuous. The residential suburbs are not set off sharply from the rest in wealth, creature comforts, or even in the amount of manufacturing; manufacturing cities are not set off from commercial cities and trading centers for agricultural districts.

The variations almost always cluster around a single mode, as they do in individual persons. But the clustering is not so often symmetrical.

Skewness is common.

The fact of positive correlation between desirable traits holds true of these cities with very rare exceptions. Table 21 presents the intercorrelations of the twenty-three traits listed below it in 295 cities left after excluding the giant cities with 500,000 or more inhabitants,* and three resort cities whose records are somewhat ambiguous. The cities which do most for education also have most creature comforts; the cities which read the most also have the best parks; the cities which avoid child-labor also pay high wages. High status in any one good trait signifies high status in others.

But there is notable specialization as there is in persons; the correlations are positive, but far below 1.00; no city is equally

* Except Milwaukee, which was retained for special reasons.

superior in all desirable traits; even so similar traits as average salary of high-school teacher and average salary of elementary-school teacher correlate only .78; the frequency of telephones and the frequency of radios correlate only .66; the infrequency of labor of boys 10 to 14 and the infrequency of labor of girls 10 to 14 correlate only .70. These correlations may be somewhat lowered by errors in the statistics, but not much.

Chapter 11

THE CAUSATION OF ABILITIES, WANTS, AND PROPENSITIES

Excluding supernatural forces, the abilities and wants of a man are caused by the nature of the fertilized ovum which at the start he is, and by whatever happens to him from conception to death. Most important in this fertilized ovum are its twenty-four pairs of chromosomes; and most important in those chromosomes are the genes of which each is composed (their spatial arrangement is of less, probably much less, importance). These genes are not speculative constructions, invented to be carriers of hereditary traits. As an outcome of the brilliant work of T. H. Morgan and others they are, in the case of some animals and plants, being counted, located on chromosome maps, and credited with definite achievements.

Following the practice of biologists I shall use the word "genes" instead of the phrase "the fertilized ovum." * "Genes and their experiences," "nature and nurture," or "heredity and environment,"—all three couples will mean the same in this chapter.

This chapter will state what is known about what the genes cause and how they cause it, but since the genes operate always with or against the forces outside themselves there will needs be some statements about the influence of what they experience or undergo.

There is a tendency now among students of human nature to use the fact of constant interplay between the genes and their environment as an excuse for merging the two. This is usually unwise because the control of the two is radically different, the

* This does not involve a denial that the cytoplasm and the nucleus other than the chromosomes share in the causation of man's nature.

genes being changed mainly by selective breeding and the environment mainly by direct action upon it.*

Suppose that science had full knowledge of the genes of all the cats, dogs, calves, monkeys, chimpanzees, and human beings born last week. Except in a very few cases no two individuals would have identical genes. But the genes of all the cats would be closely alike among themselves and very different from the genes of the chimpanzees and the men. They would differ less from the genes of the dogs. The genes of the men would be rather closely alike; the genes from white, yellow, and black parents, from intellectual and dull parents, from tall and short parents, from Nordic and Mediterranean parents would on the average differ much less among themselves than they differed from the genes of the chimpanzees.

The genes of any human individual could be described as the genes of the human type with certain differences characteristic of him.* * It is customary and convenient to make such divisions in studying the share of the genes in causing human abilities and wants, because it is a customary, convenient and useful procedure to study the causation of the abilities and wants of the general human type, *homo sapiens,* separately from the causation of the individual differences of persons from that general human type. Let us follow this procedure and deal first with the abilities, wants, and propensities of man as a species. Our first question is "How much and what in the wants, abilities, and propensities of *homo sapiens* are caused by the genes of the human type?"

THE GENES AND THE MIND OF MAN

One desired answer to this question would be in the form of measures of the abilities and wants found in men, chimpanzees, dogs, cats, etc., whose genes had in all cases received identi-

* I say "mainly" because biologists have made some progress with direct action upon the genes of the fruit fly; and the animals and plants in the human genes' environment are changed by selective breeding.

* * Or these differences could be subdivided into (a) those which distinguish him from the type of his thousand ancestors ten generations back, and (b) those which distinguish the genes of this ancestral type from the genes of the type of man in general.

cal treatment. But such measures are unobtainable. We cannot in the present state of science bring these different genes up in identical environments. So biologists remain free to think that, if we could do so, the products of human genes would still differ vastly from the products of the others, perhaps half as much as they do now; and some sociologists remain free to think that the identity in experiences would reduce the differences in the end products to perhaps a tenth of what they now are. If all the genes were bathed in the same fluids in identical wombs, say of cows, and nursed and fondled by identical mothers, say goats, and educated by identical teachers, say chimpanzees, in identical habitats, an extreme environmentalist may argue that many or even all human adolescents would fall in love not with one another but with goats and would show an unheard of degree of ability at climbing and progressing on all fours. We cannot be sure what would happen.

Such considerations are not entirely idle. The great majority of hereditarians have taken it for granted that what is universal in all men of all times is caused by the genes, neglecting the fact that certain features of the environment, such as companionship with and care by human beings, were also universal in all men of all times. Logically this is a serious error, but factually it is hardly an error at all. Given the world as it is, the genes of a male human join with the genes of a female human, or die. The union of the two sets of genes selects a human uterus to grow in, or dies. The child that is born attracts a certain minimum of care from human beings in its tender years, or dies. The child manifests by reason of forces within itself certain abilities and wants which are tolerated by the culture in which it finds itself, or seeks out a different culture more hospitable to its nature, or dies without leaving offspring. To that extent the genes lead in the causation, selecting their environments step by step, or perish.*

* The genes in any animal have been selected for survival as forces that direct the animal in a certain sort of life. Genes produce fins and gills in animals that usually are caused by the events of life also to live and move and breathe in the water. Genes that produce the want for novel sights and sounds, for sex activity, and for smiles, caresses, and soft cooing sounds produce them in animals that have eyes, ears, and memories, are

The hereditarian needs only to acknowledge his error and restate his position in this form: "The genes *and such experiences as the genes select by their own nature if they live at all* cause so and so." He should also thank the environmentalist for forcing him to this amendment.

Another instructive question is to ask how great the differences between the abilities and wants of man and those of other animals would be if all or nearly all the paraphernalia of human culture and tradition were wiped out and man were left to his genes and their necessary associates with no language, no tools, no transmitted customs. Suppose the ten thousand babies born last week in America or Europe were by a miracle put in the place of ten thousand born a quarter of a million years ago. What abilities and wants would they have had as they grew up? Whatever they then had would be given by their genes aided by a most meager environment. Unfortunately we can only conjecture what abilities and wants they would have had.

There is in fact no easy general answer to the question of the share of the genes in making human behavior different from dog behavior or chimpanzee behavior. We must piece together facts of various sorts concerning various capacities and propensities.

Another desired answer would be in the form of measurements of the variation of some ability or tendency as independent as may be from the environment in general, if all the different animals were given identical training in respect of it. For example, if all the creatures had identical exposures to trees and rubber balls of sizes proportional to their sizes and identical experiences of immersion in water, would the abilities to climb and swim, and play with the ball, be little less alike or much more alike than they now are in men, monkeys, dogs and rats? The approximate answer may be surmised. The differences in motor apparatus, themselves largely due to the genes, would cause large differences in the abilities.

likely to meet animals of the opposite sex of the same species, and live in groups. What would happen to a man's wants if he were brought up among dogs is, though a matter of great theoretic interest, not a very fruitful question for gene causation, since the human genes are fitted to a human life.

Most observers of human nature think of the inherent nature of mankind as a rich endowment of abilities and propensities, good and evil, which parallel more or less the rich variety of human achievements, virtues and vices. A man is, they think, quite irrespective of the circumstances of life, a collection or organization of qualities, capacities and tendencies, good, bad and indifferent, useful and harmful, practical and esthetic, of which some are possessed also by the lower animals, while others are distinctively human.

This view of the common-sense thinkers past and present has, however, been challenged by certain psychologists and especially sociologists, who regard it as a gross exaggeration of the part played by the inherited qualities of *homo sapiens*. "The great bulk of what man is today, what and how he thinks, does, wants, fears, loves, hates, etc.—he is," they would say, "by reason of the environment or training that acts upon him. He does not, for example, crave human approval because of anything in his genes, but simply and solely because smiles, pats, and approving words and looks have been associated with food and fondling in his life. He does not by unavoidable inherited nature enjoy dominating over others, but mastery by him and submission by them have been associated with his getting the lion's share of food and fondling. Human nature is largely manufactured by human training; education, political reforms, social welfare and the like do not have to reckon with the abilities and propensities traditionally attributed to the inborn nature of man; he is to a large extent neutral, clay in the hand of the family and community, ready to be "conditioned" to moderation or greed, modesty or display, domination or the golden rule, curiosity or dullness." So they say.

What *are* the facts, first about capacities or abilities and second about propensities, interests, desires and aversions? What *do* the genes enable man to do that other animals cannot, and what *do* they cause him to seek and avoid, cherish and reject?

The general facts about abilities are now fairly sure with a narrow margin of uncertainty. The facts about wants, proclivities and other features of action and character are insufficient to prevent wide possible differences of opinion, but do exclude

certain doctrines as extremely improbable. Let us take the easier case of abilities first.

The Influence of the Genes on the Abilities of Man

The genes decide what sense organs and sensory neurones man has, what ranges of stimuli he is sensitive to and to some extent how small differences he will respond to. No training will make man see the ultra-violet or infra-red rays, or hear pitches which mice hear. Training can improve his discrimination of some sorts of differences, but the genes set limits. A dog with no training save what he gives himself will distinguish smells which the average man could never learn to distinguish.

Perceptual abilities (for example, to see a triangle or a diamond as it is, or to hear and distinguish words) which work with patterns and combinations of sensory data and attach significance to them, rest upon sensory abilities proper, upon ability to make mental connections, and upon certain aspects of "intelligence" and "reasoning." They are largely influenced by the genes, because all their components are.* What the environment does for all men in general is to improve the abilities to perceive words, space forms common in human constructions, number, and other widespread objects in human culture.**

Man's ability to be sensitive and respond to parts, features, qualities and aspects, including what used to be called attention, and his ability to form and retain mental connections are caused by the genes and such environments as the genes select if they live at all. There are great differences among human individuals, and possibly the rich and varied life of modern man increases those powers for the species over what they would be in a meager and monotonous life. But the superiority of a man over a dog

* Experimentation is difficult in the case of many features of human nature because, even if caused by the genes, they are delayed till long after birth and develop gradually. So psychologists can still dispute whether the visual perception of distance and suitable responses to it are inherited or acquired (with the burden of opinion in favor of the latter view). But they are certainly inherited in the rat, as Lashley and Russell have shown ['34], and presumably are in many other mammals, and may well be in man.

** It also may increase enormously the special perceptual abilities of individuals, as in musicians, hunters, teachers, tea-testers and the like. But that does not concern us now.

or a chimpanzee is probably over ninety-five percent due to his genes.

Much the same is true of the ability to have ideas free from immediate attachments to sensed objects. Some idiots have no such ideas; some men have millions; the number which the typical man *can* have depends upon his genes, and the number that he *does* have depends much more upon them than upon the circumstances of life, though opportunity and habit count somewhat.

The ability to strengthen a connection (i.e., increase the probability that the situation in question will evoke the response in question) by having it occur is provided in the genes of man. So also is the ability of a satisfying after-effect to strengthen the connection which it follows or accompanies. What, if anything, the specifically human environment does to these two abilities is not known.

The ability which has been most studied is intellect, including all abilities to understand and learn and adapt one's behavior to the situations life offers. For several centuries and until after the middle of the nineteenth century the respectable solution was that the animals had the faculty of instinct whereas man had the faculty of reason instead or in addition. A few rebellious heretics insisted that some animals had some degree of reason. Neither the dispute nor the solution was very profitable since neither the alleged "Instinct" of animals nor the alleged "Reason" of man could be identified, and nobody even conjectured what the physiological cause of either might be.

With the progress of biology and psychology Instinct, a single mystical faculty, was replaced by instincts, each an unlearned tendency to respond, irrespective of experience, to a certain situation or stimulus by a certain act or feeling or thought. These instincts were after the general pattern of the reflexes, but more elaborate, more variable, and more modifiable. Very soon it became clear that many animals had more in their repertories than a bundle or organization of such instincts, and that man had apparently more of such instincts than any other animal. The orthodox doctrine soon became that animals could learn by habit and think by the association of ideas one with

another, but could not reason in the sense of solving novel problems by purposive selection and arrangement of ideas and inferences therefrom. The application of experimental method to the study of animal intelligence and the advancement of knowledge of human thinking and reasoning have modified this simple solution.

On the one hand it was shown that the associations made by chicks, dogs, cats and monkeys were mainly not of ideas, but of motor responses to directly perceived situations. On the other hand, it was shown that the reasoning of man in solving novel problems was not a new ability, sui generis, which worked apart from and against ordinary associative habits, but was a cooperation and integration of such habits on a higher level.

It is true that animals do not reason in the sense in which that word was used in 1900.* But neither does man. We need not account for that difference between man and the dog or the chimpanzee by differences in their genes because that difference itself is largely unreal.

As a result of nearly forty years of experimental study of animal intellect and the contemporaneous advances in knowledge of human thinking and reasoning it now appears that no clear, general, qualitative distinction between the intellectual possibilities of the genes of man and those of the genes of the lower animals can be made. The ability to reason is now known not to be a primary quality or essence—a force over and above the laws of mental habit or association—but a secondary consequence of them. Man forms mental connections just as the animals do; but he forms, ordinarily, an enormously greater number of such. As a by-product, so to speak, of this multiplicity of connections his powers of abstraction, generalization, and reasoning are developed. In some extremely dull men who form relatively few, reasoning and its correlates do not appear. In some special areas of behavior where an animal has a rich fund of experience, the animal shows behavior which is at least enough like reasoning to forbid a sharp distinction. So-called reasoning consists of representing experiences by ideas and symbols, analyzing

* They do not even think in the sense in which that word was used in 1900.

things and events into parts or elements, responding to these parts or elements instead of to gross totals, and organizing a number of tendencies into a weighted total tendency. Some extremely dull men show little or nothing of this sort. Chimpanzees using sticks, and rats using topographical experience, have at least convinced Köhler, Norman Maier, McDougall and others, that they do something of this sort. In general, if the facts interest animals and if there is a rich and varied behavior toward the facts, the animals seem and are somewhat like man. So with many mammals in respect to the location of objects in space, though in respect to numerical relations they are usually very helpless.

Animals make many blunders which are unreasonable. So Sturman-Hulbe and Calvin Stone ['29, p. 209] note that a white rat making a nest by picking up things and piling them there will often pick up her own tail, carry it to the nest and deposit it there. One of Köhler's chimpanzees, in the course of learning to put a box under a banana which hung from the ceiling, mount the box, and jump to obtain the banana, got the box, put it far from the banana, went to the spot beneath the banana and jumped! But you and I make the same sorts of mistake as those at harder levels.

What his genes seem to do for man's intellect is chiefly to cause a great extension of traits already existing in many mammals and much accentuated in the primates. There is no gene for reasoning in its 1900 meaning. But whatever causes mammals in general to learn much, and primates to learn more, is so increased in man as to make him learn and think in the ways referred to by such words as inference and reasoning. The human species has an extremely varied repertory of responses in motor and visual exploration, manipulation, and vocal play, and it enjoys these experiences, actions, and achievements for their own sakes. There is no gene for making or using tools, as such, nor, probably, any gene for making or using language, but there is a quantity and variety of play with things and sounds which has made man the creator of tools and speech.*

* There may be a more definite basis for speech in man's original nature than the quantity and variety of vocal play. Boas, who in general accounts

Speech in a certain sense each human being has to create anew. The existence of speech as a ubiquitous feature of his social environment will not, in and of itself, impart speech to him unless he himself experiments extensively with making sounds in relation to his experiences. To that extent all men save the very dull or disabled do create it. In spite of the efforts of gifted and devoted teachers no chimpanzee ever has. If the experiment of the Kelloggs, who brought up a chimpanzee with their own child for a year with scrupulous scientific care to treat the two alike so far as possible, had been continued for three or four years more, it is certain that the chimpanzee would have failed to learn to talk and to think in words.

We may note that his failure would not be for lack of an impulse to express himself nor for lack of the custom of using voice to obtain certain desired treatment from his social environment. Both of these the chimpanzee would have. But his brain does not cause him, even in a human environment, to indulge in multiplicity of connections of vocal play.

Heredity provides an important aid to human intellect in the form of longevity. Man has a brain that can form an enormous number of connections, and a long life in which to form them. A rat does not have the interest and capacity to acquire many ideas, much less to name them and proceed with language to acquire more abstract and general ideas. But even if he had the capacity, he could not progress far in the few hundred days of his life's span.

The chimpanzee's period of gestation is about nine tenths that of man; he attains sexual maturation at from seven to ten years; the period from birth to the end of adolescence is about half that of man; his total life may be very roughly estimated as about half that of man. He has time enough to acquire ideas, words, abstractions, etc. if he were able, but still suffers a substantial handicap.

A simple but momentous quantitative extension of abilities already well developed in the primate stock and a long life may

for everything possible by training, says "The *faculty* of speech is organically determined and should be called, therefore, instinctive. However, *what* we speak is determined solely by our environment." ['28, p. 136]

then conceivably be all that human heredity contributes directly to human intellect. The rest of its triumphs may require the cooperation of the environment which has preserved the earnings of this ability generation after generation in language, knowledge, customs and tools.*

The achievements of modern man in language, mathematics, music, drawing, science, invention, literature, business, government, philanthropy, games and sports are of course almost infinitely in advance of the achievements which he would make if civilization were all wiped out and his genes had to begin all over. But it is equally true that if man prepared to turn civilization over to a hundred million chimpanzees in 1975 and gave all his time and effort until then to training them, and himself moved from this planet to Mars in 1975, leaving them in possession, the achievements of the new proprietors would be infinitely below those of the departed.

For the achievements of modern man human genes are probably essential and any considerable change of them back toward the status of chimpanzee genes would probably bring swift disaster. The modern environment is also essential, in certain matters at least, if human abilities are measured by achievements, as we have so far been measuring them.

* Not only may a very simple gene variation have given man his distinctive richness in associative neurone-connections; this variation may have been caused, facilitated or permitted by a still simpler one, the stopping of the development of the head at a foetal stage. So Stockard writes:— "Man's most striking deviation from his nearest animal relatives is in intellectual achievement. There is no difference comparable to it between any other animal species. We have surmised something as to what evolutionary change in the bodily nature of man could have initiated this supreme deviation. And strangely enough, what seems to be the most plausible possibility yet offered involves two developmental inhibitions. The first of these is uniquely human and results in the retention of head proportions comparable to those found in the foetal stages of the higher mammals. This gives the disproportionately large cranium and big brain with the small facial region, as compared with the reverse adult proportions of small cranium and excessive facial development among the other mammals. And still further, as Huxley remarked, the higher races of men have a larger brain and a smaller jaw than their lower 'big-jawed brothers.' The highest apes failed to retain this large-brained foetal proportion. The mutation which brought about the large brain was limited to ancestral man." [Stockard, '31, p. 300 f.]

One is tempted to make a distinction between what man *can* do and what he *does* do, and to say that what man can do is caused by what the human genes are and by that alone, whereas what he does do is caused by what the genes are plus what the environment is. Whether or not this is true, it is not very profitable. Ability defined otherwise than by achievement is too ambiguous and too little understood. What man can do in this sense of *can* nobody knows. The only way to estimate it is precisely by such evidence and arguments from achievements as have been presented.

The above account of the causation of human achievements may be summarized as follows: Human genes are necessary; they are primary, leading the way, and receiving in most cases only moderate increases from one environment rather than another which they select to live in. In the case of intellect, motor skills, communication, and special abilities derived from these, the increases are much greater. The genes of an Aristotle in 100,000 B.C. would perhaps have done well to have used a thousand words including a dozen prepositions and conjunctions, and made a drum. The same genes growing up from 1930 to 1990 would easily acquire a vocabulary of a hundred thousand words, would perhaps find safe ways of utilizing atomic energy, or a cure for cancer, and would use differential equations as fluently as the Aristotle of 100,000 B.C. used his equivalents of *in, out, if* and *but.*

The practical consequences are that any deterioration in the environment is deplorable and dangerous, but not irremediable. What the genes of man have done they could presumably do again. Any deterioration in the genes may be not only deplorable and dangerous, but irremediable. Whether the genes could be got to recover the loss by new mutations is very doubtful.

So much for the causation of the abilities of *homo sapiens,* We turn now to his character, wants, proclivities, etc.

The Influence of the Genes upon Character, Propensities, Wants, etc.

In the case of likes and dislikes, desires and aversions, proclivities to feel and act in certain ways, and other features of action,

emotions and preference, even the most extreme environmentalists credit man with certain inherited bodily wants and tendencies to act so as to obtain gratification of them.

No reputable psychologist or anthropologist or sociologist, I think, would deny the gene determination of hunger, appetite, thirst, or the satisfactoriness (under proper conditions) of foods in the stomach, drinks in the throat, sweet tastes, voluptuous sensation, or the reality of certain forms of fearful and angry behavior. The dispute concerns the inherited basis for the emotions and preferences roughly indicated by such words as amusement, approving behavior, courtship, coyness, curiosity, domination, greed, gregariousness, home-making, hoarding, hunting, jealousy, kindliness, love of approval, manipulation, maternal behavior, mental play, modesty, nostalgia, revenge, rivalry, shyness, submission, sympathy, wonder, vocal play.

More specifically there will be a wide difference of opinion about such questions as: Do men by nature hit back when they are hit, grab whatever they want, fight to retain possession of it, fabricate a lair or habitation in which to rest, collect miscellaneous and useless oddments, look in the direction in which others are looking, go to the place to which others are flocking, give bits of food to appealing animals, conduct love-affairs in the dark, etc., etc.? Are men by nature gratified by approving smiles, admiring looks, getting what others are trying to get, driving away others who intrude upon their habitation or domain, seeing happy human behavior, working their will upon things, animals and persons, having new experiences, being a cause, exercising muscles, sense-organs, imagination, thought and any other organ of body or mind without strain or compulsion? Are men by nature annoyed at attention paid to others when they crave it for themselves, and at looks and cries of scorn and derision directed at them?

The extreme environmentalists rely upon training chiefly in the form of associative shifting or conditioning, to do what the hereditarians attribute mainly to the genes. The environmentalists would assert, for example, that the human being by heredity smiles only at food and stimulation of the erogenous zones, not at the smiles of others, nor at soft and gentle sounds. But since

he is smiled at and spoken to gently while he is being fed, he learns to smile at smiles and cooing sounds. Man, they say, has no inherited fear of snakes, but acquires these via the behavior of parents or nursemaids. Their screams or sudden jerks of him cause shock which causes fear in him which then shifts by association to the sight of the snake.

This parsimonious doctrine has the merit of being parsimonious, of requiring little from the genes. But I cannot make the facts fit it. The process of associative shifting is real and important, and does account for many features of what we like, dislike, seek, avoid, approve, scorn, love, hate, fear, laugh at, weep at, eat, drink, and make love to. But it certainly cannot account for propensities or dispositions which are more discouraged by negative than encouraged by positive conditioning. Yet infants near the end of the first year object to solitude, though solitude up till then has been connected with security from shock, amusing toys, and happy play. The ordinary home and school of a hundred years ago exerted great pressure toward submissive behavior by the young, but adults manifested attempts at mastery none the less. Conditioning or associative shifting from the satisfactions of food and sex, fear at shock, etc. do not easily account for responses to situations which are rarely or never connected with food, sex, shock, etc. The patterns of behavior referred to by the words, jealousy, shame, display, shyness, and rivalry, for example, seem underivable by shifts from the simpler repertory.

Moreover, even in cases such as smiling at a smile, or the fear of snakes, where the shift is verbally plausible, its adequacy may be doubted. The scream or jerk which seems to produce fear of a snake is rather impotent to produce fear of a mud-puddle, a newly painted post, or a revolver. The widely quoted experiments reported by Watson and Rayner ['20] have probably been very misleading. The findings of Jones ['31] also may not imply what they have been supposed to imply. Dr. Bregman ['34] has recently repeated the Watson experiment with 15 infants, and with a variety of stimuli. Her results are diametrically opposed to the conclusion that two or three, or a dozen, or a score, or even a hundred, connections of a stimulus originally

neutral with shock will cause the mental stimulus itself to produce emphatic shock and fear, or any considerable degree of fear.

I venture to prophesy that after crediting to conditioning and all other forms of training everything that belongs to them, investigation will show Man's repertory of inherited propensities or dispositions to be not poor, but rich and varied. It will, however, be limited in certain important ways. Neglect of these limitations rather than underestimation of the power of the environment brought the treatment of human instincts and other propensities by Darwin, James, and their followers under suspicion.

Let us consider some of these limitations. (1) Man's inherited propensities are *not* to be or do just what certain words like mastery, envy, jealousy, kindness, modesty, shame, fighting, and courtship suggest. The genes do not come out of a dictionary! The words which sophisticated civilized man uses to describe large segments of behavior or important qualities or features of behavior will seldom describe accurately the inherited components of human nature. These are not a band of fairies in the soul of man each of which accounts in a vague and mystical way for all or part of his dominating, envious, jealous, kindly or other behavior, and is appropriately named after it, as the "instinct of domination," the "propensity toward envy," the "predisposition to be jealous." They are facts in the genes, giving rise to structures or qualities of the body, especially of the brain, which in turn influence the man's responses to his environment. They act in cooperation with each other and with the tendencies produced in a man by his experiences, often in subtle and complex ways. The best knowledge obtainable about them comes from observing man's behavior in the few cases where experience counts for little or nothing, and allowing for experience where it counts for much.

Man's unlearned propensities are in particular often much more or much less specialized than the words would indicate. He has, for example, no general instincts of self-preservation, or constructiveness, or rivalry. The realities in the first are certain tendencies to avoid large missiles, etc., by jumping; attacks by

dodging; falling by clutching; to suck, bite, chew and swallow; to push away objects that interfere with breathing, etc. The realities in the second are the enjoyment of doing anything to anything which causes something interesting to happen. Whether the result is constructive or destructive is irrelevant. The realities in the third are the satisfactions of reaching, ahead of others, the place to which they are running; seizing, instead of others, the object for which they are reaching; attracting the attention of the person before whom others are displaying themselves, and the like. It is from such specific behavior and with cooperation from other instincts, that rivalry in games, business, scholarship, or politics develops, not from a general passion to outdo others. Imagine a party for five-year-olds at which the games were to see who could sit still longest with his eyes closed, and who could say the most verses from the Bible!

On the other hand the genes are sometimes less specific in their provisions than we think. For example, man has no particular instincts to love one's real mother rather than foster mother, to crave alcohol, paddle in the water, be excited by fire, enjoy music, be curious about machines, hoard money, or worship the sun.

(2) Man's inherited propensities are mostly limited to responses to facts sensed or perceived, to things, animals, persons, sounds, smells, etc. By heredity alone man is not frightened by the *idea* of solitude, attacking animals, violence, etc. nor made angry by *thoughts* of insults and blows. Ideas and thoughts, memories and expectations have no dynamic power save what they acquire by their connections with sensed or perceived facts or by their likenesses to sensed or perceived facts (more correctly the likenesses of the brain processes corresponding to the ideas to the brain processes corresponding to the sensed or perceived facts).

The power which ideas and thoughts do thus acquire varies greatly with the idea or thought and with the person who has it. Memories of past dangers do not often fill men with fear but memories of past insults do often rouse anger anew. The imagination of delectable viands rarely gives enjoyment, but

the imagination of a beautiful scene or piece of music often does.

The sight of a single starving family will rouse more pity in most men than a statistical report demonstrating that a million are starving, but some rational social workers may have prudently dulled their sensitiveness to the natural stimuli to pity in favor of the more important facts for thought; and some agitators who obtain money, praise, and power by being stirred to sympathy with the suffering millions may quite sincerely sympathize with them while callous to the perceived sufferings of their friends and families.

There may then be any degree of inconsistency between man's behavior toward the facts of the world as presented in thoughts and the same facts as presented in direct perception.

We can probably rely on inherited propensities to kindness and mutual aid in the form of liking to see people rejoicing and smiling rather than complaining and in tears, giving bits of food to children, rescuing them from attacks by animals, automobiles, and other large moving objects, comforting and protecting the weak who appeal submissively, and joining in attacks, pursuits and certain other group enterprises of our familiars. But any considerable reliance upon the genes to respond favorably to rational appeals and statistical evidence so as to further peace on earth and good will toward man is probably misplaced.

(3) Since acquired tendencies to respond are not transmitted to offspring, we may conclude that there will be few or no instincts of response to the creations of civilization as such, with their meanings. For example, if there is an unlearned interest in jewels, it will be irrespective of their exchange value and poetical associations. The so-called culture-epoch theory, a doctrine popular in the nineties, that children by original nature passed through a hunting stage, a pastoral stage, an agricultural stage, etc. was nonsense. If Mary likes her little lamb, it is not because of any inheritance from the pastoral experiences of her forebears.

Man's genes may cause him to prefer sweet tastes to bitter, and perhaps soft sounds to harsh, but not to prefer Debussy's

music to Mendelssohn's. They may cause him to prefer free movement to being bound hand and foot, and perhaps wrestling to pitching hay, but not to prefer tennis to pelota. They may cause him to prefer being smiled at and cheered to being scolded and sneered at, but not to prefer being crowned with laurel rather than with a fool's cap.

Even if we limit the provision in the genes by excluding responses to ideas and responses to products of civilization with their meanings for civilized men, and by restricting it to the causation of behavior which either goes against training or has much less stimulation from training than is needed to account for its strength, there remains a rich and varied repertory of gene-caused propensities.

They include, in my opinion, the following:

1. The whole range of sensitivities.
2. A wide range of quasi-sensitivities.

The genes provide man with the capacity to have many of the states of mind and brain which we call internal sensations, emotions, moods and the like. Fear and anger are the best known, but there are many others which are as genuine states of a person as being hot or cold, and tasting sweet, sour or bitter, and for which training is equally unnecessary. Among them are thirst, hunger-pangs proper, appetite, repletion, various sorts of weariness, restlessness, voluptuous sexual sensations, startle, anxiety, nostalgia, nausea, disgust, feelings of competence, power and being in the saddle, self-approval, elation, feelings of insufficiency, inferiority and shame.

The genes have so made human brains that certain situations not only evoke certain muscular and glandular responses, but also these states of mind. A sudden loud sound not only makes a child tremble and cry but also have this inner fear component. Along with the courtship and sex play there is voluptuous sensation. By the genes' arrangements these states of mind tend to be evoked by certain experiences and to evoke certain responses. But they can acquire attachments to anything which has been connected with them. So some persons come to feel panic fear at even the thought of a robber breaking in, or voluptuous sensation at the mere sight of the loved object. So the men of a tribe

may tremble at the sight of their ruler or make love to boys as well as to women.

The existence of an unlearned tendency, even a very strong one, does not prevent the situation involved from occasionally becoming linked with responses very different from those with which the genes have linked it. When an unlearned tendency has some fairly definite state of mind as an intermediate term between the sensory situation and the muscular and glandular responses, such new linkings are often easily made via it.

3. Sucking, swallowing, walking, running, reaching, grasping, sneezing, coughing, sniffling, vomiting, crying, smiling, laughing and scores of other muscular and glandular responses to various situations. These are often modified early and much by training, but the preformed brain structures are there to be modified. Many of the habits which are said to come from "random" movements come from rather specific propensities.

4. Shrinking from clammy and creepy touches with fear and disgust, startle at strange loud sounds, fear when alone, fear when in the dark, many sorts of angry behavior at being restrained, attacked or hurt, smiling in comfort, loving and embracing, curious exploration, open-mouthed interest in certain sorts of novelties, envy when another receives what one craves for oneself, and dozens of other tendencies to make certain emotional and active responses to certain external and internal situations.

5. Original attachments of satisfaction and annoyance as listed in Chapter 6.

6. Smiles and pats for what is gently satisfying, respectful stares and encouraging shouts at gorgeous display or natural acts of strength or daring, hoots and sneers at deformity, physical meanness and cowardice, glaring at and shoving out of one's way anybody lower than oneself in mastery status, swaggering and strutting at success in this, being abashed in the presence of one who can outyell and outstare us, hit us without being hit and hold us against our will, and many other forms of behavior which operate mainly in courtship, family life, and other human relations, and are the original roots of gregariousness, approval, scorn, display, rivalry, mastery, submission, teasing, bullying,

self-consciousness, modesty, courtship, maternal and paternal behavior, kindliness, and other so-called "social instincts."

To fill out the details of this inventory would require a volume, which would not differ greatly from the writer's *Original Nature of Man.*

The preceding inventory of the contributions of the genes to human propensities will be unsatisfactory to some because of its omissions. It has no religious instinct, no "instinct of workmanship," only a few fragments of the "instinct of the herd," and little of the Freudian equipment of polymorphic perverse sexuality, death instinct, hatred of old men by young, etc. It reduces the sweeping, almost omnipotent and omniscient potencies of the maternal instinct, rivalry, acquisitiveness, pugnacity, constructiveness, destructiveness, self-preservation, self-expression, and play to specific tendencies. It omits or minimizes the scope of Kline's migratory tendencies, James's "fear of the supernatural," McDougall's instincts of "self-abasement (or subjection) and of self-assertion (or self-display)," the "slavish instincts" of Galton, Royce's "social opposition" and "love for contrasting one's self with one's fellows in behavior, in opinion, or in power," the instinct of ownership, Henry Marshall's "blind impulse leading man to create" and Alfred Marshall's "desire for excellence for its own sake," and many less plausible candidates put forward by less able thinkers.

I will defend its omissions only to the extent of reminding the reader that the genes are not deities, do not deal in magical powers, such as to act for the integrity of the organism, and are not adapted to sarcasm, swords, airplanes, or other products of civilization.

My inventory will be unsatisfactory to some psychologists because it includes so much,—too much, they will think, for the genes of man to provide. The question thus raised is a profitable one. Can we expect the genes to provide connections between a hundred situation-patterns and a hundred or more response-patterns? Can we expect them to provide five hundred such? Can we expect them to provide a thousand such?

So far as the mere number and variety of the connections is

concerned, there should be no difficulty. The genes provide tens of thousands of specific details in making the sizes and shapes and colors of the parts of a man's body, details which we can count up in showing how closely alike two twins are.

So also for the elaborateness and complexity of some of them. Let nobody think that the elaborateness and complexity of some of these tendencies, for example the tendency to enjoy "humble approval by admiring glances" is an insuperable barrier to their development. The extremely elaborate and complex patterns of the songs of roller canaries, which everybody supposed needed careful training by imitation, have been found by Metfessel to be due to the canaries' genes. Though kept in sound-proof compartments so that they never hear any other animal sing anything, they produce their characteristic songs.

In the development of these behavioral tendencies by mutations and their perpetuation by breeding within the time available, there is more difficulty. The difficulty is, however, probably no greater than for the origination and spread of variations of any sort. Many of these behavioral tendencies are only slight variations from tendencies possessed by many mammals, so that many millions of years are available for them to have originated. Others started with the pre-human primates. If the human stock started on its course as a genus distinct from other primates a hundred thousand generations ago, and accumulated one such tendency every thousand generations, there would be a hundred post-primate tendencies.

It is known that mutations are occurring in man, and it is not unbelievable that in a thousand generations or thirty thousand years, such a tendency developed and spread as to smile at a smile, or manifest approval at gorgeous display.

It is not unreasonable to hope that in the next thirty thousand years a genetic basis for some one behavior of the general nature and degree of complexity of the four below will occur. If it should occur, it might well spread.

(1) The loss of all or part of the tendency to feel submissive in the presence of a person "who is bigger, who can outyell and outstare us, and can hit us without our hitting him."

(2) The loss of all or part of the tendency to respond to "a person or animal grabbing an object which one holds" by pushing, striking and screaming at the robber.

(3) The development (or its increase, if it exists now) of a tendency to smile at smiling faces.

(4) The development (or its increase, if it exists now) of a tendency in males to enjoy holding and fondling babies and little children.

Those who for any reason wish to minimize the gene contribution to human behavior emphasize the recent findings of certain anthropologists that certain cultures show notable departures from any such inventory as that presented here. For example, among the Arapesh, according to Margaret Mead ['35], approval is given not to "gorgeous display, instinctive acts of strength and daring, victory and other impressive instinctive behavior that is harmless to the onlooker," but to being modest and inconspicuous; among the Manus the children dominate their fathers. [Mead, '30]. Such facts are valuable as evidence that men with a special ancestry and special training may show eccentricities, and that training can cause the facts of human behavior to be enormously different from what they would be with a different training. But they are not crucial, or even very important, for a general estimate of the contributions of the genes.

The criterion of universality has been overworked in arguments pro and con about the contribution of the genes. That the typical *homo* has a certain equipment of genes does not imply that this identical equipment is present in every man, much less that it will produce its ordinary consequences in behavior when the environment is extraordinary. The genes may cause a tendency which does not show itself at all universally, being often inhibited by the circumstances of life or denied the stimuli adequate to evoke it, or modified to unrecognizable form. On the other hand, that all men manifest a certain behavior does not imply that the behavior is caused by the genes. If a certain environmental force is universal, its consequences will be universal also. So language is universal, though it may be prepared for in the genes only by a proclivity to move the mouth parts in a great variety of ways.

The criterion of universality is not conclusive. It is very often indecisive, as in the frequent and important case where the genes provide a tendency which by reason of its utility is maintained and perhaps strengthened by training.

The best criterion *pro* gene causation is the existence of behavior *against* training but likely by the genes. Almost equally good is the existence of behavior toward which training is neutral, but which is likely by the genes. Somewhat less good is the existence of behavior likely by the genes, for which training is inadequate though in favor of it.

The best criterion *con* is perfect or very close correlation between the amount of training and the strength of the tendency, the latter being zero where the training is zero and great where the training is great. Thus nothing in the genes has any influence in causing the verbal forms by which a person expresses past time, plurality, or the difference between motion and rest.

On general grounds one would not expect that all men would have the same number of genes, or that when they did have the same number the genes would be of the same general nature in each man, or that the genes of the same general nature found in different men would be identical in all details. All this is even truer of combinations of genes. And what evidence there is goes to show that there is great variation in the genes. The quality and color of hair, the color of eyes and skin are gene-caused if anything is, and the genes for them must vary in individuals. There are surely genes to cause the sort of blood man has, but men have not one sort of blood but four. There are surely genes to cause the kinds of teeth man has, and there is within a certain typical plan a wide variety in men's teeth. There may then well be genes for fear reactions to wriggling snaky forms, but not in all men. There may be genes of a certain sort causing kindly behavior, but they may vary enough in their natures to produce widely varying amounts of it.

THE ENVIRONMENT AND THE MIND OF HOMO SAPIENS

Theoretically we distinguish the influence of the environment upon the nature of the general human type from its influence upon the differences of individuals, culture groups, and races

from that type. What the general human type is now we say is the result of what the general type was a hundred thousand years ago plus a little caused by the few changes in its genes during that time plus more caused by the environmental changes by which the general run of the men of today have profited.

More usefully we consider the general human type *of western civilization* and observe how its life and thought is molded by its environment, especially the man-made environments of tools, knowledge, institutions and customs. The genes of our ancestors three or four thousand generations back were probably very similar to the genes of present man. But their life was devoid of almost everything that we now learn in schools, do to get our living, and record in biographies and histories. It had eating, sleeping, hunting, sex, and probably most or all of the forms of behavior listed above as producible by the genes, but these were restricted to a very small variety of results. Visual exploration could not inspect shop-windows; manipulation could use no tools save a few stone implements; approval could be felt and manifested, but not by wages, prizes, or decorations; mastery and submission could operate only in respect to food, sex, position, and possibly labor. Man could think, but what he had to think about lay within an area of relatively few square miles, a society of a very few persons, a few occupations, and a literature of at the most a few memories. What he had to think with in the way of gestures, words or other symbols we can only conjecture, but it was presumably a very scanty equipment.

Much of present man's mind is its content, mental furniture and implements; and, in so far forth, James Harvey Robinson's whimsical statement "There can be indefinitely more mind accumulated as time goes on, now that we know the trick" ['37, p. 58] is true. In that sense our minds are largely the product of the environment.

Man's genes alone did not cause him to "conquer nature" or change his own ways save very slowly. Until very recently, one generation did little or nothing more than maintain the rude culture of its parents. So slow was the change that Boas suggests that the early paleolithic tools may conceivably have been made by a special instinct. "The history of man, of a being that

made tools, goes back maybe 150,000 years, more or less. The tools belonging to this period are found buried in the soil. They are stone implements of simple form. For a period of no less than 30,000 years the forms did not change. When we observe such permanence among animals we explain it as an expression of instinct. Objectively the toolmaking of man of this period seems like an instinctive trait similar to the instincts of ants and bees. The repetition of the same act without change, generation after generation, gives the impression of a biologically determined instinct." ['28, p. 131 f.]

It is an instructive exercise to take away one after another feature of the environment and imagine what man would be (or better, inquire from history and anthropology what he was) without them. Radio, telephone, electricity, steam power, steel, clocks, printing, writing, wheels, iron, bronze, textiles, pottery, levers, wedges, domestic animals, agriculture, fire, schools, books, religions, mythologies, parliaments, kings, assemblies, police, armies, laws, ceremonies, rituals,—if these and the other demonstrably environmental facts were not at man's disposal he would not look like the man of our history and geography books.

This is all true and important, but it does not at all controvert the earlier contributions of this chapter. Man a hundred thousand years ago probably hated and feared and loved, dominated and submitted, approved and disapproved, was curious, greedy, jealous and even modest, as described herein. And, after all, man's genes made the environment which now fashions him.

Environments as Forces Selecting Certain Gene Constitutions for Survival

The man-made environment changed very slowly until about ten thousand years ago. Beginning then with the domestication of animals and the cultivation of plants it has by fits and starts assumed the forms of this and that civilization, culminating in the present civilization based mainly on the discoveries of physical science and characterized by the use of the chemical power of coal and oil and the control of electricity for power and communication. There was presumably no appreciable change in the genes of man during this ten thousand or more years by mu-

tation, but they may have changed by the elimination of individuals and groups which had certain genes disabling them from surviving in the changing world or which lacked certain genes which would have enabled them to survive in it. Each change in the environment might thus select certain qualities in man. It is easy to argue that when language was invented, persons or groups who could not learn to use it would not survive as well as those who could, or that when concerted fighting by a group against alien groups was invented, groups that could not learn to cooperate in war would not survive as well as those who could, or that when the cultivation of plants was invented, persons or groups that could not learn when to plant and how to preserve the harvest would not survive as well as those who could. The man-made environment would thus be steadily molding man into adaptations to it. To some extent it presumably has done so. But such speculation is risky. The brutal marauder might conquer the agriculturalists and compel them to feed him and his offspring. Living in a walled city may have killed more by spreading contagious diseases than it kept alive by security from outside attack. The qualities inducing man to cooperate and sacrifice for his tribe may have negative correlations with the qualities inducing fertility and the preservation of offspring.

There is not enough evidence concerning what qualities various environments select for survival. Does war preserve the brave, the cowardly, or the more cowardly of a generally brave group? Does the establishment of ownership of land with power to transfer it cause the land owners of a group to have more children or fewer than its landless men? Does universal education till fourteen or later favor by one jot or tittle the survival of those who enjoy schooling over the survival of those who dislike it? The elimination by great industrial and social changes may, though real, be trivial quantitatively in comparison with the elimination by certain infectious diseases.

Moreover, there are strange and perverse lines of causation from the environment to the genes. An environment which esteems and cares for holy men may associate holiness with celibacy and thus eliminate holy men as fast as it can. An environment which esteems and cares for culture and refinement may

disappear in degradation if it cannot protect itself against brutal force and folly.

Within historical times the selective action on human genes of the shifts from status to contract and from agriculture to manufacturing, the increasing division of labor, the abolition of slavery and serfdom, and other great man-made changes in the social and industrial environment of Europe is problematic. We may hope that liberty has favored genes adapted to freedom, and that the universal suffrage has favored genes adapted to democracy, but we do not know that they have to any appreciable extent.

Environments as Forces Modifying Man's Acquired Nature

Any universal feature of the environment may modify all men, and so the average or common man. For example, if all infants are fed at the mother's breast with mother's milk, the satisfyingness of a filling stomach may become attached to the movements they make and to the taste of human milk. They may then enjoy sucking a thumb, rag or "pacifier" more than they otherwise would, and form a habit of food preference.

But the environment in such cases does not act magically by merely being there. It has no power, save (1) by stimulating certain connections between situation and response to occur, and (2) by attaching satisfying consequences to their occurrence. Its strengthening of certain connections is transferred to others only if the latter are physiologically in part identical with the former. Hence its influence is as a rule specific and limited.

If all children are taught to prostrate themselves when a majority of the group do so, they will have on the average a stronger feeling of submission and reverence toward the king or idol in question, but any increment of general submissiveness and reverence will be almost negligible. Soldiers trained to unquestioning and immediate obedience to their superiors are not characterized by notable obedience to law, conscience, or civil authorities. Living in families, living as slaves, living in the woods, living in cities, hunting game, caring for animals, cultivating plants, working in factories—all these modify man, but only by way of the actual habits formed.

Much of what has been asserted by various thinkers concerning

the influence upon man of climates, foods, deserts, mountains, hunting, agriculture, trade, the division of labor, factory work, monarchy, democracy, and other features of environments is only plausible speculation. What is required is careful specification of the detailed stimuli involved in the feature in question and of the consequences which it attaches to human behavior in detail. Thus the anthropologist tries to determine in detail how the introduction of the horse into America by early settlers from Europe modified the behavior and nature of the American Indians. Even so simple a question as this has not been answered completely. As to the more impressive industrial and social changes, history and sociology have hardly begun their tasks. Just what the change from status to contract did to man, nobody knows. Just what the change from superstition to science is doing to man, nobody knows.

THE VENEER THEORY

There is a well-known theory that civilization suppresses the old Adam or animal nature of man, or covers it with a veneer of customs, or is, in Bergson's simile, "a thick humus which covers today the bed-rock of original nature" but does not really replace it, and that animal nature still exists ready to overcome the suppressing forces if something excites it to action, or to appear and operate if the veneer wears off or is removed by some shock. Such imagery does not represent adequately either (A) man's gene nature or (B) the relation between it and his acquired nature.

(A) Man's gene nature lacks many of the virtues and amenities of present civilizations, but it is probably not so horrid as literary scientists imagine it. The baboons are certainly very unpleasant; but the chimpanzees are rather decent creatures, and their life in their native woods is much more like a human family picnic than like an orgy of demons. Early humans may have been rather inoffensive family men.

(B) Civilization does not so much suppress, bury, or cover gene nature as use it under the conditions of civilization.

The veneer theory does however contain an important truth, which is that civilization's treatment of gene nature and of men

in toto, modifies it and them for use in ordinary and conventional circumstances, knowing and caring little or nothing of what they will do in extraordinary and unconventional ones such as mobs, burning buildings, sudden accessions of power, attacks of insanity, anonymity, and potent suggestions from leaders.

Consider two examples,—honesty about property and taking pains to discover truth. They are not virtues of the genes. The former is inculcated (within certain limits) by capitalistic civilizations as a habit of great advantage for the common good and of even greater to business men and all who save against need. The latter (though of enormous advantage to the common good) is as yet inculcated emphatically only by courts, moralists, and men of science.

In a mob a man will destroy or misuse property without a qualm, and will believe literally anything that makes him comfortable. So will the most moral man during an attack of manic-depressive insanity. So will many men if some idolized leader tells them that it is right that they should have the property, or that he knows that such and such nonsense is true.

The veneer theory is right in teaching the incompleteness and superficiality of much training against gene nature. That is often not eradicated; the redirection or sublimation often leaves the original tendency ready to operate when it gets a chance.

Chapter 12

THE CAUSATION OF INDIVIDUAL DIFFERENCES IN ACHIEVEMENTS, WANTS, AND PROPENSITIES

It is important to know the causes which make persons differ from the typical or average human being, in some ways more important than to know the causes of typical or average humanity. Economics and business need to know them in order to utilize each person to the greatest advantage in production and to distribute the goods and services produced so as to maximize human enjoyments. Government needs to know them in order to prevent and cure criminals, loafers, meddlers, incompetents, and fools. Even more important is the need to know the limitations set by human nature to the attainment of liberty, equality, fraternity, and other goals of idealistic humanitarianism. And possibly the need to know the causation of those abilities which make good rulers is even greater.

Genetics as yet knows no way of improving the genes of man as a species, save by selective breeding from individuals with superior genes, and no way of identifying such individuals save by measuring their achievements and behavior and subtracting therefrom so much as their environment has caused.

Education has been finding that the efficacy of going to any school depends largely upon who goes to it, and is busy in devising means of selecting for any given sort of education those whose education in it will benefit the community, and in devising varieties of schools to make education profitable in the case of those for whom existing types of training do little or no good. Its chart and compass in all this is knowledge of the causation of individual differences.

There are certain axioms which guide research. The two simplest of these are:

I. All the variation in achievement among persons of identical genes is caused by the variation in their environments.

II. All the variation in achievement among persons of identical environment (from conception) is caused by the variation in their genes.

We cannot ever be sure of identity in the genes of any two persons, but we approximate it in twins formed by the splitting of the same fertilized egg.* Newman, Freeman, and Holzinger have been, and still are, sedulously investigating cases of such twins brought up in different homes.** Their main findings to

* Or triplets or quadruplets formed by its splitting twice with or without the death of one of the resulting embryos. The famous Dionne quintuplets are said in a newspaper report to have been formed by a triple split and the death of three.

** It is now the accepted doctrine that twins are of two distinct sorts, (1) monozygotic, formed by the fertilization of one egg by one spermatozoon, with subsequent splitting to form two embryos, and (2) dizygotic, formed by the fertilization of two eggs each by a different spermatozoon. The accepted test is the existence at birth of one chorion or two. Knowledge about this is available in only an extremely small percentage of twins.

In monozygotic twins, the genes are presumably very much alike, but they need not be identical, since the process of splitting might cause some variation. For practical purposes and for computations, the variance in the genes may be treated as near zero.

The means commonly used to distinguish monozygotic (called "identical") from dizygotic (often called "fraternal") twins is the closeness of resemblance, especially in hand and foot prints, countenance, eye and hair-color, and bodily build. It is very hard to do this dependably. The least like pairs of those rated as identical and the most like pairs of those rated as fraternal by any sound procedure will have about the same degree of likeness. The orthodox explanation of this uses two causes: first, siblings who are not twins are occasionally very much alike, so that dizygotic twins may be expected to be so occasionally; second, environmental differences even within the same uterus and later the same home cause identical genes to grow into bodies and minds sufficiently different to grade down to a degree of likeness no greater than that of a good many fraternal twins.

Whatever the correct explanation may be, the difficulty of drawing the line for likeness above which pairs are to be called monozygotic, and below which they are to be called dizygotic opens the way to serious errors, especially when countenances alone, or fingerprints alone, or bodily build alone are used as the distinguishing feature. There have been over a hundred valuable investigations of twins, but this insecurity coupled with the frequent failure to allow for the influence of "chance" variations in the scores in mental abilities has prevented the attainment of sure knowledge of the exact amount of resemblance of either monozygotic or dizygotic twins in any mental trait.

date are as follows: Nineteen twins judged to be "identical" brought up in separate homes from a very early age show an average difference one from the other in I. Q. of 8.2 points. Fifty twins judged to be "identical" brought up in the same home show an average difference in I. Q. of 5.4 points. These figures must be corrected for the variation due to the fact that one intelligence test does not measure a person accurately. If the same persons are measured twice with a Stanford Binet examination, for example, they will differ from themselves on the average by five points of I. Q. If the twins had been measured on various occasions with alternative forms of the test, the 8.2 and 5.4 would have shrunk, probably to about 3 and ½ respectively.

All that can be said with surety from the facts for twins judged to be identical who are brought up in the same and in different environments is (1) that the variation in intelligence is greatly reduced from the variation in unrelated persons brought up in the same home or in the same orphanage (these will differ one from the other by about 18 on the average), and (2) that it approaches nearer to zero in the twins with like than in those with unlike environment.

We cannot ever be sure of identity in the environments of any two persons, but we approximate toward it in children brought up from infancy in an orphan asylum. Kate Gordon ('19), Hildreth ('25), Davis ('28) and Lawrence ('31) have studied many such children. Their main findings are that children who have lived from half to all of their lives in the same institution differ nearly or quite as much as children reared in different homes and become no more alike the longer they stay in the same institution.

A certain fraction or area of the environment or training can be made approximately equal for different persons. Thus a score or a hundred persons may be given equal instruction and equal practice periods at typewriting, or learning the meanings of German words, or estimating the lengths of lines. In such experiments, great differences are found in spite of the approximate identity of the training.

The total status of the genes of any hundred persons taken at random from a certain population will approximate the total

status of any other hundred. If then one such hundred lives in a certain place from 1800 to 1837 and another lives in that place from 1900 to 1937, the difference between the two sets of lives may be ascribed to the difference in environment. This procedure would give important measures of individual differences due to epoch and localities, except that it is very hard to guarantee that choice by time or by place is equivalent to random choice. A thousand Bostonians of 1940, a thousand of 1840, a thousand of 1740, and a thousand of 1640 would certainly *not* be random pickings from the entire population Boston has had from its first settlement. History for this reason is not the rich mine of knowledge of the causation of human nature which we might expect it to be. In fact, the hundreds who are and are not subjected to some notable environmental influence or influences of any description are likely to have selected that environment or been selected by it and so to be not random pickings, and in a very pernicious way.*

Only very rarely can we find groups alike in their genes, one with and the other without some important sort of training. The ordinary arguments to the effect that going to college greatly increases a person's influence in the world, or that the longer one stays in school the more he will earn in after-life, or that studying Latin and mathematics will improve one's mind enormously more than studying stenography and cooking, are worthless because of neglect of selective forces.

The sound procedure in investigating the influence of difference in training upon any ability is to measure the persons' status in that ability before the training begins, and compare individuals or groups who were equal at the start. When this is done the causal efficacy of training upon intelligence of the sort measured by the score made in standard intelligence tests is very slight.

For example, about 14,000 pupils in high school were carefully measured by a battery of dependable intellectual tasks with

* To illustrate the use of the principle we have to take such groups as two thousands of males taken at random from those born in 1895 and from those born in 1900. The former would in most cases have had participation in the World War by military training or otherwise; the latter would not. What difference did that extraordinary syndrome of experiences make?

verbal, numerical and spatial content, before and after a year of study. Consider the gains for two groups of pupils, LAGT and BCSP, of equal intellectual ability whose studies were the same except that those in LAGT had Latin, Algebra, Geometry or Trigonometry, whereas those in BCSP had Bookkeeping, Arithmetic, Cooking, Sewing, Stenography or Physical Training. The gain for the LAGT group averaged about 25, whereas the gain for the BCSP group averaged about 24. The average gain for a group which stayed out of school for a year and worked at mechanical or clerical work is estimated at 18. The difference of 1.0 between the LAGT group and the BCSP group is then about one eighteenth of the gain due to a year's growth and the experience of taking the test. It is only one tenth of the difference between the gain made in a year by white pupils and the gain made by colored pupils in the same western city.

Being the brightest pupil of a thousand rather than the dullest will cause twenty times as great a difference in the gain as taking a course in Latin, or Algebra, or Geometry or Trigonometry instead of one in Bookkeeping, Arithmetic, Cooking, Sewing, Stenography or Physical Training.*

Two other axioms may be mentioned. One is that:

III. If a difference, D, in achievement or behavior occurring when the difference in the genes is $\triangle$ is reduced to d when the difference in the genes is reduced to δ, nothing else being changed, then $D - d$ is caused by $\triangle - \delta$ in the genes.

For example, let D be the difference in the achievement in a pair of so-called fraternal or unlike twins, and d be the difference in achievement in a pair of so-called "identical" twins. Let $\triangle$ be the difference in the genes of the former and δ be the difference in the genes of the latter. If we may assume that the environment is the same for two twins reared together in the same home, we have in the case of the Stanford Binet intelligence quotient corrected for its errors of measurement, $D = 5$, and $d = \frac{1}{2}$. The reduction $\triangle - \delta$ in the gene difference then causes a reduction from about 5 to about ½ in the I. Q. difference. The

* The facts supporting these statements are reported in Thorndike '24, and Brolyer, Thorndike and Woodyard, '27.

reduction is probably somewhat less than this because the environment probably differs more for unlike twins.

To take another case, let D be the average difference in intelligence between one unrelated person and another of the same age, reared in different homes, and let d be the average difference in a pair of "identical" twins who are reared apart in different homes. D and d are then about 13 and 3; the reduction, $\triangle - \delta$, causes a reduction of 10.

A converse axiom is:

IV. If a difference D in achievement or behavior occurring when the difference in the environment is $\triangle$ is reduced to d when the difference in the environment is reduced to δ, nothing else being changed, then $D - d$ in behavior is caused by $\triangle - \delta$ in the environment.

It is hard to satisfy the proviso "nothing else being changed," but there are many facts showing that the variation among individuals is reduced very little by large reductions in the variation in training, or at least remains very great in spite of them.

For example, let D and d be differences in knowledge of Latin as measured by the 1937 Cooperative Test Service Examination, let $\triangle$ be a difference of one whole school year in the length of study of Latin and let δ be a difference of zero or nearly zero. Records from college sophomores who have studied Latin one, two, three, or four years (equal numbers for each length) give D as 13.4 score points, whereas the records for those all of whom have studied it for one year give a d of 11.0, those who have studied it for two years give a d of 10.9, those who have studied it for three years give a d of 10.6, and those who have studied it four (or more, in a few cases) years give a d of 8.7. The average d is thus 10.3, $D - d$ is 3.1, and the reduction in difference in score accompanying a reduction in difference in length of study from a year to near zero is only 23 percent.

In a rigorously controlled experiment where four random thousands at age 20 were given training in Latin of 300, 600, 900 and 1200 hours, all the environmental conditions being identical within each group, and where the final examination was adequate

to measure all the changes made by the training, what fraction of the variance in the scores would be caused by the variation in the environment during the experiment, and what fraction by the variation in the persons' genes and environments other than those of the experiment? A reasonable answer is .3 and .7. It would certainly be extremely unlikely that the former would be more than .40 or less than .20, and the latter less than .60 or more than .80.

I have reported ['38 B] such facts for persons in the same school grade in respect of many varieties of knowledge and achievement.

There is an abundance of vague evidence, in the shape of wide variations in ability and achievement among persons who have had the same opportunities.

Consider the variation in the musical achievement of all persons of, say, age 30, and then that of those who have spent respectively the following amounts of time at musical training:

750 to 1249 hours
1250 to 1749 "
1750 to 2249 "
2250 to 2999 "
3000 to 3999 "
4000 to 4999 "
5000 to 5999 "
6000 to 8000 "

It is common knowledge that there is a wide variation in achievement within each group and an overlapping of groups. Indeed, some who have had only a thousand hours of training will do better than some of those who have had twice or three or four times as much. This is one of the reasons why psychologists attribute differences in musical achievement largely to differences in inborn ability.

There are many persons who, after a certain amount, say ten years, of training in garages, or grocery stores, or drug stores, go into business for themselves with a capital of say $5000. Their achievements as independent business men range from getting large incomes down to getting very much less than they would

have got from remaining as subordinates with the $5000 left in a savings bank. The variation among them is apparently not much less than among all the persons with amounts of training from zero to fifteen years who go into business for themselves at age 30 with a capital of $5000.

EQUALIZING THE ENVIRONMENT

There have been a number of laboratory experiments in which there have been added *n* hours of practice of a certain ability, to whatever amounts of practice of that ability the persons in question may have had. A frequent result is that the variation in the group has *increased,* those who had most gaining most from the *n* hours of practice, and so maintaining and increasing their superiority. This probably occurs widely in the learning of trades, arts, and professions. The variation expressed as the *ratio* of the achievement of those who do well or best to the achievement of those who do badly or worst is often reduced but never so as to approximate zero. But the proper interpretation of such ratios requires a knowledge of the true values of the scale units and of its zero point which is usually lacking.*

THE HOME ENVIRONMENT

Differences in the genes and differences in the environment tend to go together. If a person, A, has more of trait X than the average human by reason of his genes, he tends to have parents who are + in X, and so to live in a home which tends to favor X. He tends also to select an extra-home environment favorable to X. The environmental difference then acts to maintain and accentuate the inherent differences due to the person's original nature. So neurotic children tend to live with neurotic relatives; child criminals may be taught crime by their parents; gifted children often are subject to stimulation by able parents. Sibs tend to be alike, that is to differ from the average man in

* I may note that the use of the so-called coefficient of variation which divides the actual variability by the average or median or mode has no justification as a measure of human variability. It is a vicious custom invented by Karl Pearson for a case where it was demonstrably wrong, and perpetuated by persons ignorant or careless about the theory and practice of mental measurements.

the same direction, and to differ less among themselves than non-sibs, but the division of the causation of their similarities between similarities of genes and similarities of home environment is not easy.

There are many instructive cases where training acts against a difference caused by the genes. If a child born in a decent respectable family has a specially strong tendency to suck its thumb or bite its nails, quarrel and fight, appropriate the possessions of others, demand notice and approval, or the like, the family provides contrary training, with as much wisdom and skill as it has. Such home training to correct bad tendencies in the very young is often ineffective. A psychologist noted for his faith in training, as opposed to the genes, had great difficulty in curing his child of such tendencies! If the home training is impotent to weaken such tendencies, we must be somewhat suspicious of its power to strengthen tendencies to be intelligent, to be moral, to love music, etc. Moreover, if home training is very influential in causing the resemblances of sibs one to another, the resemblances of children to the mother should be closer than resemblances to the father, since they are with her much more. There is, so far as I know, no evidence of any greater maternal than paternal resemblance at any age.

Other instructive cases are those where approximately maximal and optimal training is given to a large number of persons each of whom is thus brought to a limit of achievement beyond which he cannot go. The persons are found to differ greatly in the limits which they reach, in spite of the fact that most of them were selected as of specially great promise.

The nearest approach to such an analysis is in the case of so-called "general intelligence," more exactly the ability to attain a high I. Q. when tested by the Stanford Binet intelligence examination. Freeman, Holzinger, and Mitchell ['28] report a gain of seven I. Q. points as a consequence of four years residence in good foster homes. Burks ['28] found about the same. Dawson ['36] found that children whose families had been moved out of a slum by reason of a slum clearance scheme gained 0.9 of a point over similar children who lived on under slum conditions. The intelligence scores of canal-boat children are reported by Gordon

['23] to suffer notably from their irregular life and low school attendance. The older they are, the lower their I. Q.'s.

Burks, Holzinger, and Hogben vary widely in their allotments of causation to the genes. Hogben's is the lowest. He credits half to the environment as the conclusion from his study of 500 twins. This, however, depends upon assuming that the correlation of the Otis Advanced test with another independent test of intelligence will be .97, which is indefensible.

Shuttleworth ['35] whose excellent analysis of the causation of individual differences in I. Q. should be studied by everybody who wishes to master the problem, attributes 2.9 percent of the variance to accidents and intra-family environmental differences, 15.4 percent to inter-family environmental differences, 63.9 percent to differences in the genes pure and simple, and 17.8 percent to whatever is caused by the genes and the environment of a family jointly. In this joint causation the influence of the genes is presumably primary.

In the case of abilities, proclivities, wants, etc. which can be represented in quantity scales, the commonest state of affairs is that each person has by virtue of his genes a minimum below which he will not fall by the most unfavorable training which is at all likely to occur and a maximum above which he will not rise by the most favorable training which is at all likely to occur. His actual position between these limits is determined by the nature of his training. The distance between these limits varies from a small to a large fraction of the lowest and highest positions possible for man. In acuity of hearing the fraction is extremely small. In level of intellect it may be estimated as about a tenth of the difference between a vegetating idiot and the top intellect of a thousand. In width of intellect at levels within a person's capacity it is a very much larger fraction of the total human range.

Any mental function which has level and width probably shows the same difference. Training will be able to increase the number of tasks of the same difficulty which a person can perform greatly, but will raise his ability to do harder and harder tasks only slightly.

Increases of information, which are mainly extensions in

width, are thus especially amenable to training. Increases in one's stock of skills are somewhat less so. Increases in the excellence of a performance in respect of quality will be very much less so.

Differences caused by training tend to be more specific than those caused by the genes. Training in language is always by way of some particular languages. Certain features of this training spread their influence beyond the ability to read, write and speak a particular language, but many features of it do not. The genes probably provide nothing characteristic of only one language, but much for an interest in and ability with symbol-making and using relations of space, time, likeness, condition, concession, etc. which are potent in learning any language.

There is then no one answer to the problem of nature *versus* nurture in causing the differences found among men in abilities and propensities. At one extreme are things like color blindness for which training can do very little, the variation in which, as people are, belongs probably over 98 percent to the genes. At the other extreme are things like whether or not the person knows what a certain doctor's telephone number is. Probably 99.9 percent of the variance in this is attributable to environment.*

Toward the former extreme we have such things as intelligence, the variation in which may be allotted roughly as follows:

To the genes.....80%
To training 17%
To "accident" 3%

* The fact that differences in the genes cause differences in such abilities as leadership, money-making, or painting, and in such proclivities as sociability, humility, or ambition does not mean that there are distinct genes or groups of genes or features of genes creative of these abilities and proclivities, or any other simple gene arrangements corresponding to them. Any one of these traits is more likely to be influenced by a dozen or more genes than by one or two; and any gene which has an influence upon any one mental trait is likely to have some influence upon other mental and, perhaps, also bodily traits.

The early inferences from Mendel's discovery greatly over-simplified matters by assuming that for each inherited trait there was some one "determiner" existing in only two amounts (simplex or duplex) or at most a cooperation of three or four such determiners. It is now known that the genes which do the "determining" often cooperate in very intricate ways.

Toward the other extreme we have such things as pronunciation, food-preferences and dress, the variation in which may be allotted roughly as follows:

To the genes 10%
To training 85%
To "accident" 5%

Most of what has been said here about individual mental differences is applicable to the mental differences of families and races. Such exist as a consequence of differences between the

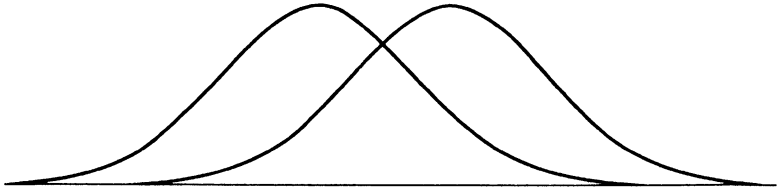


FIG. 43

genes or training or both, of one family from another, one race from another. A sample of man isolated from the rest in breeding will only by rare accident have genes identical with the rest of man. Whatever selective forces operate in the begetting of that sample's children will only rarely be just the same as operate in the rest of man.

But it is easy to overestimate these family and racial differences, and in the interest of one or another theory or prejudice this has often been done. The popular notion that all the persons of each race are closely alike mentally and very different from all the persons of any other race is sheer nonsense. There is usually great variation within the race and great overlapping between races. The case about which most is known is intelligence in American Negroes, including Negro-white hybrids, and Whites mostly of English and North European descent. The overlapping here for persons who have had equal numbers of years of schooling is estimated by the writer to be that shown in Figure 43.

We must now consider again the objection that too much variety and complexity is being required of the genes, this time of

the differences between the genes of one person or family or race and those of another.

A complete defense against this objection is furnished by the recent work of Loeb on the responses of animal genera, species, races, and individuals to grafts of foreign tissues. He has shown that each individual's tissues have a unique constitution in this respect, and that this is due to the individual's genes:

"We apply the term 'individual' to a living organism to emphasize the distinctive, unique features which such an organism possesses. In individual human beings we note their appearance, motor reactions and psychical expressions and certain inherited or acquired structural or functional peculiarities, such as nevi, allergies. There are in addition two very fine modes of distinguishing one human individual from every other one. These are the individual scents attaching to different areas of the body, representing in their totality a characteristic by means of which a dog can distinguish one individual from every other one; and there are the patterns of the skin ridges in the palms of the hands and in the fingers, which are now so commonly used for identification. Recently it has been stated that also the changes in electrical potential in certain areas of the brain are characteristic of an individual and are relatively constant in him (Hallowell Davis).

"All these individual characteristics which we have mentioned so far are localized in certain areas of the organism, in special organs or tissues; they are either structural or functional peculiarities of these tissues and organs. If we consider the individual as a mosaic of many tissues and organs, each one functioning and metabolizing in its own peculiar way, we may consider this mosaic of separate parts as the biological basis of individuality, including the psychical characteristics, and in order to understand individuality in this sense we would have to study the peculiarities of the units composing this mosaic in each individual; also the nervous system and the hormone system, which serve as means of communication between the various parts of the body, represent special organs or products of organs and are therefore parts of the mosaic. They are the properties of organisms, the so-called factors, which are analyzed as to their

genetic basis by means of hybridizations according to the Mendelian methods.

"There is, however, in addition to this mosaic basis of individuality, another basis. There are properties which are not restricted to parts of the organism, but which are common to all, or almost all parts of an organism, which, although not visible, bind them together, make them into a unit and differentiate an individual from every other individual, a species, genus, order, class of organisms, from every other species, genus, order and class. There is inherent in every higher individual organism something which differentiates him from every other individual, which can be discovered by observing the reactions of certain cells and tissues belonging to one individual towards the tissues and cells of another individual of the same species. They act as if there was something in common to all parts of one organism which differs from the analogous characteristics of all the parts in a different organism of the same species. And not only do these cells recognize the different individuals as such, they do more than that, they recognize, to speak in a metaphorical way, the degree of difference between two individuals as based on their genetic constitution.

"In a provisional manner we may designate this common characteristic distinguishing one individual from another as his individuality differential; it is common to the various organs of an individual in contrast to the organ differentials which differentiate from one another the different organs, such as liver, kidney, thyroid, cartilage, in the same individual. In the same way there are characteristics common to all members of a species, genus, order and class, and these may be designated in their totality as organismal differentials, among which the individuality differential is the highest and finest one.

"We are concerned principally with the study of the individuality differential, and here the basic experiment is the following: We transplant various organs or tissues from one animal, *e.g.*, a guinea pig, into two other guinea pigs not directly related to each other or to the first guinea pig from which the tissues were taken; we call this homoiotransplantation. It is seen that the re-

actions of the hosts of the multiple grafts towards the latter differ in intensity in accordance with the degree of the genetic relationship between host and donor.

"Certain experiments show that the similarity or difference between two individuality differentials corresponds to the similarity or difference in the composition of the gene sets in the host and donor, and that the host cells respond, so to speak, to genes which are strange to them.

"That it is the similarity or difference in the gene sets in two individuals which determines their similarity and difference in reaction is also indicated by the fact that if, through close inbreeding, we render their gene composition more similar, the individuality differentials correspondingly become more and more similar in the course of inbreeding. But it has been found very difficult to produce identity of the organismal differentials in others than brothers, although this can probably be accomplished in the end. We may assume that the same chemical gradation in the structure of the organism must go still further, not only each species, but each individual possessing its chemical characteristics, which differ from those possessed by every other individual of the same species." [Loeb, '37, pp. 1–5, *passim*]

CAUSATION BY THE ENVIRONMENT

Individual men owe much of their natures to the circumstances of their lives. The environment may keep the genes alive or kill them; help them develop into a healthy, capable body and brain or hinder them; keep the person's abilities alive and healthy by keeping him alive and healthy. It may maintain and in many cases increase abilities by giving them adequate exercise, and by making the after-effects of their exercise satisfying. The maintenance and increase is restricted rather narrowly to the specific ability that is practiced. If the form in which, or the content on which, the ability operates is different, the improvement may be reduced.

Abilities are weakened by disease, lack of exercise, and interfering abilities. Other things being equal, the ability to "reason" becomes less in syphilitic or alcoholic dementia, in persons who

are never stimulated to reason or rewarded for doing so, and in persons who are taught to be entertaining at all costs.

Wants and propensities often spring from other parts of the body than the brain and so are influenced by general hygiene and special drugs and hormones, more than knowledge, habits, and abilities are. In general, however, the same forces of exercise and satisfying consequences, occurrence and after-effect, repetition and reward, form and strengthen wants and propensities as form and strengthen mental connections in the spheres of ideas and skill. The same forces of lack of exercise and interference weaken them.* There are, however, certain special difficulties in changing wants and propensities. It is harder to get these connections to occur, and to attach adequate rewards to them. I quote from what I have written elsewhere about this:

"The desired response (of affection, kindly feeling, courage, calmness, enjoyment, desire, and the like) is usually much less 'available' than ideas and acts are. It cannot so easily be summoned by the learner at will or aroused in him by stimulation from without. It is easy to put names or numbers or items of fact in connection with seeing a tiger, seeing a snake, seeing an insane man, and seeing a cubic equation, if these situations are at hand. But it is very hard to make a person feel courage as he faces the tiger, feel affection as he turns to the snake, shift to sympathy for the insane man, and then to excited curiosity at the cubic equation. We have no convenient means to evoke these responses or to dismiss them, nor has the person. . . .

"The practices used in education, government, and business to connect desirable emotional and appetitive responses with the situations of life usually rely on associative shifting or other indirect methods. To get R_d as a response to S_1, S_2 which does evoke R_d is used, then $S_1 + S_2$, and finally S_1 alone; or various activities are encouraged which make R_d or something like it likely to occur in response to something like S_1. Ideas that are helpful are provided. Procedures which discourage connections

* The evidence demonstrating this is given in Chapters 13, 14, and 15 of the author's *Psychology of Wants, Interests and Attitudes* ['35B] and will not be repeated here.

from S_1 to the opposite of R_d are employed. The training may be elaborate, intricate, and prolonged. A recital of the training by which an ingenious kindergartner replaces shyness by a moderate sociability, or by which an army officer tries to ensure that young men will enjoy sticking bayonets into the bellies of other young men, would require several pages. . . .

"Some of the practices of religious and other cults rely on more direct means. In particular, certain wants, interests, or attitudes are linked to certain ideas, slogans, postures, ceremonies, or the like, which are available—summonable at will. Then the person is taught to summon the desired feeling by summoning the idea, slogan, or posture. . . .

"One promising method for evoking a want, interest, or attitude is to act as if one already possessed it. Let the nervous person take long, deep breaths and relax his muscles, let the coward advance upon his foe, let the shy one look every man in the eye. Make the child kneel before the altar, salute the flag, feed the stray dog, and take care of his baby sister. In so far as the state of feeling is, as supposed by the James-Lange theory, a product of the bodily states which 'express' it, the assumption of the appropriate bodily states will produce it. And even if that theory is wholly or partly false, the intimate association of the feeling and its bodily expression makes it probable that either will tend to evoke the other. . . .

"Whether we employ associative shifting, the action of potent clues, or acting as if one had the want or interest or attitude, there is likely to be a certain incompleteness about the desires or emotions which are evoked. They are likely to be less rich, vivid, and thrilling, less corporeal, less absorbing, in a word, less emotional. A person may learn to hate false logic or misleading advertisements, but not quite as he hates his mother-in-law. He may learn to enjoy good painting, but not quite as he enjoys flowers. He may learn to be calm in conflict, but the calmness is not the rich enfolding calmness which he feels when the conflict is over, the victory won, and repose well earned. . . .

"The establishment of a certain want, interest or attitude as the response to a certain situation may be facilitated or resisted by original or acquired tendencies. Thus it is easier to strengthen

the connection leading from being alone in a strange place in the dark to fear than that leading from it to laughter. . . . Especially important cases concern the attitudes which are so annoying or so satisfying that any after-effect which can be added will hardly suffice to make the total produce or prevent the confirming reaction. . . .

"In the formation of intellectual connections such difficulties are rare. By original nature men are indifferent to what words shall mean what things, what names shall mean what persons, when events shall have happened, and the like. And their acquired habits, having been established by repetition and reward, are alterable thereby." ['35B, pp. 212–216, *passim*]

Wants and propensities which are not inherent in a man's genetic constitution are then much harder to put into him than ideas which can be introduced through sensations or compounded out of ideas so introduced. The detachment of desire from certain objects and its attachment to others is usually much harder than the detachment and attachment of ideas and bodily acts.

Besides modifying the natures of men the environment furnishes new tools for them to work with. Skates, skis, camels, horses, boats, bicycles, locomotives, automobiles and airplanes are all alike supplements to man's legs. Crowbars, wedges, wheels, mills, and dynamos are new arms and fingers. Microscopes and telescopes and television are improvements on his eyes. His brain uses all these much as it does his own bodily organs. Intellectual and social tools are as important and work together with his intrinsic brain functions in the same way. Written language extends speech and aids memory. Laws extend and refine customs. The accumulated discoveries of science facilitate the work of his mind even more than machines facilitate the work of his hands. All this is well known, though not fully appreciated. No more need be said about it.

LIMITATIONS TO THE ACTION OF ENVIRONMENTS

Abilities, wants and other features of a person are made up of connections between situations and responses. The situations may be conditions or events outside the body or inside it. The responses are movements, sensations, ideas, feelings, emotions,

preferences, etc. The abilities, wants, etc. are modifiable by training in so far as these connections are. Some of them are not. If the eyes and brain of a person or a species do not respond differently to red light and green light of the same intensity, it will do no good to shoot red and green rays at them a million times. But more of them are than was once supposed. Some of the reflexes used to be regarded as absolutely unmodifiable by training. A person could not, it was thought, learn to contract or dilate the pupil of his eye by a thousandth of a millimeter. Others were modifiable only very rarely and in rather freakish circumstances.

Following Pavlov's discovery that the salivary reflex in dogs could be attached to any sensory situation whatever by proper training, psychologists have found that man can by similar training be taught to contract or dilate the pupil, manifest the psychogalvanic reflex, and the like.

A few persons by diligent trial and self-reward at success have learned to weep, to vomit, to wag their ears, and the like, at will. In certain tribes everybody acquires some such ability. Klineberg writes:—

"Tears may have a very special function in some societies, and it is a mistake to assume that they always imply grief or pain. Among the Maori of New Zealand it was not etiquette to make any demonstration at the departure of a friend; tears were reserved for his return. When a group of visitors arrived, there was a mournful weeping and wailing which might continue for hours. The copious shedding of tears at such a function is marvelous. . . . Brown says the same of the Andaman Islanders. When two friends or relatives meet after a separation, they greet each other by sitting down, one on the lap of the other, with their arms around each other's necks, weeping and wailing for two or three minutes. Among both groups there are a number of other situations in which weeping is customary. For example, when two hostile local groups make peace, a day is fixed for a special ceremony during which both parties shed floods of tears. Brown points out that in these instances weeping is not simply the spontaneous expression of feeling, but a rite, the proper performance of which is demanded by custom. Some of the occasions are sorrowful, others happy. In certain circumstances men

and women are required to weep, and if they neglected to do so, it would be an offense condemned by all right-thinking persons in the community.

"This is an interesting example of the way in which culture may develop control over reactions usually regarded as involuntary. In our own society, it is relatively rare for an individual to have the power of producing tears at will; among the Maori and the Andamanese, this power seems to be general. In all cases, as Brown points out, it is real weeping; a man wails or howls, the tears streaming down his face. 'On one occasion I asked the natives to show how it was done and two or three of them sat down and were immediately weeping real tears at my request.'" ['35, p. 283 f.]

Some situation response connections cannot be made perfectly. Either small differences in the situation are not allowed for properly, or the responses are not quite uniform and up to the perfect standard, or both these failings exist. So nobody can hold a rifle absolutely still or keep it aimed at absolutely the same point; nobody can draw free hand a perfect circle. When a person has practiced long under optimal conditions and in hundreds of further trials makes no improvement we assume that he has reached what is called his "physiological limit," having got all the constituent connections to as near perfection as he can. Further training after such a limit is reached may make the trait less likely to weaken with disuse, or less wearying, but will not bring it nearer perfection.

There are for any given person such "physiological limits" to how high he can jump, how fast he can learn, how angry, or sad, or thirsty he can be, how ecstatic his delight at music can become, how big a business he can manage, how great temptations of certain sorts he can overcome, how justly he can rule—in short, to the extent to which he can carry almost any ability or propensity one can think of. The same does not hold of preferences pro and con, unless the limit is set at infinity, for in theory a man can (and in fact certain persons probably do) prefer some one good to all others combined or be so averse to some one ill as to choose to endure all others as the price of avoiding it.

Common opinion is likely to set these physiological limits too

low in general, but also to put them absurdly high in certain cases. Common opinion, lacking knowledge of human physiology and psychology, judges these limits by what it observes and from the reports it hears. It consequently falls into two opposite errors. It underestimates what men can do because they happen never to have done it. It overestimates what they can do by ignorance of individual differences and the consequent fallacious argument that what one man has done, most or all men can do again. This overestimation is made worse by fairy-tales circulated by credulous persons and unscrupulous entertainers. Samples of the former error were the common opinions of our grandparents fifty years ago, that no man could jump higher than seventy-two inches or run a hundred yards in less than 10 seconds or typewrite more than 100 words of average length per minute.* Samples of the latter are the current beliefs that all men could, by using means and methods now available, earn $20,000 (value of 1938) a year by working six hours a day or that some men can read a book by one quick glance down each page.

It is also erroneous to suppose that any environment, no matter how favorable, can bring a person to his physiological limit and keep him there in many traits. Even unremitting devotion soon meets limitations of time and loss from disuse and interference which prevent any more abilities from being perfected. And the same is almost certainly true of the traits of character which we have called propensities or proclivities. If a man is as cheerful, cooperative, and kind as it is in his nature to be, he will find it hard to be also as honorable, industrious, and just as it is in his nature to be. If he should by rare chance become all of these, he could certainly not be expected to be also as modest and entertaining as he might have been. The perfectibility of human nature is wisely put by religions in a heaven with not only an optimal environment but also infinite time. Infinite time would enable men to acquire them, but could not prevent some abilities and virtues from decaying from lack of practice. No environment will make men perfect.

Most men live below their physiological limits in everything.

* The records now stand at over 81 inches, 9.4 seconds, and 43,809 strokes in an hour with 32 errors, or about 140 words per minute.

They are not even as happy as their natures and environments permit, but sacrifice much in the future for little in the present and in other ways misunderstand their own interests to the despair of the wise and good, and of themselves in their wiser and better moments. Still less do they achieve as much in health, knowledge, skill or virtue as they might. They really do not want to; they prefer to be as they are rather than undergo the trouble required. This is as true of persons who have had the advantages of political freedom, sufficient wealth, kind and intelligent parents, access to science and art and other features of the most beneficial environment available as of the under-privileged.

In order to do its perfect work environment must change people's wants as well as their abilities and opportunities.

THE METHOD OF ACTION OF THE ENVIRONMENT

An environment that is good will usually do good, but it is not safe to depend on this, trusting that an environment will operate well by its own nature. Suppose that by a miracle the thousand best poems, novels, philosophies, operas, sonatas, statues and paintings of the last fifty years, and the thousand best laboratories, medical schools, engineering schools and factories, and the thousand best laws and moral gospels had been set on earth in 938. Some of them would doubtless have done much good. But some of them would have been promptly destroyed as works of the devil. If any forward-looking alchemist had tried to use the laboratories he would probably have been executed by the government.

The social and intellectual environment has been supposed to operate by a potent tendency of mankind to do what it sees done and become like those with whom it lives. The evidence for such a general tendency is scanty and weak, the fact being rather that only in special cases and special conditions do men or children duplicate in themselves what they observe in others. If by a miracle ten thousand intellectual and moral super-men, as much above the best of us as we are above organ-grinder monkeys, were dropped, a few in each county of the United States, I should need to know much more about them before prophesying how far their ways of life would be imitated. I fear that in any case they

and their very few imitators would be derided as crazy, undemocratic, and incomprehensible. If they were all under 4 feet six, with brains ten times the average size of ours, and with an inveterate habit of forgetting the names of all the persons they met, and falling asleep whenever we tried our best to entertain them, I am sure that imitation would be negligible. I fear that they would have neither imitators, wives, children or friends. If they tried to rule the world for its own good they would surely be put out of the way as traitors. If they were Apollos physically as well as mentally and as agreeable as the best living bond salesman they might be imitated in their dress, voice, and doctrines about when to bid no trumps, but I fear that their opinions about business, government, or universities would be imitated only verbally. We might say what they said but would not mean what they meant.

If the ten thousand vicious imbeciles who do now walk our streets all had the faces of the baboons whom they resemble morally, their vices would not corrupt us by imitation.

Imitation is surely limited by the repertory of the imitator and is weak except when driven by admiration. Example is stronger than precept mainly because precept has a strength near zero.

Some justifiable and some dubious hopes are founded on the power of the environment by way of suggestion. Suggestion is often better than coercion and sometimes better than persuasion because it does not arouse opposition or rely upon threats, and also lets the person have the satisfaction of feeling that he is master and creator. For a suggestion to be potent it is usually necessary that its acceptance by a person shall not involve any annoying associations. On the contrary the advertisers who suggest to us that we buy the ABC toothpaste or the XYZ gargle try to link the idea with success in love and business. Suggestion is in fact a sort of trick to get a certain idea or act or other mental tendency to occur and to reward its occurrence. Its potency is derived from occurrence and satisfyingness, with care to avoid arousing contrary forces. It has no magic potency beyond these.

From the foregoing facts it may be deduced that the social, i.e., human, environment exerts an extremely powerful force by approval. From early infancy a person is permitted, stimulated

and encouraged to do what the mores of his family and neighborhood approve. Such acts on his part are often definitely rewarded by his environment. He comes to think of them as fit and proper and so rewards them himself by the inner satisfactions of self-respect and a good conscience. What and when and how he eats, what he wears, where he sleeps, how he gets rid of waste products, what gestures he makes, what words he uses, how he pronounces them, what he calls right and wrong,—these and all else are subject to an almost unremitting stimulation and control from birth to death. Behavior will gravitate toward what is approved and away from what is ridiculed or scorned—toward what gives one the comfortable feeling of being correct and blameless and away from what makes one feel insecure, inferior and ashamed.

These deductions are amply verified by facts. The power of fashion furnishes abundant evidence. So also do the characteristics of certain sorts of social "classes." In societies which have ruling and servile classes the former acquire habits of expecting attention and deference, of condescending kindness, and of punctilious honor which exasperate democratic observers; the latter may be quite happily servile, looking up to their betters as boys look up to athletic heroes, accepting tips and charity with no shame or inferiority, to the still greater exasperation of the democrat. Both classes are doing what their human environments have rewarded them for doing.*

Among different "cultures" opposite or widely diverging ways of life may appear because of the direction which the force of approval takes. Saving *versus* spending, ostentation *versus* modesty, and enterprise *versus* conservatism are important illustrations. Homicidal mania may be tolerated and quasi-hysterical afflictions may be deliberately sought. Ruth Benedict writes of the Dobu, studied by Fortune:

"In this tribe the exogamic groups look upon each other as prime manipulators of black magic, so that one marries always into an enemy group which remains for life one's deadly and unappeasable foes. They look upon a good garden crop as a confession of theft, for everyone is engaged in making magic to induce into his

* There may also be gene differences at work in these cases.

garden the productiveness of his neighbors'; therefore no secrecy in the island is so rigidly insisted upon as the secrecy of a man's harvesting of his yams. Their polite phrase at the acceptance of a gift is, "And if you now poison me, how shall I repay you this present?" Their preoccupation with poisoning is constant; no woman ever leaves her cooking pot for a moment untended. Even the great affinal economic exchanges that are characteristic of this Melanesian culture area are quite altered in Dobu since they are incompatible with this fear and distrust that pervades the culture. . . .

"Now in this society where no one may work with another and no one may share with another, Fortune describes the individual who was regarded by all his fellows as crazy. He was not one of those who periodically ran amok and, beside himself and frothing at the mouth, fell with a knife upon anyone he could reach. Such behavior they did not regard as putting anyone outside the pale. They did not even put the individuals who were known to be liable to these attacks under any kind of control. They merely fled when they saw the attack coming on and kept out of the way. "He would be all right tomorrow." But there was one man of sunny, kindly disposition who liked work and liked to be helpful. The compulsion was too strong for him to repress it in favor of the opposite tendencies of his culture. Men and women never spoke of him without laughing; he was silly and simple and definitely crazy." ['34, p. 65 f.]

Of the exaggeration of self-esteem among the Kwakiutl, she says: "All of existence was seen in terms of insult. (Insult is used here in reference to the intense susceptibility to shame that is conspicuous in this culture. All possible contingencies were interpreted as rivalry situations, and the gamut of emotions swung between triumph and shame.) Not only derogatory acts performed by a neighbor or an enemy, but all untoward events, like a cut when one's axe slipped, or a ducking when one's canoe overturned, were insults. All alike threatened first and foremost one's ego security, and the first thought one was allowed was how to get even, how to wipe out the insult. Grief was little institutionalized, but sulking took its place. Until he had resolved upon a course of action by which to save his face after any misfortune,

whether it was the slipping of a wedge in felling a tree, or the death of a favorite child, an Indian of the Northwest Coast retired to his pallet with his face to the wall and neither ate nor spoke. He rose from it to follow out some course which according to the traditional rules should reinstate him in his own eyes and those of the community: to distribute property enough to wipe out the stain, or to go headhunting in order that somebody else should be made to mourn. His activities in neither case were specific responses to the bereavement he had just passed through, but were elaborately directed toward getting even. If he had not the money to distribute and did not succeed in killing someone to humiliate another, he might take his own life. He had staked everything, in his view of life, upon a certain picture of the self, and, when the bubble of his self-esteem was pricked, he had no interest, no occupation to fall back on, and the collapse of his inflated ego left him prostrate." ['34, p. 69 f.]

In the general qualities of mind the power of social esteem and approval works with or against certain forces resident in the genes, and the results are due to both. No matter how much the life of an ascetic hermit is approved and extolled, no tribe is likely to live each man by himself, with only the minimum of sociability required to perpetuate the species.

In those particular details of thought and conduct which are rather neutral to man's original nature, approval reigns almost undisputed. Whether we eat with fingers, chopsticks, or forks, whether we believe in the divine right of kings or in the divine right of mobs, whether we bow toward a superior or turn our backs and bow away from him, as some South African Negroes do—all such matters are easily amenable to evironmental control by social approval and scorn.

As stated earlier, quantitative evidence of the influence of differences in the environment in causing differences in behavior is rather hard to find within the same culture at the same epoch. But everybody must admit their potency. Parental income doubtless makes a difference. Justice in the home doubtless makes a difference. So do vitamins and sunlight, eyeglasses and earphones, hearing parents discuss impersonal facts and hearing them repeat trivial gossip, learning to fight and learning to pray,

being approved for getting money and being approved for getting wisdom, having A for a friend instead of B, having C for a leader instead of D.

We should examine history, biography and case-studies as well as mass experiments and statistics. We have not found published cases where differences in the environment account for a large fraction of the variance in behavior partly because we have not looked in all the important places. For example, Bliss Perry, a man of notable charm and influence as a college teacher, was at the age of twelve captain of a very successful baseball nine composed of boys in a small New England town. Of his team one became captain of the famous Negro team, the Cuban Giants, another became an infielder of the Buffalo professional team. Bliss Perry himself, who was apparently a more promising player than they, could very probably have made a notable success in baseball. It is fantastic to suppose that inborn fitness for baseball caused this. The cause was probably environmental in the shape of Bliss Perry's zeal and magnetism. If he had started a missionary society, or a gang of bandits, he would perhaps have two or three saints or famous crooks to his credit.

All the facts about all sorts of gene combinations and all sorts of environmental forces need to be studied in order to estimate the contributions of either sort. Social workers, educators and reformers have probably over-estimated the potency of the environment, because they have neglected the power of the genes to select their environment and have misinterpreted the correlation of an environment favorable to a certain trait with a genetic constitution possessing much of that trait. But biologists should not underestimate or neglect it.

Some apology is due for my failure to present the Freudian doctrines of the causation of human behavior in great measure by occurrences during infancy and life in the mother's womb. I have neither accepted nor denied the doctrine that a craving to return to the safe and supposedly happy parasitism of a life as a foetus is a prime factor in human toil and trouble; or the doctrine that reluctance to discharge the feces, which the infant is alleged to esteem as a part of himself and desire to retain, will cause a general miserliness all through life if it is not properly outgrown

or "sublimated"; or the doctrine that auto-erotic practices are the cause of neurasthenia; or any other of the Freudian causal hypotheses.

There are two reasons for my failure to discuss them. The first is that it would take too long to separate the facts from the fancies. The second is that the facts are applicable mainly to disorganized hysterical minds, and that a sound way to treat such in government, business, law, education and religion is to neglect their follies and proceed with the world's work as if they were sensible persons or troublesome children. For medicine the case is somewhat different; psychiatrists have to deal with such minds and should be taught the truth about Freudian doctrines, in full detail.

Chapter 13

CONFLICTS OF WANTS, CONSCIENCE, AND JUDGMENTS ABOUT VALUES

A person's wants are often in conflict; his desire of the moment may conflict with his long-time plans; his bodily passions may be antagonistic to his esthetic or moral ambitions. The wants of one person are often in conflict with those of others. The wants of men have been supposed by various theologies to be more or less in conflict with the wants of the tribal god or gods. The choice among conflicting wants is often made by some power outside them. If the conflict is within a person, the conflicting wants may not be permitted to fight it out, but may be overruled by the self-interest, prudence, reason, or conscience of the person. If the conflict is between one person and another, law, custom, public opinion and the like may step in to harmonize, compromise or coerce the parties.

Various faculties or mechanisms or other arrangements have been supposed to exist in man to help him to choose the right, when the conflict is between a right and a wrong. A favorite doctrine of philosophical moralists has been that the right was what was ordered by natural law or divine law, and that this was revealed to man by his reason and conscience. Conscience also, in the opinion of many, makes a man aware of sin in violating natural or divine law, producing in him a sense of guilt and feelings of remorse.

Freud invents a superego to do much of this work. He assumes three levels of desire: the childish, unorganized, often unconscious passions of the Ids; the ordinary stream of hopes and wishes of the organized Ego; and the higher, socially approved, moral preferences of the Super Ego. This is somewhat like the traditional theological distinction between evil spirits, the un-

regenerate natural man, and the voice of conscience or some more mystical inner revelation. Such divisions may be useful provided we understand that they are not clear-cut and are only for convenience. Modern Christian theology emphasizes rather the general contrast between man's more animal nature and his more spiritual nature; and modern moralists emphasize rather the contrast between the anti-social or asocial tendencies and the socialized person.

The science of psychology finds no identifiable realities corresponding at all exactly to Ids, Ego, Super Ego, evil spirits, conscience, animal nature, and spiritual nature, but rather continuous gradations from unorganized to organized, bad to good, carnal to spiritual, anti-social or asocial to socialized, selfish to unselfish, prudential to conscientious. Neither psychology nor anthropology has any confidence in conscience as a judge which settles conflicts within a man or between men infallibly in accord with either divine or natural law. Men's consciences seem rather the products of their careers and the representatives of tribal prejudices than the repositories of infallible intuitions of right and wrong.

The sciences of man prefer to observe the facts of choices, including moral choices, rather than assume in advance any speculative doctrines about their causes. They are suspicious of philosophies and theologies of values, but deeply interested in the facts of valuation.

JUDGMENTS ABOUT VALUES

In studying the movements of the stars or the constitution of atoms or the flow of the tides, it is easy to avoid moral issues and valuation. Astronomy, physics and physiography are rarely distracted from their inquiries concerning what is, what has happened, and what will happen by questions of what is useful and desirable. But psychologists who study human abilities, wants, and proclivities cannot easily avoid noticing that some are good and some are bad. In fact, psychological scales for abilities are often scales of merit and valuation, rather than mere amount; and certain wants, as for beauty, truth, or justice, are conveniently distinguished as "higher" or "nobler."

Just where psychology leaves off and ethics begins in the study

of values, duties, and conscience would be hard to decide and is of no consequence for our purpose, which is to get and report facts and principles regardless of where they should be classified.

The first important fact is that all things which can be experienced or thought of by man can be valued by him,—can be judged to be good, bad, or indifferent.

Situations are valued; air at 80° F is better on the skin and in the lungs than air at 180°; sunshine is in general better than inky darkness; sweets are better than intense bitters. Responses are valued; chewing is better than hiccuping; rhythmic dancing is better than writhing; laughing is better than wailing. Persons are valued; Jane Addams and Madame Curie were better than the average woman. Abilities and proclivities are valued; honesty is better than thievery; much intelligence is better than little. Wants are valued; the craving for food is better than the craving for morphine; a passion for justice is better than a passion for mastery. Objects are valued; an ounce of gold is better than an ounce of sand, and would be if the prices were the same. Anything that can be thought of at all can be valued. Indeed we usually think about things only if we have set a value upon them.

Values to man and men may be infinitesimal, and approximate a neutral zone or zero between good and bad for many or all persons under most or even all conditions. It consequently does little harm to think of the value, say, of having one grain of dirt washed into the sea or dredged out from the sea, as zero. But the number of things and events which are really neither good nor bad in the slightest degree is much smaller than common thinking would estimate.

A second important fact is that judgments of values, or tendencies functionally equivalent to judgments of values, antedate judgments of existence or "mere fact" in the animal kingdom and in man. Such judgments as "That is good to lie on," "It is good (desirable, proper) to run away from that," "This is better to eat than that," are more fundamental than such as "That is black" or "This is longer than that." The latter sort are, in most animals, the servants of the former.

A third important fact about human valuations is that in the last analysis they usually, probably always, refer to and depend

upon satisfactions and annoyances, desires for and against. Things are good because God wants them, or men want them, or would want them if they were unselfish and wise, or certain animals want them, or certain other sentient beings want them.

A man's judgment that a certain thing, event, quality or relation has value is, obviously, not the same as his judgment that he wants it. It is rather a judgment that he approves or esteems it, or ought to approve or esteem it. So the reader may want to smoke another cigar, but disapprove that act, regarding it as bad even while he does it. But moral and prudential judgments are in the end justified by wants.

Value, positive and negative, resides in satisfaction and annoyance. If the occurrence of X can cause no person, animal, or deity, present or future, to feel any more or any less satisfaction or annoyance than he would have felt had X not occurred, the occurrence of X is neither good nor bad, valuable nor harmful, desirable nor undesirable.

Serious students judge the values of things, qualities, and events, including the acts and experiences of men, by their consequences or, less often, by their affiliations. Each expert moralist has a rough schedule of what he thinks God, people, spirits, animals and any other sentient beings will be satisfied by and what they will be annoyed by. Feeding the hungry the moralist calls good because it satisfies their want for food, the general or majority want to see people happy rather than miserable, and perhaps God's similar want. The moralist (and each of us, also) has also a rough schedule of persons, and perhaps deities, whom he esteems. Wearing clothes, avoiding cannibalism, and being loyal to the government are rated as good, partly because these esteemed persons are rarely nudists, cannibals, or traitors.

In assigning values on the basis of consequences, we may and do attach various weights to the consequences for ourselves, our friends, white men, black men and yellow men, sane, insane and idiotic men, dogs, horses, tigers and snakes, living men, the spirits of dead men, and men yet to be, the God of our fathers and other Gods, in case we recognize such at all. We also attach weight to remote and indirect consequences, as by way of the example set to others. There is also a large margin of guess-

work, especially about what the consequences will be for the satisfaction of men of the distant future and men unlike ourselves. Opinions about consequences are also largely second-hand and conventional. The ratings by consequences are however always justified in the end by satisfactions or annoyances for some sentient being if they are justified at all.

So also would be ratings of acts or experiences by their affiliations. The justification for calling good what good people are and do is in the end that the good or estimable person or deity is and does and values what satisfies himself or other beings, especially other estimable ones.

We can choose whose satisfactions we shall give weight to, and what sort of persons we shall esteem; the two amount to essentially the same. But if sane and intelligent, we rarely attach value to something which makes no difference, directly or indirectly, to the satisfactions and annoyances of any sentient being.

When certain moralists and theorists who are sane and highly intelligent, give us the notion that they assert that certain qualities and acts can have an absolute, intrinsic value regardless of any satisfaction or annoyance to any sentient being, they or we (or both) are probably confused by analogies or verbal subtleties. It is to be observed that the qualities and acts alleged to be thus justified by their mere nature are easily justifiable as ministrants to real desires and aversions.

When the plain man sets value upon certain qualities or acts as intrinsically noble or beautiful though he can see no good that they do and does not regard them as more characteristic of God and good people than of the Devil and bad people, he usually is accepting at second-hand a valuation which did originate in an expectation of good consequences or good affiliations. Thus I regard a painting by Picasso as a better gift to the world than one by Watts, though I should be at a loss to show that it gave more satisfaction to Gods or men, and should have to confess that any argument which I could make from affiliations with estimable men would probably rather favor Watts' work than Picasso's. I am reflecting a valuation of artists, not making a valuation myself. Those who really made it did get more satisfaction from Picasso than from Watts and were confident that a wise God of

art would also. We shall consider the claims of absolutist and transcendental ethics more fully later.

Values are rarely, if ever, absolute, transcendental, beyond explanation in terms of wants, but they are very often hard to agree upon. We may in fact add as a fourth fact of importance that judgments about values are obviously not *just* like judgments about time, distance, area, volume, mass, temperature, chemical constitution, memory, dreams, knowledge, prices, diminishing returns, laws, customs, myths, taboos, family organization, etc., etc. In particular the actual values attached by men in general, or even by serious students, or even by the most expert and rigorous amongst these, seem to be more arbitrary, more dependent on somebody's notion or prejudice or choice, than most facts concerning mere existence stripped of values. Disagreements concerning values are certainly greater than disagreements concerning lengths or temperatures. Just what the causes of this greater arbitrariness or subjectivity or personal equation are need not be stated completely or in detail, but some facts concerning it may be noted.

Much of it is really due to the fact that there is a conditional factor at the very basis of values in the sense that what will satisfy and what will annoy John Smith, his dog, the fox he shoots and the God he worships is in each case a brute fact depending upon their several natures. But facts about values are in this respect no more arbitrary than facts about diseases, drugs, hormones, laws, customs, or beliefs. The action of each of them depends upon the nature of the organism on which it acts.

There is a further arbitrary element in the process of weighting the satisfactions of the countless sentient beings. In the actual conduct of life, the reader may, and probably does, weight the satisfactions of himself and a dozen of his family and friends above those of all the worms in the world; but some St. Francis or Brahmin may not. The saint may weight the satisfactions of any other Christian as equal to his own, but the average sensual man does not. The abstract thinker may give substantial weight to the satisfactions of the human species in 3000 A.D., but these vanish in the valuations of most of us. Such habits and attitudes, acquired and used in ordinary life, are hard to exclude when one

tries to judge impartially, as if he were a trustee for the welfare of the world or a purely scientific solver of the world's problems. This kind of arbitrariness is much like that encountered in efforts to determine the cost of living in a given community, or the amount of labor spent in making an automobile. As a result of it, valuations by Smith, Jones, Brown, Confucius, Buddha, the God of Mahomet, and the God of St. Paul may be expected to differ, and often to differ radically. It does not, however, make valuation either haphazard or futile. If a hundred moralists of today should set values upon each of the courses of conduct which a given person in a given situation might pursue, there would be very substantial agreement. If every ignorant and stupid person should accept the valuations of this hundred, the world as a whole would profit.

There is also a spurious arbitrariness due to ignorance. We lack knowledge of what many persons of the present, and still more of the future, will be satisfied by and annoyed by; and of what the consequences of many events will be, in whole or in part; and of what their affiliations are.

On the whole, values can be determined. If we knew the exact difference which any event made to the satisfactions and annoyances of all sentient beings, and agreed about the weights to attach to each of these, we could determine values in the same sense that we can determine the effect of an epidemic upon the production of goods, or the probable age of life upon the earth. But our agreement upon values would not be forced by reality as our agreement upon the diameter of the sun or the weight of an atom is. It would be attained in part by compromise and pressure and would represent the suppression or modification of genuine valuations as well as the elimination of demonstrable errors. The best determination of values will still be in part subjective, dependent on the states of mind of persons or deities, changing if different men and gods take the places of those who made the determination. A science of values will not be *just* like the sciences of atoms, masses, digestion, diseases, abilities, wants, or communities. But it will be true and useful in its own way.

The fifth fact is that the concrete valuations of reputable transcendental systems of valuations are in so close agreement with any

reputable scientific and humane system of weighting the wants of sentient beings that it is not necessary to argue about them. As was noted earlier, when philosophers seem to assert that qualities and acts have value regardless of any satisfaction to anybody, they may really be asserting something different. Even if they do assert that and mean it, their later inferences about goods and bads commonly agree very closely with what any well-informed and benevolent trustee for the human species would decide on factual grounds. The qualities and acts which the absolutist or transcendental system asserts to be justified by their very nature are usually easily justifiable by their service to real desires and aversions.

The commonest cases of alleged absolute values irrespective of any satisfaction or annoyance to any sentient being are truth, beauty, the development or perfection of human powers, and the will of God.

The truth, in the sense of those ideas about reality which correspond to it, enable us to predict it, and lead us to adapt ourselves to it, and it to wants which are satisfiable by it, is a pure good. Anyone can possess it at no cost to any one else, and often to their enrichment; an increase in the amount of it available for men, or in the amount of it possessed by any individual, is, in and of itself, an aid in the satisfaction of other wants and interferes with none of them. Whatever is in essential conflict with it is bad. Whether it has any more absolute warrant for commanding our regard we need not inquire, since even by the most empirical and utilitarian or by the most metaphysical and supernaturalistic theories it is valued as among the highest things a man may seek.

Beauty in the sense of that which causes unselfish, impersonal, and noble enjoyment, free from exaltation of one at the expense of another's degradation, from use by one at the expense of another's deprivation, from taints of bestiality, meanness, stupidity, and the like, also ranks very high in any reasonable scheme of values. To make or to enjoy a poem that is fine satisfies good or at least innocent wants in the poet and his readers, without, in and of itself, reducing the satisfactions of any one else.

Creating and enjoying truth and beauty are samples of the

class of satisfiers which involve positive satisfactions for some without subtraction from, and often with addition to, those of others. Enjoyment of the happiness of others is a third, and good health is a fourth. Other things being equal, such are obviously better on the average than what may be called the possessive or exclusive satisfiers, such as eating, ownership, supremacy, or victory, where the satisfaction of one involves the deprivation of another.

They are also samples of the dignified as opposed to the trivial or mean satisfiers such as chewing gum, scratching one's head, or watching a dog-fight. They have fine consequences and fine affiliations; and these are enough to guarantee them without assuming any absolute or transcendent quality in them.

The doctrine that the perfection of human powers furnishes a general criterion and rule for valuation was probably invented and maintained because of the belief that there must be some one adequate universal criterion, and the fact that to be perfect, to be the best of a certain sort or series, is very often good. Since some powers, such as to deceive, defraud, terrify and torment, are obviously better restrained than developed, the limitation "harmonious" is often inserted. Powers whose perfecting is undesirable can then be excluded as being out of harmony with those which the theorist thinks are better.

There need be no one universal criterion, and the idea of perfecting is of little real value save as a suggestion that the good life of any creature depends upon what kind of creature he is. The addition of "harmonious" brings the practical applications of the doctrine back to a calculus of actual wants and satisfactions of sentient beings and their interrelations.

The will of God, whether the personal God or Gods of the various religious systems or the Absolute power responsible for the universe in various philosophies, is unknown to science. The descriptions of it which have been made by those who claim to be informed about it vary from items repugnant to both good sense and common decency to items which have inspired or supported some of the most beneficial activities of mankind. The historic religions are admittedly projections of man's own ideals, and the ethics of absolutist philosophical systems are disappoint-

ingly barren in the settlement of the values of actual experience and conduct. The whole matter seems most reasonably treated by assigning to the wants of whatever supernatural beings one has reason to believe exist, whatever weights seem reasonable, along with the wants of the natural beings which natural life reveals and which science estimates by impartial and systematic study.

As a sixth fact we have the possibility and desirability of a natural science of values, which will progress from and improve upon the best present opinions about what is good and what is bad by studying the consequences of various conditions and events for the satisfaction of wants present and future. This science will also often study the affiliations of these conditions and events, using the general theorem that what is affiliated with things known to be good (or bad) will probably be good (or bad). The argument from affiliation is useful not only as a second-best criterion when consequences cannot be traced, but also as a guide to find causes whose consequences will probably repay investigation. It will study the facts and principles which should guide us in attaching weights to the wants of different persons.

The next chapter will present some of the facts about the possibility and desirability of such a natural science of values, the problems it attacks, the methods it uses, and the results it attains.

Chapter 14

VALUATION *

Much of the work done in the sciences of man concerns facts of mere existence with no reference to their values, describing what men and their institutions are, what has happened in human affairs, and stating principles or "laws" which enable us to predict what will happen better than we otherwise could. It is possible to argue that this is their proper work and that all statements about values should be relegated to a separate science of ethics, or to the common-sense judgments of men. But it seems on the whole wiser to encourage excursions into valuation. It is bigotry to demand a separation which in fact the able workers in these fields do not make. And it is foolish to erect barriers between the study of biology and the study of health, between the study of poverty and the study of the goods and evils of poverty, and the like, when the barriers do not improve progress on either side of them.

The notion that the physical and natural sciences have rigorously excluded valuation has been exaggerated. Scientific work, it is true, is directed more by curiosity than by compassion, and a deep-seated confidence that truth is good makes appraisals of consequences to human wants a very minor occupation of most workers in physics, chemistry, and biology. But they are not antagonistic to it.

Even in the most abstract and unhuman work of the natural

* This chapter is limited to a discussion of a factual science of the consequences of events, acts, laws, institutions, etc. to the wants, satisfactions and discomforts of sentient beings. The reader who wishes to know the general body of philosophical opinion about valuation should read *The General Theory of Value,* by R. B. Perry ['26], *Comparative Value and Human Behavior,* by Joseph Mayer ['36], and *Economic Motives,* by Z. C. Dickinson ['22].

sciences, as in the study of stars billions of billions of miles away or of animals dead millions of years ago, the judgments of mere fact, the bare descriptions of what is or was, are yet not entirely divorced from judgments of values. Even here one will not find an utterly dispassionate judgment that this is or that was or such will be. The astronomer or paleontologist is never a mere observer or analyst; the stars and fossils are his playthings, or his tools to construct or support an hypothesis, or the forces by which in creating truth he hopes to create a better world for living men. Usually they are all of these, though perhaps the less he thinks about the latter, the better the world will be.

The natural sciences have not become scientific by eschewing valuation. They have no more hesitation in stating that morphine does good by stopping pain and may do harm by forming a drug-habit than in stating its chemical composition or its derivation from the poppy plant. They are often, of course, hesitant or express doubt in making a judgment of value for the excellent reason that it is dubious. But unless they are perverted from their naive curiosity and zeal by some awe-inspiring philosopher or logician, they are as ready to learn and teach that sunshine is good for children or that such and such is a bad way to build a bridge as that the sun-spots are caused by so and so or that unprotected steel will rust.

Anthropologists, psychologists, sociologists, economists, jurists and other students of man should do at least as much. If they have proved that monogamy is better for the present generation in Europe than polygamy they should consider that fact as much a part of science as the fact that x percent of marriages now end in divorce. They should presumably do more since human nature and behavior should arouse more inquiries about human values and more observations and experiments relevant to them than chemistry or biology.

In any of the sciences of man it is possible to separate out certain judgments which are valid regardless of what values are set upon the various satisfactions of human beings present and future. 2 and 2 are 4; the earth will revolve around the sun; most children enjoy sweet tastes—these are independent of any valuations (except the preference for truth rather than error). In an-

other class we may put judgments of value with their assumptions explicit such as, "If you prefer the comfort of people in general to their misery, it is better not to put typhoid germs in their milk." In still another class we may put judgments of value whose assumptions are left to be inferred, such as, "It is better to be temperate with alcohol than to get intoxicated frequently." "It is better to be very abstemious than to be merely temperate." "It is better to be free but in poverty than to have luxury by the benevolence of a despot." "Conspicuous waste by the rich is worse than improvidence in the poor."

The advantages of such separations are obvious, but they do not recommend, much less require, that the sciences of man should turn over all in the third class to experts in ethics or religion. On the contrary it is desirable that the experts in the consequences of behavior should have influence in deciding the values of any acts.

On the whole the prudent and hopeful policy for the sciences of man is to study human valuations as they study any other facts in human nature and behavior, when, as, and if they are likely to advance knowledge about them, in connection with psychology, sociology, economics, political science, or any other field of inquiry, as well as in separate investigations *ad hoc*. There seems to be no need for a scientific worker to change formally into a philosopher or a theologian or to adopt or fabricate an entire system of ethics.

If a man of science needs anything more than his own good sense in making or assuming valuations, it is a natural factual science of the consequences of the phenomena he is studying to human satisfaction and annoyance present and future, of the affiliations or associations of these phenomena with other phenomena whose value is known, and a reasonable system of weights to attach to different persons' wants.

There are as yet only rather pitiful beginnings of such a science, in advance of common knowledge, and the writer is probably ignorant of much of what there is, but he presents what he does know with confidence that, despite his failings, the facts will be superior both to the outworn conventional ideas about values which are absorbed at mother's knee and on Main Street and to

the wild, not to say monomaniac, doctrines which possess the minds of many excellent people.

Science will begin modestly, by inquiring what intelligent people who have studied the matter and are impartial know and think about the value in question. Suppose that it is the values, positive and negative, of municipal ownership of gas works, or of a certain parole system, or of requiring iodine to be put in all table salt. Science would begin with the facts and opinions of able engineers, city managers and business men, of able penologists, educators and social workers, of able biologists and students of public health legislation. So, of course, would any reasonable procedure. The intelligent impartial persons with knowledge may be wrong, but they are likely to be less wrong than others.

Two inferior procedures may be mentioned. One is to try to discover what God's will is in the premises, as revealed by holy books, oracles, official heads of churches, and other approved means. The second is to put it to a vote of all citizens, each being given equal weight. Whatever merits these procedures may have, they will not be used by science. The god of science is revealed in reality, and science rebels against counting the votes of imbeciles and ignoramuses, who do not know what is for their own good, much less what is for the good of others, as equal to the votes of the wise and well-informed: and common sense rebels against counting the votes of habitual criminals and maniacs as equal to those of the benevolent and impartial.

Science will be democratic not in form but in spirit by choosing men as intelligent, wise, and impartial as may be and trusting them to decide as best they can what the "true" values are. If the question is one of values for all white citizens of England in 1940, they are pledged to try to choose the best values therefor. If the question concerns values for all men for the next thousand years, they are to choose with that in view. If the welfare of dumb animals is to be included, they will act as their trustees as well.

The vote of a well-chosen board of trustees concerning values to the sentient beings in whose interests they act is a reasonable practical means of obtaining values to a first approximation.

By and large that is the way in which leaders in morals do

reach and have reached decisions for this and against that actual valuation of wants. In deciding the merits of X and Y for a tribe's welfare the chiefs and shamans of the tribe, fortified by traditions of the decisions of the chiefs and shamans of the past, summon what knowledge is available concerning the consequence of adopting X or Y, and supplement this by their personal impressions. In deciding the merits of W and Z for the welfare of say the present inhabitants of the United States, leaders in morals would consult the philosophers, moralists, able men of science and of affairs, prophets, and philanthropists who seems to us to be intelligent, wise, and impartial. We would informally treat them as our trustees. For example, suppose that W is the desire of individuals A, B, C, etc., to have as normal sex life as may be without having offspring save by choice and Z is the desire of individuals α, β, γ, etc. to make A, B, C, etc. assume all the risks of childbirth which a normal sex life involved prior to the discoveries of modern science. In assigning relative values to these two wants, we certainly would not give much weight to opinions of the insane and feeble-minded, nor to those of manufacturers of contraceptives.

Through the valuations expressed in their writings, the thinkers of the past are available as such trustees to vote on many questions. By a very important and beneficent feature of the human mind, intellect is positively correlated with good will toward men, so that on the average great thinkers are benevolent and sympathetic toward all good men and all that is good in man. The correlation between intellect and impartiality is probably even closer. Neither correlation is perfect; and great thinkers are limited by their times and their imperfect knowledge of consequences. They are far from infallible. Plato's benevolence hardly extended to slaves and barbarians; Solomon's valuation of monogamy would have been somewhat prejudiced; and neither had the facts to enable them to value empirical science properly. But on the whole, the common custom of referring to the great thinkers of the past when in doubt about questions of value has much in its favor. It is not merely a survival from childish reverence for the printed word, nor a taking refuge in past authority to avoid the difficult task of finding out who are the present ex-

perts. It is however in part such a survival and excuse, so that caution is required to keep this custom in its place, and ensure constant improvement of the valuations of thinkers of the past by the valuations proceeding from the facts of the present.*

The infant science of values does not discard the opinions of philosophers, theologians and literary men, but it does discard certain demonstrably false doctrines which they sometimes rely on. One is that a miraculous or otherwise marvelous origin of a doctrine is evidence of its truth and wisdom. Suppose, for example, that some worthy man should announce that an angel appeared to him and said, "Let the world seek health and peace in the grave of Tobias Paramet in the burying ground of North Sangus," and that the elders of his church dug there and found a set of plates made of a substance unknown to science on which was inscribed, in successive lines of Gothic, Old Norse, Basque, Celtic, Hebrew, Chinese, Sanskrit, and other ancient languages, a plan for preventing cancer, curing poliomyelitis, stopping war, etc. The general public would probably be greatly impressed by this and desire to put the plan into operation forthwith. But men of science would not. They know that eccentric delusions rather than the advances of truth are heralded by miraculous signs and portents. They would consider the plans on their intrinsic merits, but would be especially cautious of discoveries authenticated by angels, unknown substances, and linguistic eccentricities. Science reverses the practice of ninety-nine hundredths of human history and nine tenths of living men by attaching no merit to reversals or eccentricities in the course of nature as evidences of truth.

Science also distrusts all forms of mental eccentricity as evidence of ability to discover the truth. It would not expect spe-

* There is also a peculiar danger in the fact that achievement as a thinker is sometimes confused with success as an entertainer. Literary men are primarily entertainers, and have to be in order to win the success they esteem. They may entertain millions, or only a few. They may entertain all men, or mainly the dull, or mainly the intelligent. But they must entertain, and many of them will put in writing ideas about human nature, the consequences of acts, the affiliations of qualities, and the weights belonging to the wants of certain persons or classes which strike them as interesting without spending even one hour per idea to discover whether the ideas are true.

cially good results from two-headed men, or from men who wrote in their sleep, or from men who wrote in a language they had never studied, or from men who could repeat the New Testament or Darwin's Origin of Species backward. It distrusts still more men to whom the truth is alleged to have been revealed by some preternatural process without their having had to work it out.

A science of values tries to make use of the insights of the sages and seers of the past and present, but it is forewarned against such prejudices as they often display. It also tries to forearm itself against them by discarding certain inferior methods of deriving values. We have noted that it does not rely upon revelations from alleged supernatural sources or popular votes and has a pronounced antipathy towards marvelous events and mental eccentricities in connection with the authorship of doctrines of values. It also does not fancy that the truth about values exists ready-made somewhere and that some specially gifted or fortunate thinker will find it all waiting for him. Science expects truths about values to be *worked out* in the same general ways by which truths of mathematics, physics, geology, and anthropology, etc., have been worked out. There will be a few accidental discoveries, but these accidents will not happen to fools or ignoramuses. Science attaches relatively little importance to having new ideas about morals and values and much importance to the discovery of ways and means of testing and verifying them. These truths about values will concern the consequences and affiliations of the items to be valued, and weights for the satisfactions and discomforts which are among their consequences.

Sweeping statements about values have been made by philosophers writing about ethics and esthetics. In spite of the great acuity and scope of their intellects, their efforts to devise general theories of the good or of the beautiful or of what men ought, and what they ought not, to enjoy have been unsatisfactory to philosophers as a whole, and rather mystifying or empty to men of science. Nor do they seem to profit by the general advancement of knowledge. Aristotle's solutions seem as good as Hegel's. Being extremely able men, they often propose ideas of great interest and influence, as do great poets and great theo-

logians. But in cases where these ideas concern matters of observable fact, the observations and experiments of working scientists have often disproved their brilliant conjectures. To become a disciple of any of them in other matters is then risky. Their royal roads to knowing what is the right thing for each creature to do in each set of circumstances by learning what "The Good" is do not fulfill expectations.

Among the doctrines upon which they do show a high percentage of agreement is one which, though obviously true when taken advisedly, is likely to be a barrier to useful thought about valuation. That is the doctrine that the science (or super-science or meta-science) of ethics can be sharply distinguished from such natural sciences as biology, anthropology, and psychology, since it is a normative science, telling what should be or must be, instead of describing what is and predicting what will be.

This doctrine is useful as a reminder that judgments that health, honesty, and herrings are valuable differ from judgments that the Klebs-Loeffler bacillus causes diphtheria, that cheating in school children is negatively correlated with intelligence, or that herring eggs will become herrings only under certain conditions. But it may do harm by encouraging us to argue and worry unprofitably about whether law, government, and education can be sciences and what sort of sciences we should try to make them be. It may also frighten workers in the sciences of man away from observations of and experiments with values, and restrict them to studying only those parts of a man which he uses as materials and tools to satisfy his wants, neglecting the wants themselves.

Just what is the important and operative distinction between judgments of value or worth and judgments of fact or existence? Do the former concern categorical imperatives which are not amenable to the observations and experiments and predictions and verifications of the natural sciences? Must they be revealed by religion or deduced from some theory of a moral universe above or outside of the world of natural events?

The naturalist's answer has been hinted at in the previous chapter. It is that, on the contrary, judgments of value are simply one sort of judgments of fact, distinguished from the rest by two characteristics: They concern consequences. These are conse-

quences to the wants of sentient beings. Values, positive and negative, reside in the satisfaction or annoyance felt by animals, persons, or deities. If the occurrence of X can have no influence on the satisfaction or discomfort of anyone present or future, X has no value, is neither good nor bad, desirable nor undesirable. Values are functions of preferences. Judgments about values—statements that A is good, B is bad, C is right, D is useful—refer ultimately to satisfactions or annoyances in sentient creatures and depend upon their preferences. Competent students judge the existence of things by observations of them; they judge the values of things by observations of their consequences.

Values appear in the world when certain forms of preference appear, when certain animals like or dislike, enjoy or suffer, are contented or unhappy, or feel pleasures or pains. They apparently precede learning and knowledge, which work chiefly in their service. Chicks or rats are indeed in a sense more confirmed moralists than civilized men. They pursue what is good, fit and proper to their minds with a wholehearted devotion. Their duty is often their pleasure also.

In civilized man the variety of the valued and disvalued increases greatly. There are many scales of merit, many points of view from which and in respect to which persons, acts, things, events, can be regarded as desirable or the reverse. One thing may have a score of different positive values and a dozen negative ones. The inborn values of sweet tastes, unimpeded movements, rest after exercise, exercise after rest, courtship and love, etc., are worked over into an enormous structure by the family, school, neighborhood, church, books, laws, and other man-made forces. Man acquires multifarious customs and traditions about values. Opinions about values become diverse and conflicting.

The value of any given fact to any given group is, in so far forth, a natural fact like the smell or taste of any given chemical to any given animal. Values are not banished entirely from the realm of science into some exalted sphere. Facts, principles and laws about values differ from facts, principles and laws about time, distance, area, volume, mass, temperature, chemical constitution, memory, dreams, knowledge, prices, diminishing returns, laws, customs, myths, taboos, family organization, etc., not funda-

mentally and utterly, but in the very important features which I have described here and in the previous chapter.

They are amenable to the methods of science. But they are often much harder to determine, since they depend upon knowledge about sentient beings, present and future, their wants, the weights attached to each of these, and the consequences of the act or fact in question to each of them. As a result, there is, as we have seen, a very wide variation in the common-sense knowledge which science starts with and seeks to improve. The variation in the weights given, often unconsciously, is especially influential.

The intelligent reader will find by a little honest self-analysis many irrational forces at work in his valuations and weightings. He will at least admit that other intelligent persons have such, and that admission, to science, convicts him also. If we are not afflicted by the over-valuations of bigness, speed, novelty, and dominance described in the quotation below, we suffer in others. In spite of Sombart's exaggeration, he gives a useful warning:

"The child possesses four elementary 'values'; four ideals dominate its existence. They are—

(a) Physical bigness, as seen in grown-ups and imagined in giants;

(b) Quick movement—in running, bowling a hoop, riding on a roundabout.

(c) Novelty—it changes its toys very quickly; it begins something and never completes it because another occupation attracts it; and

(d) Sense of power—that is why it pulls out the legs of a fly, makes Towzer stand on his hind legs and beg nicely, and flies its kite as high as it can.

"Curious as it may sound, these ideals, and these only, will be found in all modern 'values.' Let us take them in turn.

"(a) We attach importance to quantities, to mere size. It is what interests us, what we admire most. That, I fancy, will be generally admitted. There is a universal tendency (to use the words of Lord Bryce) 'to mistake bigness for greatness.' It matters not wherein the bigness consists: it may be the population of a town or a country, the height of a monument, the breadth of a

river, the frequency of suicide, the passengers carried by a railway, the size of a ship, the number of players in an orchestra, or what not. Of course our greatest admiration is reserved for a huge sum of money. Besides, money makes it possible to measure the size of otherwise unmeasurable things and to compare them. It is a natural and easy step from this to the belief that that is valuable which costs much. We say this picture or this jewellery is twice as valuable as that. In America, where this modern tendency may be studied better than anywhere else because there it has reached its greatest perfection, people come to the point at once, and prefix to every commodity its monetary value. 'Have you seen the 50,000-dollar Rembrandt at Mr. A's house?' is a not unusual question. 'To-day Mr. Carnegie's 500,-000-dollar yacht entered the harbour of (say) Boston'—so you may read in the daily paper.

"Get into the habit of looking at the mere quantity of things and you will naturally tend to compare any two phenomena that may come under your notice; you will weigh the one against the other and pronounce the larger to be the more valuable. Again, if of two things the one becomes larger than the other in a given space of time, it is said to have been successful. So that the inclination towards what is measurably big brings with it necessarily another tendency—worship of success. The modern business man is appraised only in accordance with his success. Now success means to overtake others; to do more, to achieve more, to possess more than others; in a word, to be great. The pursuit of success holds out the same unlimited possibilities as the chase of profits; the one complements the other.

"To illustrate the influence on the inner workings of the mind of this quantitative valuation of things, so characteristic of our day, let us refer to the attitude of people to sport. What is invariably the main question of interest? Is it not, who will win? Who will score most? A match is but a quantitative balance between two results. Imagine such a standpoint in an ancient Greek wrestling school! Imagine it at a Spanish bull-fight! The thing is impossible. In both these cases qualitative values were looked for, e.g. the highest personal artistic skill.

"(b) Speed is of almost the same consequence to the modern

man as massivity. To rush on in a 100-h.p. motor-car is one of the supremest ideals of our age; and he who cannot speed madly along contents himself with reading of record-breaking velocity. Perhaps the express between Hamburg and Berlin was ten minutes in advance of its scheduled time; perhaps the latest ocean-liner reached New York three hours earlier than it was expected; perhaps the postman now comes at 7:30 instead of at the customary 8 o'clock; perhaps one newspaper published a declaration of war (probably a fictitious one) an hour before its competitor—all these things are of tremendous interest to the queerly constituted folk of our day; they seem to be of vital importance to them.

"Moreover, a curious concept has sprung into existence, that of 'beating the record.' In terms of record-breaking you impress on your memory the speediest achievements as the most valuable ones. In its fullest meaning the new concept refers to great size and great speed combined. All the megalomania, all the mad hurry of our time, is expressed in record-beating. I think it most likely that the future historian of our time will speak of it as 'The Age of Record-breaking.'

"(c) Whatever is new nowadays attracts merely because it is a novelty. It attracts most when the assurance is possible, 'There never has been anything like it.' Sensational we call its effect on the mind. That the love of sensation is a marked feature of the age requires no expatiation. Modern journalism is perhaps the best proof. But recall also how fashions in dances, no less than in clothes, change from season to season. Is it not because nothing is so attractive as what is new?

"(d) The sense of power is the fourth characteristic of the modern spirit; it is felt in the consciousness of superiority over others. But in reality it is only an expression of weakness; hence its importance in the child's world. For, after all, any one gifted with true greatness, which is usually inward, will be hardly likely to estimate the outward semblance of power at all highly. Power has no temptation for Siegfried; only a Mime thirsts for it. Bismarck in all probability did not bother much about the power he exercised; but in Lassalle the desire for power must have been tremendous. A king possesses power; it is therefore of small

moment in his sight. But the financier of humble origin, who keeps a kingly borrower waiting in his ante-chamber for some little time, suns himself in this power because his soul has none of it. An undertaker who employs 10,000 men and experiences a sense of power in consequence is like a little boy who makes his doggie bring back the stick he keeps on throwing from him. Moreover, when neither by money nor any other outward force power over mankind is given us, we talk of the conquest of nature. That is why our age is so childishly delighted with epoch-making discoveries—say, the mastery of the air, and such-like achievements. The truly great man, however, will be comparatively unmoved at the sight of a biplane in the air. A truly great generation concerned with the deepest problems of life will not be enraptured because it made some discoveries in technical science. Power of this sort it will assuredly regard as 'superficial.' Our own age lacks true greatness; accordingly, like a child it admires the power which new inventions bestow, and it overrates those who possess it. Hence the high esteem in which the populace holds inventors and millionaires." ['15, p. 176 f.]

As a second illustration of the variety in valuation and weighting consider the following statements by R. H. Tawney:

". . . Pride and fear are the attitudes least becoming human beings, and a people which is a people, not a mob, will be intolerant of both. It will respect all men and feel awe of none. It will give short shrift to all forms of authority, whether political or economic, which breed arrogance in this class and servility in that." ['31, p. 231]

If a man feels that pride and fear are worse than dishonesty, greed, cruelty, maniacal hatred and selfishness, he may, as Tawney recommends, respect rapists, sadists, stealers of pennies from children and blind men, wife-beaters, and killers for hire. Tawney may perhaps feel no awe of Newton, Darwin, Pasteur, Dante, Shakespeare, William the Silent, Washington, Socrates, or Jesus, though I suspect that "feel awe of none" is a product of his literary talents rather than his real opinions. Indeed he could probably say truthfully that he was contrasting pride and fear with other attitudes, and that cruelty, greed, etc. were more than attitudes. But so virulent an antipathy to pride, fear and awe would

surely need some counterweight in a board of trustees for humanity.

Consider next three medieval prejudices against acquiring worldly goods, against payment of interest for the use of money, and against social mobility, i.e. change in economic and social status. "The medieval writers," Ashley says ['93, p. 387 f.], "absolutely condemned the pursuit of wealth as an end in itself. *Avarice* was one of the seven deadly sins; and avarice was understood in a far larger sense than the petty delight in miserly acquisition which is all we mean by it now. . . . To the medieval theologian an 'eagerness for gain' beyond that necessary to maintain a man *in his rank in life* was in itself avarice, and therefore sin. . . . Wyclif in his tract on the *Seven Deadly Sins,* though his reproaches under the head of Avarice are chiefly directed against the clergy, 'the first part of the Church,' does not fail to notice how the same sin mars the other two parts: the 'men of nobley, fro' knygis unto squyeers,' as well as 'the comynate.' 'Riches of this world that God hath granted lords should be sufficient to them, with a little prudence.' Among the commons the 'merchants and men that would be rich' are chiefly to blame. 'God, that knoweth all things, shall judge men by their purpose.' Still more convincing is the *Parson's Tale,* or sermon, in *The Canterbury Tales;* for though it is probably a free translation from some tractate by a professed theologian, it doubtless gives us the sort of exhortation that a kindly man of the world like Chaucer thought in keeping with his 'good parson,' 'in his teaching discreet and benign.' Avarice the parson defines, following S. Augustine, as a lust after earthly things; and he characterizes it, following the canons, as mere idolatry. He does not confine himself to vague generalities, but gives an instructive example, which is no other than that extreme enforcement of the legal rights of the lords of land which prepared the way for the modern system of competitive rents. 'Through this cursed sin of avarice . . . come those hard lordships, through which men are distrained by tallages, customs, and cariages, more than their duty or reason is; and eke take they of their bondmen amercements, which might more reasonably be called extortions than amercements.'" ['93, p. 387 f.]

"Kindly men of the world" in the fourteenth century thought that it was good to take a large share of a poor man's labor as payment for his use of a few acres of your land, but bad to take interest from a rich man for his use of your money. They thought it was "good" to "put to the plow" little children and to forbid by law children who had been thus bound to farm labor before the age of twelve from leaving it for any other occupation.

With few exceptions thinkers value man above other animals, and value specially human traits above those which man shares with other animals. By a natural extension of this some thinkers set an inordinate value upon the prize specimens or museum pieces among men. So the philosopher Bergson says that "the essential function of the universe" is "the making of Gods" out of men. Science does not claim to know what the essential function of the universe is, but it does know that if a trustee for mankind accepts this extreme perfectionist gospel he can attach little weight to the wants of the great majority of men, whose probability of Godlike knowledge, wisdom, sensitiveness and nobility is infinitesimal. Indeed the wants of all living men and their children's children would receive little weight except in so far as they were instrumental toward the production of human Gods in the distant future.

THE ANALYSIS OF CONSEQUENCES

The total effect of an act, event, custom, institution, etc. may be to produce a clear balance of satisfaction of good wants of good persons, but it may include some bad consequences. By analysis some of the elements or features which are responsible for the bad consequences may be detected and a still greater balance of good obtained. Similarly a thing may be clearly bad on the whole but include some precious elements.

As an illustration of many good with some bad consequences consider the organization of teachers. Graham Wallas wrote ['21, p. 144]:

"Anyone who has been, as I have been, a professional teacher in England for forty years, or who has studied the position of English teachers for the last century, must recognize the enormous benefits which the teachers and the community have gained

from the recent growth of professional organization. The private school 'usher,' clinging to the rags of his gentility with the wages and independence of a footman, has a chance of becoming a man when he joins the Association of Assistant Masters; the sweated schoolmistresses have successfully claimed the wages of a skilled occupation; some 'public school' masters have been drawn out of their atmosphere of elderly boyhood; the whole profession has gained in intellectual independence, as against clerical 'managers,' capitalist governors, and the politicians on the local education authority. But the vocational organization of teachers brings with it the same dangers as the organization of other vocations. The majority of an organized body is apt to be hostile to any change which involves the effort of rehabituation. Teachers, like bricklayers, cling with passionate loyalty to their existing methods of work; they personify the subjects or groups of subjects which they teach and the institutions in which they teach, and stimulate with regard to them their primitive instincts of corporate defense."

Suppose that the founders of the teachers' association had written into its constitution, as one of its main aims, the improvement of methods of teaching by research and experimentation, had charged a regular committee to work and report on this, and had set aside a certain percentage of the dues for it. Perhaps this would have lessened the hostility to change and turned some of the loyalty to new methods recommended by themselves. Whatever merit this particular suggestion may have, it surely would be desirable for somebody to study the different bar associations, medical associations, teachers' associations and other organizations of professional workers in various countries to discover what sorts of organization have produced what sorts of consequences.

Consider the problem of securing justice for the poor. There are proceedings *in forma pauperis* available in the regular courts. There are legal aid societies supported as private charities which give the poor something like the help which the rich get with their wealth. There are public defenders who, as a duty to the public, give to the poor what the rich buy from their counsel. There are special courts for small claims which reduce court and

lawyers' fees to trifling amounts. There are provisions by government for commandeering the service of lawyers for the poor. There are similar provisions by bar associations. There are officers empowered to dispense justice to the poor somewhat as medical care is dispensed in a clinic.

All of these are good, but we need to analyze the consequences of each into the prevention of future injustices by the scoundrels among employers, agents, foremen, fellow laborers, dealers and others who take advantage of the poor, the deprivation of such scoundrels of the profits of their meanness, publicity as to who they are, restoration of what belongs to the poor, instruction of the poor as to their rights, the costs in time and money of these features of justice for the poor, and perhaps other consequences. In particular we need to know how many and which of the unjustly treated poor take advantage of the means provided, and why they do so, and how many and which of them fail to take such advantage, and why. Perhaps we even need to trace such possible consequences as an increasing drift toward making justice free for everybody, rich or poor, as education now is to a great extent. Education was first given free only to the poor.

There should be analysis of probable consequences before action and continuous observation and analysis as action proceeds.

The history of experiments in government, education, charity, the treatment of criminals and other social changes includes many which had the desirable consequences which were claimed for them but had also other consequences (usually unexpected) which caused the change to fall into disrepute and be abandoned. Its abandonment sometimes caused an unfortunate prejudice against the really beneficial part of the change. The monitorial system of instruction of Lancaster and Bell, solitary confinement for criminals, and Puritanism are more or less apposite illustrations.

There are also practices which are in the main essentially vicious but whose multitudinous sins have been covered by certain almost accidental excellencies. For example, a widely varied supply of foods at each meal is extremely costly, stimulates people to overeat, lends itself to ostentation and conspicuous waste, but

does have the merit of providing in a clumsy way for a supply of needed chemicals and vitamins.

There is need of analysis in the case of all very powerful social forces and tools such as money and bank credit, corporations, holding companies, professional schools, including schools of business and engineering, philanthropic foundations, labor unions and federations thereof, chambers of commerce local and national, political parties and bosses, class conscious movements of youth, unemployed, fundamentalists, farmers and what not. It is not enough to know that one of these is good or bad on the whole. They are so powerful that we can well afford to understand them fully.

AFFILIATIONS

If knowledge of consequences is lacking it is better to trust that what is affiliated with good things will be good than to merely guess. The reason is that in general a person who is superior in one good quality is likely to be superior in others also, and a community that is superior in one good quality is likely to be superior in others also.* I conjecture that a custom, law, institution, or civilization that is beneficial by attaining the purpose or purposes it was designed to attain is likely to have more beneficial than harmful by-products, though this has not been proved, and there are notable contrary cases.

As an illustration of the argument from affiliation consider incest. It is now known that the offspring of near relatives such as brother and sister have no biological handicap. Inbreeding as such does no actual harm; the same genes will produce the same biological result whether they come from related persons or unrelated persons. The only advantage of out-breeding is the chance of wider variations for selection to act on. Knowing this we still object to incest because the kind of person who would

* This has to be the case in persons, in so far as assortative mating in man has been on the basis of average status in several good qualities, though there may well be more fundamental causes for it. It has to be the case in communities if some of these excel others in attracting and retaining individuals, families, institutions and customs possessing general merit.

use his child or sib for sexual intercourse would, under our present customs, be a selfish and indecent monster. Moreover under almost any manner of family life the arousal of sex impulses by one to whom long habit has attached only the responses of friendship, mutual aid, sympathy, play and the like, is a symptom of abnormal development of the sex impulses or under-development of the others. It then occurs especially in inferior persons, and its affiliations make it objectionable. The restraint of the bodily appetites for food and sex in favor of the more social appetites of companionship, affection, approval, etc. is esteemed in all civilizations. The prohibitions of incest may have been caused by this.

A more general case is that of good and bad intentions. The value of either depends upon the correlation of intentions with acts. Bad intentions are universally regarded as bad on the assumption that if good comes from them it is by mishap. This is probably substantially correct. The case of good intentions is not so simple, because they may be used to defend one's self-respect. Common opinion ranges from the proverb that "Hell is paved with good intentions" to the verse "As he thinketh in his heart, so is he," with an average of positive esteem for good intentions. So, if two men produce the same actual benefits, one with conscious and announced intent to make the world better, the other with only a dumb sense that he would be despicable to do otherwise, or even with a cynical indifference to all save his own reward for producing the benefit, the first man's activity will be more esteemed.

This irradiation from good intention and motives to actual accomplishments has a certain justification. If there is a high positive correlation between what men seek to produce and what they do produce, and a low correlation between our estimates of what they are producing and what they really do produce, we may reach truer valuations by considering intent as well as achievement or even instead of it. But the best procedure in such cases is obviously to attain more accurate and adequate estimates of the achievements themselves. In general, valuation of activities by their aims rather than their achievements is unsound and dangerous. Incompetent demagogues easily put on an ap-

pearance of aiming at valuable ends, and are usually unrestrained in their promises. Eccentric enthusiasts and actual madmen may be moved by the noblest aims. Any one of us, lacking some small but vital item of knowledge, may do enormous harm with the best will in the world. So a kindly visitor of the sick may spread disease through a community; a benevolent missionary may undermine the morality and happiness of a heathen tribe; an idealistic ruler may by his leniency deliver his country into the hands of a gang of crooks.

From correlations or affiliations we may argue that the practices of the intelligent, humane and cooperative are likely to be better than the practices of the dull, selfish and trouble-making. Also that the practices of healthy, happy and virtuous cities, states, and countries are likely to be better than those of communities conspicuous for disease, misery and vice, even though no superiority in the consequences of the practice in question can be demonstrated. So we argue that it is better to read Robert Louis Stevenson than B. E. Stevenson, to listen to Beethoven than to listen to Charlie McCarthy, to study Latin than to study stenography and typewriting, to wash our bodies daily rather than to wash them weekly, to forbid lotteries than to control them, to incarcerate imbeciles rather than drown them.

This argument from correlation gives some support to practices which seem superficially to have nothing but sheer custom in their favor, but which are the customs of superior persons and communities oftener than of inferior. Also the argument gives, or did give until recently, some support to the value of mere change, because the majority of the intellectual, moral and social changes from about 1850 to 1900 were recommended and supported by able men.

In general the argument is weak and should be replaced by facts about consequences. From little matters like the alleged superiority of linen over oilcloth for the table and over celluloid for collars, and of collars over no collars, to great matters like trial by jury, membership in a Protestant or a Catholic church, and representative government, the affiliations of the practices are not enough to know. Knowledge, of them is, however, much better than no knowledge at all.

THE ASSIGNMENT OF WEIGHTS

The physicist can properly treat any one centimeter or gram or dyne as equal to any other in magnitude; the chemist can properly treat any thousand atoms of hydrogen as equal to any other thousand in nature; but the biologist or psychologist or sociologist cannot treat any one human being as equal to any other in any important respects, certainly not in respect to the values of their lives, abilities, wants, satisfactions, and preferences. If all the consequences of an act or choice or desire were known to the smallest detail and for the entire universe for so long as it exists, there would still be individual differences among men in the values credited to that act or choice.

Some of these differences would be due to attaching different weights, including zero weights, to the satisfactions of some or all of the sentient beings affected by these consequences. One judge may assign no weight to the alleged satisfactions of angels, archangels, and other supernatural beings, because he does not believe that such exist. Another may assign very little weight to the wants of dead people, considering that they probably have none, and that if they have, they should be satisfied by what benefits the living. Another may scrupulously regard the interests of the worms in the ground, the minnows in the brooks, and all living things. And so on to fit various doctrines about what sentient beings the universe contains and what each of them deserves from us.

Wise and foolish, old and young, men and women, sane and insane, blind and seeing, musical and non-musical tend to adopt schemes of weights under the influence of their respective natures, and require a resolute effort at impartiality to reduce their prejudices.

Science tries to assign such weights as a benevolent and prudent trustee for the welfare of mankind would assign after due consideration of all its points of view and interests. Its main criterion is as always the consequences. If the satisfaction of a certain want (say for food, or for power, or for approval) in A bids fair to cause great benefit to all men, whereas the satisfaction of the same want in B bids fair to cause little, he will weight A's

want much more heavily than B's. When it is not feasible to learn what the consequences of weighting one person's satisfactions more than another's will be, our trustee for humanity will do well to weight the wants of good men more than the same wants of bad men, since there is a probability that the gratification of wants will cause both to maintain or increase their customary activities. Goodness and intelligence are positively correlated; so he will for the same reason do well to weight the wants of intelligent men more than the same wants of dull men.

He will do well to weight the wants of the men of 1950 above the same wants in the men of 2050, unless he has reason to suppose that the latter will be better men than the former, for there may be no men in 2050, and if there are, they may, some or all, lack the want in question. He will, however, give far more weight to the men of 2050 and 2150 than statesmen do or than most philanthropists have ever done.

Ethics, politics and philanthropy have been guilty of neglecting individual differences, partly because doing so simplifies all problems, and partly because of the retention of theological and sentimental prejudices in favor of the similarity and equality of man.

No egalitarian system of weights can be just or wise. More weight should be given to the wants of superior men than to the wants of inferior men. What able and good men want is much more likely to be better for their community or nation or race or the world as a whole than what stupid and bad men want. Providing for their wants will presumably enable them to do more of what they want to do; and this will improve the world and its customs for future residents. Other things being equal, it should lead them to have more offspring, and this will improve the world by increasing its percentage of good men.

It is of special importance to attach great weight to the wants of those individuals who have eminent abilities in the impersonal activities of art, science, and the management of men. What such persons want will be largely time and freedom to do their work in, tools to do it with, and conditions enabling them to do their best. They will doubtless sometimes want what is not good for their work for the world; but their judgment will on the whole

be a good guide when knowledge of consequences is lacking.

It seems probable that the harmful vagaries of men of genius in the fine arts would have been much reduced if their cravings for untrammeled expression in art itself and for approval of their real merits had been more fully satisfied. It also seems at least possible that the ruthlessness and selfishness of some men of genius in business and government would have been reduced if they had been *given* power more and been less required to extort it by force. Even if these creators continue to seek occasionally eccentric, ignoble or ruthless satisfactions, it will still be an excellent bargain for the world to attach great weight to their wants as a whole. The world's greatest folly has been its treatment of those who are most superior to it in intellect, originality, sensitiveness and humaneness. Its most prudent investment is to find them out early, and give them whatever they need to do their perfect work. One good clue to what they need is what they themselves desire.

Science will have in mind a great order of merit of men running down from those whose work blesses all mankind forever to those who just about earn their keep and on to those whose lives are detrimental. It will have in mind a great order of merit of wants running down from the noblest through the indifferent to extremes of every cruelty and meanness. It will weight each satisfaction of each person on its individual merits. It will not seek vindictively to torment human tigers, snakes, skunks and hogs, but it will rate their happiness very low.

It will maintain that whatever justifies the human species in acting to maintain the human species also justifies the better half of the human species in acting to maintain that half, especially since its welfare probably produces a bonus for the welfare of the lower half. Some of the measures to which its weighting system leads will sound aristocratic and will be opposed by the envious and brutish. But the able and good men of the future will approve them and so will the able and good of the present who dare to try to do in the living world what God has been expected to do in heaven and hell.

The whole matter of varying weights according to the want and the person, though potent in the actual mental dynamics of all

men, has had very little recognition by students of Ethics. Bentham, in spite of his great originality and acuity, and in spite of the fact that such weights would form a desirable extension and enrichment of his doctrine of the greatest happiness of the greatest number, did not even consider such a system. Ideas of sliding scales, composite indices, and weighted averages are even now little used by philosophers. And so also are the facts of a continuum of differing individuals. Statements about weights are rare and vague.

SYSTEMS OF WEIGHTS

In default of anything better, I present a rough scheme of the weights which determine my own judgments so far as I can tell. This will serve to illustrate the general theory and practice of weighting a want or satisfaction according to the nature and status of the person who has it, and also to expose the personal equation which may be operative in later chapters. It is regrettable that there is no approved scheme with authoritative backing to be used as an illustration.

In this scheme 100 is used as the ordinary weight attached to a living person.

My weights for the men and women of the future grade down in a curve such that a person 200 years from now has half the normal weight, one 400 years from now has a quarter, one 600 years an eighth, and so on to a weight of about .003 in 5000 A.D. Any given satisfaction for a million persons of 5000 A.D. would thus have only as much weight as for three thousand now.

Zero weight is attached to the satisfactions of the spirits of the dead. In so far as they want the welfare of living and future men, the system will give their wants full weight. In so far as they want something different, they presumably know what it is and how to obtain it better than we. This does not relieve us from the duties of respect and gratitude to the dead, or of fulfilling whatever agreements were made with them when they were alive, but the performance of these is considered as a matter of decency and self-respect in us rather than a favor to them.

My weights for the dead are far less than most societies of the past and present have made ostensibly. Their ostensible valua-

tion of the satisfactions of the spirits of the dead may, however, conceal expectations of help or harm from the dead, and so be made in the interest of the living.

My weights for the unborn, in spite of the successive halving every 200 years and their consequent infinitesimal amount after a few thousand years are far greater than any present governments or churches make, and than all save a very few individuals make.

A weight averaging about one five-hundredth that for a man for an equal time is attached to the satisfaction of a useful domestic animal or pet. There will be a variation up and down for special merit and deficiency. Since we manage the lives of these animals in our interest, we have a special responsibility for them.

A weight averaging about one ten-thousandth that for a man for an equal time is attached to the satisfaction of other animals capable of feeling pleasure, pain, satisfaction and discomfort. The amount will vary with the nature of the species. This recognizes the value of conscious life wherever it is found, and a certain responsibility of man to creatures less powerful than he. But it assumes that in general each animal species must take care of itself, avoids undue deprivation of human beings, and outlaws unreasonable totemistic survivals and perverse sentimentalities.

Any person's wants receive weight according to his known or estimated score in a composite of intelligence and other desirable abilities. The ordinary or average man counting as 100, a man of the average ability of Newton, Pasteur, Darwin, Dante, Milton, Bach, Beethoven, Leonardo da Vinci, and Rembrandt will count as 2000, and a vegetative idiot as about 1.*

Any person's wants also receive weight according to his known or estimated score in a composite of unselfishness, benevolence, cooperativeness and other traits which indicate that his life will be directed toward the welfare of mankind. A plus will be added to the weight he would receive apart from this ranging up to 500 for the average of, say, Jane Addams, Madame Curie, Sidney and Beatrice Webb, and Pasteur. An amount will be subtracted from

* The idiot's happiness will, however, be provided for better than this ratio suggests; for the wants of his parents for him will have their proper weight also.

his weight ranging from zero to something like — 200 for perverted monsters of meanness and cruelty.

Credits plus and minus are given for special good sense and balance on the one hand and for instability and insanities on the other.

A person's credit will vary from birth to death because of the variations in his abilities and in his "morality" which go with mental growth, maturity and old age. In addition to these age changes already provided for, I add ten points of weight for ages 0 to 3, eight points for ages 4 to 6, six points for ages 7 to 9, four points for ages 10 to 12, and two points for ages 13 to 15 on the ground that the younger children are, the more innocent they are and the less able to make their wants understood and get them gratified by those in power.

No difference in weight is attached to one or the other sex, or to race or family as such, or to wealth, or to creed. But twenty-five percent of the plus or minus difference of his parents' average weight from 100 is combined with each child's intrinsic credit until the age of twenty-five. After that age he derives weight only from his own merits and defects. If a person's immediate parentage is not known he may, for being a member of a certain racial stock, receive a credit or penalty of fifty percent of the plus or minus difference of that stock's average weight from 100 until the age of twenty-five, after which age he derives weight only from his own merits and defects.

I have in mind other provisions for attaching weight to persons' satisfactions according to their demonstrated contributions to welfare, the burden they carry (as in the case of pregnant women), the undeserved misfortunes they suffer, and other features of their natures, ideals, achievements, and sufferings. But these may be left undescribed.

TRACING CONSEQUENCES

Some events and acts are almost pure goods. Almost all their consequences produce much satisfaction and little or no discomfort. The discovery of truth by a man of science, the composition of a fine symphony, the painting of a beautiful picture,—such make the creator happy and enrich mankind. Some, like

gnawing envy, sheer malevolence, or fear of bad luck, are almost pure bads, making the person who has them miserable, ineffective, and a nuisance to those around him. At these extremes there is no difficulty, and no need of estimating weights.

For similar reasons most of the impersonal and non-possessive pleasures of art, music, reading, exercise and the like which do not require the deprivation of others are intrinsically good. As Thomas More said, in having them "we neither injure any other person nor lose the possession of greater pleasures" and they "draw no troubles after them." Per contra, what may be called "destructive" pleasures, as of gluttony, waste, and ostentation, which involve suffering are intrinsically bad. Going in still further from the extremes, activities which are "productive" in the ordinary senses of these words and which exhibit Veblen's "workmanship" and "parental" tendencies are presumptively good because they at least aim to produce satisfaction in all concerned, and do not rob Peter to pay Paul, but themselves create the benefits which they confer. The "selfish" activities, as in ordinary eating and drinking, ownership, self-adornment, and the use of the services of others, are under a certain suspicion, because the satisfying consequences to the person indulging in them are commonly at some cost to others. In a court of morals he may have to justify them by the secondary consequences which come from his use of them. It becomes necessary to weight his life and happiness against those of the others who are deprived by his action. These selfish activities in the depraved and idle who make no good use of the strength derived from the food or the confidence derived from self-adornment are thus reprobated.

We thus come to the edge of an enormous area of debatable conduct, including much of what most men do, some of what the best men do, and some of what the worst men do, where valuation requires careful tracing of consequences and assignment of weights.

Certain more or less general facts and principles help somewhat.

By sufficient ingenuity, unsatisfied wants may be fulfilled and conflicting wants may be harmonized at no cost to anybody,

and one or more discomforts metamorphosed into one or more satisfactions. The simplest case is where A wants x, and our ingenuity consists in showing him how to get it at no cost (or even a gain) of y also. Education and hygiene furnish many cases. A very important case is where A wants x which he has not and wants to get rid of y, whereas B wants to have y and get rid of x. The inventions of barter, money, and trade remove the difficulty. With perfect freedom of trade any person anywhere can exchange an undesired material possession for something desired if some other person in the world wants it enough to pay a surplus over the cost of transportation and brokerage. Consider what a blessing it would be if undesired bodily and mental traits could be exchanged in this way between the fat and the thin, the over-confident and the over-cautious, the excitable and the apathetic! The ideal of maximizing satisfactions for the world by replacing conflict by harmony wherever possible has attracted the enthusiasm of thinkers from Aristotle on, and always will. Science works at it piecemeal, here a little and there a little, and sometimes here much and there much.

A direct cause of satisfaction is better than an indirect, other things being equal. In other words things good in themselves are better, other things being equal, than instrumental goods. The reason is, of course, that the actual attainment of a consequence is better than even the best promise of it. Definite, specified consequences are better, other things being equal, than vague general consequences. Assured rights to think what is true, say what is true, buy what you can pay for, work for whomever you like who is willing to employ you, are better than a promise of "liberty." At the best that is no better than the concrete liberties which it covers, and at the worst it is an empty word. There is a danger that changes which promise consequences of liberty, equality, fraternity, justice, self-determination, cooperation, employment, and other general blessings may turn out quite differently. It is better to rely on only the particular consequences which can be foreseen and guaranteed.

Acts will be good, other things being equal, when they or their consequences reward good tendencies. If certain laboratory experiments can be trusted, to reward a good tendency does

about six times as much good as merely to cause it to act, and to reward a bad tendency does about six times as much harm as merely to permit it to act.

To this principle all decent people render lip service. No moralist, for example, desires to have idleness made attractive, either by the dole or by inherited wealth. But it is sadly neglected in practice because of the pernicious custom of leaving well enough alone. The public as a rule does little or nothing about public affairs unless it is disturbed, and then does only what it hopes may allay the disturbance. Legislative bodies and administrative boards show a similar inertia. They act largely to cure troubles that arise. So do the inferior grades of manufacturers and business men.

Science often does just the opposite. It often pushes most those lines of inquiry that are doing best already. It cherishes and nourishes ideas that are productive; to it solving a problem is not a sedative but a stimulant and spur. It spends relatively little time in ascertaining which scientific workers are making mistakes and doing poor work, so that it may rebuke or reform them, and much time in appreciating those who are doing well. Their papers are listened to and published. Their work is praised and quoted. The leaders in business and industry show the same emphasis upon discovering and strengthening profitable tendencies and workers.

The principle that acts have value in proportion as they reward good tendencies is far-reaching, and may occasionally be revolutionary. But it is psychologically sound, and its use in controversial questions may help materially to clear them up.

A great temptation in valuation is to cherish doctrines that make us contented with ourselves, and to blame the errors and failures to which the doctrines lead upon something or somebody else. Almost any plausible scheme of values if accepted enthusiastically and supplemented by a suitable deity can bring comfort and peace. Science demands prediction and control and tolerates mental peace only if it goes with progress toward victory.

Non-scientific estimates of consequences are sadly untrustworthy. The national prohibition of the sale of alcoholic liquors did not have the consequences which millions of people expected

who worked to attain it. Who knows what its consequences would have been if the work that attained it had been quadrupled to secure its enforcement? The provision of preventives against syphilis and gonorrhea was deplored as a good that would do great harm by causing unlimited male lust. The effect was inappreciable. The provision of contraceptives is deplored as removing the last defense of female chastity, but I know of no evidence that either occasional sex affairs or promiscuity among females has been much increased by it. Coeducation was viewed with alarm as a sure stimulus to both sensual and romantic love, but its actual consequences seem to have been the opposite. Among all the consequences, beneficial and ruinous, blessed and dire, which were expected from the granting of votes to women, which were real?

People accept guesses and follow the unconscious logic of hope and fear in estimating consequences, perhaps because they feel that good intentions are the important requirements!

People also naïvely expect that everything will stay the same except what is changed by direct action upon it. Nine persons out of ten, and possibly ninety-nine out of a hundred, assume that the general features of civilization which are stable in their experience will remain so. Roads, schools, policemen, houses, beds, payment for work, a chance to buy what you want if you have the purchase price, and a hundred other commonplaces of our social order will continue like the sunshine or rain. So they think.

To think anything else is almost a psychological impossibility for the ordinary man of this country today. He does not realize that these features of his life depend upon an extremely complex structure of ideas and acts of rulers and ruled, employers and employed, parents and children, borrowers and lenders, and are kept in condition by an equally complex structure of customs and laws. He has no more fear that any act of his or anybody else will stop railroad trains from running than that it will stop the sun from shining. Laying a tax on incomes is to him like digging a ditch that diverts the rain from one place to another. He does not have the slightest fear that it will have any effect on the amount of income. Why should he? To do so he must

reason, and reason against habit and experience. Only exceptional minds do that.

Scientific ethics must rely largely on economics, political science, sociology, psychology, education, and biology in studying the values positive and negative of all sorts of activities; for example, paying prisoners full wages for their work, keeping criminals under surveillance by parole officers instead of incarcerating them, legalizing divorce when both parties desire it, encouraging birth control by the weakly, dull and psychopathic, taking property by force from the rich and giving it to the poor, trying to make one's community or nation wax rich and strong at the expense of others by tariffs and quotas, and other moral or semi-moral issues, where action is now unfortunately being taken largely as a result of the emotional interests of enthusiasts or the selfish interests of special groups.

This lays a heavy burden upon these sciences. Questions about consequences to human welfare are often confused by conventional interpretations of welfare; the basic facts are often lacking; devising ways and means to secure trustworthy observations is very difficult; even after heroic labors, the solution may have a disgustingly wide margin of error.

In tracing the consequences of ideas, acts, laws, customs, inventions, etc., both the biological and the social sciences have somewhat neglected the inner or mental wants of men. Nourishing foods, hygienic housing, medical care, relief from bodily pain and fatigue have, quite naturally, been emphasized. But inner peace, contentment, a sense of personal worth, surety of friendship and affection, the absence of fear, the presence of a good conscience, and other states of mind are also real and important.

Many features in religions, caste systems and other folkways which seem undesirable to us did have the merit of satisfying some of these deep inner needs. If we abandon such folkways on the ground that they are deceptive and unjust, we should replace them by something true and just which gives equal comfort, dignity and flavor to the inner lives of men. Doubtless it is better to be a dissatisfied Socrates than a satisfied pig; but also it is worse to be a dissatisfied coolie than a satisfied coolie.

Most discontent is not divine. Not once in ten thousand times will becoming dissatisfied cause a coolie to become a Socrates. Some inner conflicts, miseries and rebellions are good, if not for the man's soul, at least for his work for the world. But many are not good for anything.

Theoretically, men should face the facts of the world, including all their weaknesses and follies, make a reasonable adjustment, and then live serene in the faith that they are doing their best and that all the good in the world should and will support them so far as it can. How they can be taught to do this is one problem for the science of education.

The beginnings of Ethics as a natural science have not got so far as to produce a system of valuations to compare with the present customary valuations of Western civilization or those of any other. So I must resort to a hasty notation of some which seem to me to be probably justified by what is now known about the consequences of events, acts, laws and institutions. For one person to do this is unscientific, not to say foolish, except that it may stimulate investigation, and that the merits of the method may outweigh the weaknesses of my ignorance. This list of valuations could be indefinitely extended; it goes only so far as seems desirable in order to illustrate valuation on the basis of consequences to the satisfactions and discomforts of sentient beings, each such satisfaction or discomfort being given a reasonable weight.

THE VALUE OF THE CIVILIZATIONS OF THE PAST

Many thinkers today are pessimistic about the past and present, with a bias toward expecting that any plausible change will be for the better. This disvaluation of the past is not confined to eccentric, disappointed and doctrinaire persons. "To that planless hodgepodge, that thing of shreds and patches called civilization, its historian can no longer yield superstitious reverence. He will realize better than others the obstacles to infusing design into the amorphous product; but in thought at least he will not grovel before it in fatalistic acquiescence but dream of a rational scheme to supplant the chaotic jumble." So writes an able and sensible anthropologist, Lowie ['25, p. 441].

The planless hodgepodge was, however, the product of trials and successes under the control of the confirming reaction and so presumably tended toward a balance of satisfactions over discomforts. Although its main achievement was to keep more and more men alive, it did, in Europe, during the last century, notably increase the average goodness of life, by any reasonable appraisal. Most impartial students will agree with Elmer Davis that we then had "a culture which with all its shortcomings did give more satisfaction to more people than any other yet evolved." ['38, p. 342] How much of the decline since then is attributable to the World War and how much to the efforts of the leaders of men to operate what they regard as "rational schemes" is unknown.

We may agree that the triumphs of civilization outside the physical and biological sciences have been dubious and insecure, and probably full of mistakes and inadequacies. We may agree that it is a cowardly policy to maintain the good old ways lest worse befall us. But we should take pains that worse does not befall us. Especial pains should be taken that our "rational schemes" to supplant the "chaotic jumble" are adapted to human nature, which is itself a somewhat chaotic jumble of activity and sloth, cruelty and kindliness, sociability and individualism, curiosity, adventure and love of the familiar, reason and folly. The civilizations of the past were at least tolerable by the men living in them, and perhaps suited to them in unsuspected ways. The liberal civilization of 1850–1910 had the special merit of being fairly well suited to specially good and able men. It did not so often stone its prophets.

It is reasonable, therefore, to attach a positive rather than a negative value to the civilization that has been bequeathed to us and to require evidence that proposed changes will in fact have beneficial consequences.

FREEDOM

The familiar arguments for setting a high value upon freedom of thought, speech, and manners, are strengthened rather than weakened by the consequences of recent governmental interference with them in various parts of the world, so far as these

can be appraised impartially. The value would probably be even higher if more scientific criteria could be adopted for the limits which even the most liberal societies have set. These have been based largely upon age and pecuniary status, the young being subject to much indoctrination and pressure at home and in school, and the incomes of men being payment partly for the acceptability of their thought, speech, and manners to whatever persons or groups employ them or trade with them.

Ability is a better criterion than age, though a little harder to administer; and the confusion of a man's services as physician, teacher, plumber, or grocer with his religious or political opinions has bad consequences for all concerned.

Some dull persons young and old should be directed and supervised in their thinking, any truly free thought on their part being valueless to them and others, vagrant like the free thoughts of dreams and delusions. Some able thinkers should be trusted in school and out at relatively early ages. The most valuable consequence of freedom of thought for people in general is the product produced by the top tenth of one percent of thinkers. Rather than lose it we tolerate much worthless eccentricity. Rather than stifle or delay it by the tyranny of age and custom we may profitably tolerate and even reward independence, rebellion, and extravagance in young people of great ability.

The abstract intelligence required to think of a man as an economic agent and as a political agent separately is not great, no greater perhaps than that required to keep the nutritive value of a food separate from the satisfaction caused by eating it, or the real value of a wage from its amount in dollars. It is probably a short-sighted prejudice that prevents people from making the discrimination. It should be taught to every high-school student.

TWO SORTS OF SYMPATHY

Sympathy in the sense of enjoyment of the welfare of others has high value, but in the sense of misery at the sufferings of others its value is negative except in so far as it stimulates to beneficial acts of relief. This it often does, but relief may be

given without it, as by the nurse, physician, or social worker who has had to learn not to feel miserable at pain and distress; and painful sympathy may be present without producing any such beneficial acts. By original nature it tends to produce more or less comforting sounds and gestures, physical protection and perhaps gifts of food, which are often inadequate under the conditions of modern life. Moreover, people can easily acquire the habit of being miserable at suffering and doing little more than add the sight of their misery to the sufferer's burden. The behavior of the nurse, physician, and social worker seems therefore the best general solution,—to help the suffering but without suffering with them.

RACE MIXTURE

Miscegenation has been the object of two extremes of misvaluation. On the one hand, it has been supposed that racial "purity" has some value in and of itself, and that half-breeds are inevitably inferior to the average of the two stocks. This has been a common view concerning the mating of very different stocks, such as North Europeans and Negroes. On the other hand it has been supposed that miscegenation has some value in and of itself by its introduction of new blood. This has usually been applied to the mating of only moderately different stocks. The truth is that mixture in and of itself does nothing. Whether the genetic consequences are good or bad depends entirely upon what genes enter into the mixture.

If the two sets of genes were alike except for the production of trait X, the offspring would be identical with both parental stocks except in trait X. The status in that would depend upon the number and nature of the genes producing it. Since unit-characters are small and multiple for most features of intellect and character, the average hereditary status of the half-breed in these is likely to be midway between the two parental strains. When the mixture is of inferior specimens from the two stocks, the half-breeds will be inferior. Since the mating of the two stocks brings in a greater variety of genes, the half-breeds are likely to vary more widely than either parental stock, unless some of the genes neutralize each other.

The actual consequences of miscegenation as measured in a dozen or more extensive and careful investigations are summarized by Hooton ['35, p. 29] as follows:

"(1) Crossings between races which are physically widely diverse do not result in any diminution of fertility, either in the first filial generation or in their subsequently inbred offspring. On the contrary, miscegenation seems to be attended by an increased fecundity.

"(2) No satisfactory evidence has been adduced in favor of the supposition that racial hybrids sprung from wide crosses are inferior in vigor or in vitality to the parent stocks which have produced them.

"(3) The alleged occurrence of physical and mental disharmony in hybrids has not been substantiated by any considerable body of evidence. There is frequently a maladjustment of the hybrid population, but it is sociological and not biological.

"(4) While it is clear that many morphological features are transmitted according to Mendelian laws of heredity, it is obvious that simple unit inheritance of morphological and indicial criteria of race does not apply. Unit characters are small and multiple for almost every feature. Segregation and dominance occur, but the genetic situation is usually so complicated that it can not be tested by the application of rules of Mendelian expectation."

ON MAN'S PLACE IN THE UNIVERSE

Various moral lessons have been drawn from the fact that man and all his works are a very late and small part of a long and extensive development of animal life on this planet and that this planet is a very tiny part of a universe that has millions of planets. One lesson is that man should not expect the universe to be specially mindful of him, or concerned either to do him favors or annoy him. This is undoubtedly a reasonable and healthy view, in the sense that weeds will not commit suicide to please us and meteors will not avoid dwelling houses. But a certain friendliness or at least a *modus vivendi* does exist between man and the universe, since he is a part of it and is getting on well in it to date.

A second moral lesson is that man should consider his life and works an unimportant thing in comparison with the whole business of the universe. So, for example, Pollard writes as follows:

". . . the expansion of the world slowly produced an expansion of men's minds; and the ecclesiastical and theological system, adapted to men who believed that the sun went round the earth, and that stars twinkled solely for the benefit or amusement of the dwellers in Western Europe, began to rend, when stretched to cover the science of the sixteenth century; just as some day perhaps current beliefs will be modified by the realisation that the earth is not the centre of the universe, and that probably there are billions of planets more important than that on which we live." ['07, p. 39]

The suggestion that we should consider what happens on our planet as less important than what happens on billions of others seems likely to have undesirable consequences. Shall the painter throw down his brushes because there are probably a thousand better painters in the planets of a few of the great nebulae? Shall the composer shut his piano and play dominoes because his work would be scorned by ninety-nine percent of the musicians in the milky way? Should men at least temper their pride at discoveries, inventions, masterpieces and reforms by the solemn thought that it is all being done better in a billion or more other planets?

To whom are the other billions of planets more important than this planet? Not to any dweller on this. Sufficient unto any one planet is the good and evil thereof. Whatever the bad points of life on this planet may be, it is not unimportant, unless everything is. And it is exceedingly bad policy to teach man that his work is not important—to man. That is bad for his mental health, happiness, and achievement.

ON THE GREAT VALUE OF CERTAIN SMALL SOCIAL CHANGES

The change from the old vacuum electric-light bulbs to gas-filled bulbs saves more than five million dollars every night. The time saved by the change from fire-places, wood, and tinder

to stoves, matches, and modern fuels is doubtless enough to cover a year's schooling for everybody.

Small physical changes have enormous consequences when they operate nearly all the time for nearly all people. The same may be expected of small psychological and social changes. If the satisfaction of men at the welfare of others could be shifted upward by one third of its range, the sight of any child happily at play would, I estimate, produce about as much satisfaction as the sight of one's own child happily at play does now. A walk along the streets of a town would arouse a stream of enjoyment comparable to what is now felt at a successful party. Our pleasure at the welfare of men of other races and creeds would as a rule triumph over our prejudices against them. Consider the far-reaching consequences, if intelligence was perfectly correlated with stature, or if the I. Q. of each person was required by law to be displayed prominently on his coat.

It is not only the great truths about physical nature such as the facts of gravitation and relativity, of chemical affinities and combinations and of the constitution of matter, of the continuity of living forms, of Mendelian inheritance, and the like, which are valuable for the conduct of life. Similarly in the sciences of man it is folly to disdain small items of fact about him and the institutions he has created.

ON REPETITIVE WORK IN FACTORIES

Repetitive work in factories is commonly supposed by writers about labor and welfare to have very bad consequences for body, mind, and morals. This may be partly a specious conclusion due to the dislike of such writers for everything about factories from their appearance to their owners. The repetitive work of the agricultural laborer is much less often decried. But most of the criticism is sincere. For example, when Lewis Mumford writes that "uniformity of performance in human beings, pushed beyond a certain point, deadens initiative and lowers the whole tone of the organism" ['34, p. 278], he really thinks so.

How far are he and others like him right when they speak of "sedentary routine" as a "degrading" form of work? What are

the real consequences of any given number of hours per day of such repetitive work as is done in factories for any given sort of person? How do the real consequences of the repetitive work which men and women do in factories compare with the work which they would otherwise do?

Adequate answers cannot be given to these questions, but certain facts suggest that the harm done has been exaggerated.

Repetitive activity which does not require close attention and permits a person to look, listen or think if he chooses may "deaden initiative," but it does not "lower the whole tone of the organism." On the contrary, it is rather restful, so that walking or the "sedentary routine" of knitting is a pleasure and recreation for many.

Repetitive activity which *does* require close attention and prevents a person from doing anything else at the time is unpleasant because of the feelings of strain at the time and of fatigue at the time and after, but it has the great merit of being free from anxiety and worry. Changing activities with their emergencies, new difficulties and risks of failure are more annoying, fatiguing and nerve-wracking for most persons than repetitive activities where one has mastery. Worry is in general much more wearing on the organism than any sort of work.

Repetitive activity tends to be monotonous, and so lacking in excitement. We may contrast the work of a man in the automobile assembly line with that of a taxi driver. If the former craves excitement he must get it in his leisure time. If the community provides grounds or buildings for athletics, the factory worker can get excitement of the healthiest sort and, in any case, can get the excitement of the movies and the radio. The amount needed by man (or any other animal) for general mental health is probably very small, the function of excitement in nature being to prepare the body for violent muscular action. By nature we do not fight in order to get a pleasant excitement, but become excited when there is need to fight. There is little need for it in a pastoral, agricultural, or industrial life. It is a habit-forming mental drug, and a psychologist views the life of gamblers and speculators with much more alarm than that of repetitive factory workers.

The consequences of repetitive factory work vary with the nature of the worker. A feeble-minded woman may have as much satisfaction from making beds as a prima donna has from singing songs. My friend Sullivan, an elevator man, got more general satisfaction and thrills of achievement, mastery, excitement, pride, and sense of duties well done from running his elevator, I think, than I did from my work as a psychologist. Doubtless most writers about labor would be miserable if compelled to do repetitive factory work for a living, but most factory workers would be miserable if compelled to study, teach and write for a living.

On the whole, the strain of doing more or better work than can be done with confidence and mastery seems the chief villain of factory work. Repetitiveness is bad, but not so bad as it has been painted.

If the repetitive workers were not in factories they would in general be unskilled outdoor laborers, farmers' helpers, domestic servants, proprietors of one-man farms, or wives of such. The sorts of persons who in medieval times were skilled craftsmen making clothes, jewelry, houses and cathedrals, or even designing these, are not doing repetitive factory work today. They are surgeons, dentists, engineers, inventors, surveyors, and the like or skilled craftsmen as before.

The present incumbents of posts at repetitive factory work have chosen it in preference to such outdoor labor, clerical work, or domestic service as is available for them. Doubtless many of them have chosen unwisely. The owner of a one-man farm in the east worth (with its buildings) two or three thousand dollars, and making $800 a year plus the milk and vegetables for his family, may do well to stay on it if he does not mind isolation, likes domestic animals, cannot endure taking orders, and dislikes indoor work. But his son, who wants sociability, likes machinery, is miserable at having no cash money to spend and is in love with a girl who has gone to the city to work is probably wise to choose the assembly line rather than to work for or with his father till he inherits the farm.

For outdoor laborers at unskilled work, farmers' helpers, and domestic servants, the advantage of factory work is somewhat

greater than for farm owners and their sons, since the former lack the zest of ownership and self-direction in factory or out. It is likely that the majority of those who have chosen factory work in preference to what else the world offered them do not regret their choice and would make it again. It is in fact likely that the alternatives would "deaden initiative and lower the whole tone of the organism" and "degrade" men as much by certain of their features as factory work does by its "uniformity of performance."

Neither the writers of the past, nor the moralists of the present, nor such a set of trustees for the welfare of a community, nation, or world as we have been discussing can dictate values. Nobody is compelled to consult or obey them. Effective valuation is the total net result of the valuations of all the persons concerned, each weighted by the person's power. A man who values his own satisfactions exclusively, can, within the limits of his powers, set at naught all the recommendations of the great and good. The power may lie in wealth, office, literary or oratorical ability, beauty, charm or many other attributes.

The manner in which the powerful ones of the world value the various wants of men is obviously important. They are less restrained in their valuations of wants than in their beliefs about facts. A magnate in business, government, the church, or literature is hampered in believing that he is God, or God's special representative, or that he knows enormously more than other men, by the same mental forces which prevent him from believing that he is ten feet tall or will live two hundred years. But he may grossly overrate the value of the wants of himself or his family, or his church, or his dogs, or white men, or artistic people, or thrifty people, or members of the Communist party, with much less rebellion from reason within, and with less risk of ridicule, scorn and abuse from without. The same holds true for all of us.

The valuations made by individuals or implied by their behavior are, however, more or less sensitive to the valuations recommended by the thought and customs of the times, including the thoughts of ethical theorists and literary enthusiasts. The Bible does influence men, though very few rich men sell

all they have and give the proceeds to the poor, and perhaps no Christian has ever loved his neighbor, the blatant atheist, quite as himself. Jeremy Bentham's theories probably have influenced our valuations of the happiness of men unseen, unknown, and unborn and strengthened certain natural tendencies to favor the happiness of others when this involves not too much sacrifice. We may even hope that there is an unselfish principle in man which in a still small voice commands him to be more impartial in his valuations of the wants of others. Bertrand Russell in an optimistic moment reminds us that "Democracy, as a theory, arose among a handful of men in Cromwell's army; by them, after the Restoration, it was carried to America, where it came to fruition in the War of Independence. From America Lafayette and the other Frenchmen who fought by the side of Washington brought the theory of democracy to France, where it united itself with the teaching of Rousseau and inspired the Revolution. Socialism, whatever we may think of its merits, is a great and growing power, which is transforming economic and political life; and socialism owes its origin to a very small number of isolated theorists. The movement against the subjection of women, which has become irresistible and is not far from complete triumph, began in the same way with a few impracticable idealists—Mary Wollstonecraft, Shelley, John Stuart Mill. The power of thought, in the long run, is greater than any other human power." ['17, p. 246 f.]

The considerations of this chapter will, I hope, not only guide both selfish and benevolent valuations to a better adaptation to reality, but also appeal to what philosophers call reason, and theologians the divine element in man, which looks above and beyond personal considerations and acts in the interest of all the good in all men.

Chapter 15

LIVING BY SCIENCE

The twentieth century has discovered a new virtue, that of facing the realities of nature. Psychiatrists report that neurotic ailments and insanities tend to spring up in a person who hides unpleasant realities away in the cellar or attic of his mind, or flees from them into comfortable prejudices and fantasies. Psychologists and sociologists warn against wishful thinking, and the president of a great university and later of a great philanthropic institution, Max Mason, writes as follows:

"In accurate scientific knowledge there is power—power, as has been amply demonstrated, to release man from physical drudgery; power to release man from fear, that child of uncertainty, as he learns the story of the universality of natural law; power to determine his destiny as he understands himself to be a product of evolutionary processes and learns the psychological and physiological factors which condition his personality; power to give him peace and courage for life in a friendly universe as he partakes of 'the sweetness and glory of being a rational animal.'" ['36, p. 71 f.]

The acceptance of impartial scientific truth as the guide in life is certainly a safe and sane policy, and can be a very idealistic one. Persons whose conduct is adapted to realities of science cannot be wrecked by loss of faith or poisoned by fears of what does not exist. It makes greater intellectual demands than naïve fatalism or various schemes of bargaining with supernatural forces, and is as yet unsupported by attractive and persuasive literary presentations. Its spread will probably be slow, and the "masses" may resist it, though it is they who have the most to gain from it. By the canons of the two previous chapters it is very nearly a pure good. But it is not popular among the leaders of opinion.

Many humanists, statesmen, and men of affairs, and some competent students of the sciences of man, distrust the methods of science or at least wish to limit them to certain parts of man's life and work. One main reason for their distrust is that they think that science makes men mere puppets in a fatalistic world in which human history is nothing but a reel which unwinds year by year, and human acts, purposes and ideals are nothing but minor whirls in a fixed dance of atoms. This seems to them both objectionable and false. A second reason is that they think that the world of science is too repetitive, a sort of squirrel cage, enormously complicated but still fundamentally repetitive. Such a world seems to them objectionable and false. Their third reason is that they find little or no room in science for teleological forces, in the sense of powers of human purposes to control events. Since their daily business consists largely in trying to control events, they resent doctrines which seem to assert that they are deluding themselves.

These views are very common among educated men, being indeed held by many workers in the physical and biological sciences who feel impelled to abandon the habits of thought which they use for atoms and protoplasm when they deal with human ideas and institutions. One of the bitterest denials of the adequacy of physical science in recent years is the words of an eminent physicist, W. L. Bragg,

"We must think of the physical world around us as the footprints of something which exists in other dimensions as well, which has other qualities which are not physical and which no physical apparatus, however delicate, can measure. . . . Nothing can exceed our instinctive horror of the finite, our revulsion at the idea of being entrapped in a mechanical web." ['34, p. 240]

If thorough-going use of science means a denial of human freedom, progress, and power, much of what will be found in this book is misleading. If, on the contrary, it can be shown that the views described above are caused by misapprehensions and errors, we shall be rid of a serious barrier to the advancement of science and to the cooperation of all intelligent workers for welfare.

It is true that science deals mainly with oft repeated events. The movements of masses, the compounding of atoms, the pulls of lines of electric force, the growth of plants from seeds and the like are the subjects of its ordinary triumphs. Indeed it searches for repetition and rejoices when it finds it. If, without reducing the number and quality of painters and poets, science saw a chance to find a few simple laws describing how good painters and poets are produced, it would pursue the quest eagerly.

But science is not limited to frequently repeated events, would not sacrifice reality to get it into repetitive form, and does devote a great deal of time and effort first and last to facts which are no more likely to occur again than that a second Shakespeare will write a second Hamlet on this or some other planet. Astronomers are studying the movement of the stellar universe as a whole as well as the revolutions of satellites around their suns. Biologists are concerned not only with events that occur in cells billions of billions of times, but also in the evolution of the vertebrates from invertebrates which, to the best of our knowledge, has occurred only once and never will occur again. Scientific students of government are, it is true, more interested in wide-spread and repeated phenomena in this field than some humanistic historians are, but the former would no more bar out an event from study because it occurred only once than the latter would bar out an event because it occurred more than once. Scientists are probably readier to study the commonplace routines in human affairs, such as the dull labors of serfs and factory workers, or birth rates and death rates, and it is well that somebody should be. If the facts by which to understand man and to improve him and his scheme of values were sought only in the dramatic careers of celebrities, a very dubious set of conclusions would result.

No matter how zealously science ferrets out repetitions there will always be an enormous amount of origination, drama, and surprise. Different Caesars will cross different Rubicons. The new poets will sing new songs. Science does not destroy one jot or tittle of anything by finding out what familiar elements compose it. Alcohol loses nothing of its peculiar individuality by knowledge that it is made out of the same elements that make

sugar. Dante is no less Dante by being made of protoplasm. The universe becomes no less varied by being made of minute electrical charges. Moreover, science itself adds novelties to the world at the same time that it finds repetitions in it. By "reducing" certain substances to repetitions of carbon, oxygen and hydrogen, it adds hundreds of new drugs and dyes. Indeed it creates novelties by finding repetitions. By "reducing" a host of natural events to certain simple electro-magnetic repetitions, it creates dynamos, transformers, self-starters, trolley cars, refrigerators, razorless razors, radios, and I know not how many quaint gadgets. By "reducing" the facts of hybrid plants to the simple law of Mendel, it has created new flowers of surpassing beauty.

Nobody need feel that he is just one of a million squirrels treading a well-worn path in a gigantic squirrel cage. On the contrary, the number of persons duplicating him at birth (unless he has a twin produced by a split of the same fertilized ovum) is probably less than five in a million, and the number duplicating him as an adult is probably less than five in a million million. If he travels exactly the same path that any other person has traveled since the world began, it is not by necessity but by his choice.

For the objection against science that it leaves human ideals and purposes powerless, science is in part to blame. Physiology and psychology have neglected human purposes in comparison with sensori-motor mechanisms. Their standard treatises gave over ten times as much attention to how man's sense organs or muscles or memories work as to how his purposes work. This was fit and proper because much more was known about the former than about the latter.

In Chapter 2, facts were reported which show how purposes can operate in the brain of a man to direct his behavior and influence his career. There exists an arrangement whereby the desires and purposes of a man can set in action the "confirming reaction" when they are satisfied, and withhold it when they are not. This confirming reaction has the property of strengthening any modifiable connection upon which it acts. It acts upon any such connection which is sensitive to its influence by

reason of having just functioned. The confirming reaction thus on the whole strengthens those tendencies which are in harmony with and give satisfaction to the purposes of the man. It does not do this infallibly or by any magical teleology, but as a biological force in the brain. Sometimes, in fact, it spreads or scatters so as to strengthen, not the connection which has produced an effect satisfactory to the then ruling purposes of the man, but the preceding or following connection.

Human purposes thus can exercise a control over human behavior not only in important cases where the person chooses deliberately, but minute by minute, almost second by second, and in what he thinks as well as in what he does. Along with its other functions, the brain has the power to modify itself in favor of the person's purposes, and is busily engaged in doing so.

Psychology teaches not only that human purposes can control certain events but that they must do so. The events which they control directly are modifiable connections in the brain which the confirming reaction can reach and reinforce. Indirectly they determine what ideas he shall retain and cherish, what acts he shall repeat, what habits he shall form, and consequently in large measure how he shall influence the things and persons in his environment.

As an eminent physicist and very wise man, W. R. Whitney, has said ['36, p. 215],

"We ourselves are our nerves, except for a lot of common mechanics, and our happiness is bound up with their behavior, whether we talk about simple reflexes or complex brain networks. Research has gradually traced out more and more of these electrical conductors and their interconnections. Their number exceeds all power to count. They serve us our pain. They measure us our pleasure. They predetermine our most refined thinking, and they are made by us for us. They interpret both mind and matter, and they stand for 'free will.'"

Science as the destroyer of freedom, origination and purposes is a bogey-man imagined by a superficial philosophy. What science does to the freedom of the will, the creative elements in human life, and the control of events by human purposes is not to deny them, or even limit them, but to show how they exist

and operate in the natural world of reality. It shows that they are not fairies or genii, mystical in nature and capricious in action. And this is greatly to man's advantage.

In proportion as power is taken from personal deities and lodged in the uniform and stable ways of nature, man abandons all appeals, bribes, and inducements such as might move a superman who enjoyed material gifts, praise, submission, respect, or affection.* It is more reasonable to find out the course of nature and make the best of it. Propitiation gives way to observation and prediction. Science aims to learn nature's ways so as to know what will result from any concatenation of events. The present goal of science is to understand and predict every event in the world as it can now understand and predict the movements of familiar heavenly bodies or the swings of a pendulum.

But, by a unique paradox, science, which finds nature's ways invariable and unchangeable, changes nature as the personal appeals of religion never could. Science, which accepts the course of nature, controls it to an extent and degree far beyond the powers of priests or magicians. Science can make lightning and direct its course; can stop plagues; can double a harvest; can breed new strains of animals (and of men, if human laws and customs would permit).

In proportion as we treat the world as regular and resistant to outside influences we influence it. If science in the next hundred years should describe the ways of human nature and behavior as accurately as it has by now described the nature and behavior of the planets and stars, so that man could predict what men would do as he now predicts eclipses, he would increase his power to control the fate of men. Every immutable "law" of human physiology and psychology would turn into an instrument to change human life. By the same token, if, by science, I could prophesy exactly what I would think or feel or do in every conceivable situation that life could offer, and knew that my thoughts and feelings and actions in each case were as inevitable as the pull of the magnet on steel, I would thereby

* The rest of this chapter is taken with few changes from an article by the author, published in 1935 in *The Proceedings of the American Philosophical Society*, Vol. 75, pp. 287–294.

enormously increase my power to change my fate. In Marett's fine words, "Freedom is the preperception of destiny." Every fact of the universe which science takes from the realm of fortuity, miracle, and caprice, and puts under the rule of the regular and changeless ways of nature, means one more addition to control over nature. The more the world is determined, the more man can work his will upon it.

The explanation of this paradox should be instructive and comforting to men and women who are disturbed because the march of science seems to reduce the world to a mere machine, to abolish the freedom of the will and eliminate human responsibility.

They have thought that the paradox was a dilemma—that if the ways of nature, including human nature, were invariable and immutable, then no acts of man could change nature—that one must choose between science and freedom.

The paradox is not a dilemma. Science does not necessitate fatalism. The uniformity of nature is consistent with changes in nature made by human thought and action, especially as guided by science itself. This is possible because science is a part of nature, because knowledge is a natural force, because human ideas, wants, and purposes are part and parcel of the stream of natural events. Your consideration of whether to say Yes or No in certain situations is an event in nature. Your decisions yesterday to say No and today to say Yes are events in nature. Both have their consequences in perfect accord with the ways of nature. But your "No" of yesterday may have changed the world by the death of a prisoner whom you refused to pardon, and your "Yes" of today may have changed you from a bachelor to a husband and been a link in a chain of causation resulting in the birth of a child who in 1983 will discover a cure for cancer.*

The essential facts are as follows: The course of nature is partly repetitive or cyclical, as in the movements of the planets

* Four years after this was written, I found the point stated clearly by Professor A. B. Wolfe, who wrote in 1931, "One may be a determinist and a behaviorist and still not a fatalist. . . . The future of society and the fate of human welfare will be determined, in part at least, through human attitudes, human motives, and human intelligence. . . . Will, attitudes, are themselves a part of the causal nexus of things." ['31, p. 221]

or the turn of a motor, and partly original or creative, as in the development of a new species of animals, or the construction of the Panama Canal. The distinction is not, however, sharp. Even the most repetitive parts may change. Indeed they must if conditions change. Even the most novel event consists of old elements in new combinations. The net total is a universe changing very little in some respects and very much in others, but surely changing from 100,000 B.C. to now, and equally surely from now till tomorrow. Within the brains of men, the changes are so numerous and rapid that a year's crop within New York City alone could not even be listed by a thousand chroniclers in a lifetime.

Parts of the world change other parts. So changes in the moon will cause changes in the tides; the birth of a baby changes the habits of a household. Notable among changes of one part of nature by another are those initiated by changes in human brains. To them are due buildings, mines, farms, tools, and all the material paraphernalia of civilization; laws, customs, creeds, and all present forms of social institutions; schools, libraries, laboratories, and all the apparatus of science and letters.

The changes initiated in human brains are on the whole serviceable in satisfying human wants. Those which are outcomes of impartial scientific observation and inference discovering nature's ways have been specially successful in satisfying human wants. They operate by changing man's own behavior into forms more suitable to obtain satisfaction from the rest of nature, and by changing the rest of nature into forms that suit man's needs better. They work within nature, as regularly as any of its habits. Man is creative, not because he is in part supernatural or extra-natural and imposes a super- or extra-natural will on nature, but precisely because he is, in part or altogether, a natural object, linked in the chain of natural causation, and playing a rôle in nature's long drama. The fundamental basis of that drama may be very simple, nothing but moving electrons and protons which perhaps have always been and always will be the same, but its actual course is anything but the same from moment to moment. It constantly creates new forms for itself, and parts of it known as men share in that creation.

One need not be in despair because science teaches that the world is a great self-contained machine whose operation no god or devil can alter. If so, it is a peculiar sort of machine which alters itself and has produced the Divine Comedy, Paradise Lost, Beethoven's symphonies, and all the truth, goodness and beauty that man knows. If so, man is a part of it and is constantly altering it. His duty and his pleasure in respect of it will be much the same whether deities outside it are or are not active to help or hinder him.

No one should feel that any zest will be lost from life if science proves all of nature to operate according to regular customs so that an omniscient historian at the end of the world could honestly say that never had the same set of conditions failed to produce the same result. The zest of life does not consist in fortuity and ignorance of what will happen. It would not be increased, for example, if days and nights come by chance like the red and black of a roulette series. It is increased rather than lessened by the possibility of predicting what will happen in new situations from knowledge of the regular behavior of their components, provided there is enough novelty and surprise. There will be enough, surely, for the next thousand years, and probably forever. The discovery of nature's uniformities by science leads to creative action that increases the amount and proportion of novelty, surprise, and new discovery.

The threat of a universe without hope because the forces in it must inevitably determine every item of its future and produce results which an omniscient observer a billion years ago could have foretold is an idle threat. In the nature of the case there could not have been any such observer then or now. But if there could have been, and if he had left a record of what would happen until A.D. 10,000, and if his record had been found in A.D. 1935 and verified as correct by the occurrences, say, to A.D. 1975, it would include the fact that science profited by it from 1935 to 1975 to increase man's control over the rest of nature and inaugurated the era about 1940 since known as the "Era of Hope" when man could foretell the future and control his fate as never before. The best hopes we have are those got by the predictive power of science. Every advance in predic-

tion means a gain in valid hope and a loss for disappointments.

No one need fear that science will diminish human freedom. On the contrary it greatly increases the only freedom that any reasonable being can desire. The freedom of the will has meant and still means different things, some of which are of no consequence whatever to human welfare, and some of which are highly undesirable. It sometimes means simply that there is a small margin of sheer chance or fortuity in the universe. For example, electrons might vary slightly one from another in unknown and unpredictable ways, but the total or average behavior of any atom composed of them might be perfectly regular and dependable. All our chemistry and physiology would remain true in spite of such uncertainty about the behavior of single electrons (or indeed of single atoms). A margin of fortuity in the behavior of electrons would be of no consequence in relation to the question of whether persons have a freedom of the will lacked by dogs and cats (or to any question about persons, dogs, or cats).

Another meaning locates this undetermined margin in the higher animals, especially man, asserting that human choices are occasionally or in part unpredictable, unaccountable. If this be so, it is regrettable, since it would be a cause of confusion and error. Occasionally the best of men might choose the worst of courses, or the worst of men upset reasonable expectations. Freedom is a bad name for it, for it would really be bondage to chance.

The doctrines of theology and of intelligent people in general are wisely not concerned with margins of fortuity or unpredictability, but with the freedom of a person from domination by circumstances, or with the freedom of some core or kernel of a person from domination by circumstances or by some more superficial and temporary features of him. There are many possible variations on this general theme. Thus some would say that men are not the creatures of temporary circumstances, but bear, each within his own nature, tendencies to favor and cherish certain courses of thought and action and to reject or discard others. By birth and training, a man acquires a core of personality or soul which can dominate circumstances and change

their consequences. Nothing in science denies this. It might deny that any extra-natural force implanted these souls in babies, crediting rather the genes in their chromosomes. Others would mean by the freedom of the will the power of a man's deeper self to direct his life with or against the pull of external influences, or superficial motives, or casual enticements. "I am the captain of my fate, I am the master of my soul." Nothing in science denies this. On the contrary, the more fully man knows the ways of nature, including human nature, the better able will his deeper self be to rule the external, casual, transient, and superficial.

In the words of an eminent biologist and sincerely religious man, E. G. Conklin ['37, p. 597],

"It is a mistake to suppose that human intelligence and purpose, social sympathy, cooperation and ethics in general are not also parts of nature and the products of natural evolution. . . . Thus intelligence can improve on the blind processes of nature, because it is not blind, although it also is natural. . . . Will and purpose are similarly natural phenomena growing out of the use of intelligence in finding satisfaction. Will is not an uncaused cause but rather the product of all those bodily and mental processes, such as appetites, emotions, memory and intelligence, which stimulate, regulate or inhibit behavior. Ability to thus control activity in response to remembered experience is what we call freedom from fixed, mechanistic action. Both intelligence and freedom vary greatly in different animals and in the same individual at different stages of development. They are relatively slight in human infants, but they rise to a maximum in normal adults. However, men are never perfectly intelligent nor absolutely free, but the more intelligent they are the freer they are."

Everywhere it is the same. Science transforms a world of fairies, demons, magic, charms, and luck into the dependable world of "natural law." Every addition it makes to its catalog of nature's changeless habits helps man to change nature, including himself. The uniformity of nature does not take power away from man, but from fortuity or chance and from alleged forces which operate partly or wholly by chance.

PART II

SPECIAL FACTS, PRINCIPLES, AND APPLICATIONS

Chapter 16

HUMAN NATURE AND THE SCIENCE OF PHILANTHROPY

The term philanthropy is out of fashion, the more approved name being social work. But I retain it in order to cover the broad problems of human welfare as well as the narrower problems of alleviating, curing and preventing poverty, dependency, delinquency and other social ills.

Welfare work in this broader sense is one of the main goals of government, law, economics, business and the other sciences of man at the present time. Good government is supposed to be in the interest of the governed. The law is concerned largely with "social legislation" in the interest of the "masses." Economics is becoming less a science of wealth and the market and more a science of using land (i.e. natural resources), labor and capital to maximize welfare. By studying the facts which a lover of man needs to know about human nature in order to work effectively for human welfare, we may acquire knowledge which can be applied in all or many of the sciences of man.

Welfare, the good life, and other more or less equivalent terms are widely used but rarely amplified in concrete identifiable realities. To prevent misleading, dispute and ambiguity, I shall state at some length what they will mean in this book.

THE GOOD LIFE *

Let the reader regard himself as a scientific trustee for the human species, who is making a rough bill of specifications which (1) will include the satisfactions possible for men today

* The next 15 pages are taken with few changes from the author's article, "The Goal of Social Effort," which appeared in *The Educational Record,* April, 1936.

without imperiling the satisfactions of other men now or in the future, (2) will approximate to a reasonable harmony, or at least compromise, among conflicting wants, (3) would be approved by a substantial majority of the human beings of, say, the next thousand years, as a good program for 1940 if each were omniscient and chose wisely in his own self interest, and (4) would be approved still more strongly if each chose wisely in the interest of his friends, or neighbors, or countrymen, and their descendants.

As a scientific trustee he has considered all the facts relating to the nature and needs of man. He will try to avoid putting in his bill of specifications items so alien to the original germinal nature of man that they can be realized only at a tremendous cost of external coercion or seduction. He will attach great weight to items which promise to make the social order attractive and stimulating to the good rather than the bad in men, being aware that a world run in the interest of imbecility, greed, weakness, and the like will tend to become full of imbeciles, parasites, weaklings, and the like. In planning a scheme of satisfiable wants for good men in a good world, he will, however, dare to hope to have a social order in which undesirable tendencies in man's mental and moral inheritance are redirected or transformed or weakened by disuse. And he will be democratic in the sense that he will consider the wants of every person on their merits, and catholic in the sense that he will try to realize and appreciate the wants of all persons in all lands and of all creeds and cultures. The items which he selects are to be desirables in a good life for man, not for intellectuals, or for Puritans, or for Europeans alone.

If the reader will thus specify what he thinks are the objectives of a scientific philanthropy and will collect similar specifications by a dozen other impartial students of human welfare, the net result will probably be much like the list found on this page, which represents the recommendations which the writer would make if he were responsible as trustee for human welfare. In some respects there might be considerable differences, and this makes it desirable that I explain and defend my bill of specifications of a good life for man.

Desirable Provisions to Be Made for Man

1. Maintenance of the inner causes of the joy of living at or above their present average.
2. Food when hungry, and drink when thirsty.
3. A diet that is physiologically adequate.
4. Protection against pain-causing animals.
5. Protection against disease-causing organisms, poisons, and other causes of disease.
6. Protection or insurance against accidents and disasters, such as floods, earthquakes, wars, for which the person in question is not responsible.
7. Protection against extreme shocks, fear, and strains.
8. Some room or place where he can rest undisturbed, protected from the elements and from bad or uncongenial men.
9. Enjoyable bodily activity, especially when young.
10. Enjoyable mental activity, including esthetic pleasures.
11. Opportunity for human society.
12. Opportunity for courtship, love, and life with one's mate.
13. Opportunity to care for children and to be kind to human beings and animals.
14. The approval of one's community, or at least the absence of scorn or contempt.
15. The approval of one's self, self-respect, the absence of shame and remorse.
16. Opportunity to have friends and affection, if deserving of them.
17. Opportunity to be a friend and give affection.
18a. Opportunity to exercise power over some persons, animals, things, or ideas, making them do one's will.
18b. Opportunity to serve a worthy master.
19. Membership in organized groups, and the right to participate in activities or ceremonies which are (or at least are thought to be) important.
20. Opportunity to compete with one's peers winning in about 50 percent of the trials.
21. Opportunity to compete with one's own past record, and, if deserving, to have the pleasures of achievement and success.
22. Occasional opportunities for adventure, risk, and danger.
23. Something to be angry at and attack.

24. Protection by society (via customs, laws, and government) in what is regarded by the existing moral code as a good life.
25. Freedom to discover and publish verifiable truth.
26. Enjoyment of the happiness of others.

I make no claim that my specifications of a good life are the best possible, or better than a hundred somewhat different ones which might be put forward. On the contrary, with the advancement of knowledge they should be much improved. They do, I hope, have the merits of being more impartial and more definite, of fitting human nature better, and of being more easily attained and maintained, than the general run of such recommendations.

It is obvious from the items that the intention is not to provide each and every person at each stage of his life with all the twenty-six items, much less to provide each person with an equal amount or intensity of each item. Any such identity of provision would be necessarily bad and unjust in view of the individual differences among men. Some persons at some ages will desire much bodily activity and little mental, much security and little adventure, much friendship and little power, etc., etc. It is both economical and just that each person should have a larger provision of certain items that satisfy him more than others would.

Item 1, the maintenance of the inner causes of the general tendency to enjoy life, is of great importance, though the biological sciences must increase their knowledge of these causes before government, education, or philanthropy can act intelligently in the matter. To some persons in some conditions breathing, walking, the routines of productive labor, personal care, and social intercourse, and all save the distinctly unpleasant events of life are the stimuli to genuine happiness. If some baleful miracle reduced its level in the population by a substantial amount we should be a sorry collection of blasé, neurasthenic, puritanical, weepy grouchers, with suicides an everyday occurrence. If science could give all as much as the most favored one percent now have, shaving oneself, washing dishes, typing letters, tending machines, milking cows, and teaching school would be nearly or quite as much enjoyed as our recreations are now.

This tendency, which we may call Gen. Like, seems to be determined in part by the genes; the Negro races, for example, seem to have more of it than the North Europeans. It is deep-seated, being strong in youth, and weakening in old age. It is as yet rather mysterious, having extreme ups and downs in the same person, often without any obvious cause.

Items 2 to 8 inclusive require no comment, but I will note two points. Item 6 points to the fact that if present-day beliefs take from God the responsibility for floods, earthquakes, drouths, wars, pestilences, senility, and the like, our practices should not leave their sufferers to be requited in heaven, but should insure them on earth. Such insurance, especially against war, seems impracticable, but the matter deserves consideration. Items 3, 4, 5, and 7 require either a careful education and establishment of habits, or control of the environment plus considerable persuasion and coercion by public health officers.

A word may be added reminding the reader of the beneficence of such persuasion, coercion, and control. Man's gain from the extermination of yellow fever and malarial mosquitoes, from the addition of iodine to his salt and cod-liver oil or its equivalent to his diet, from preventive inoculations against smallpox and typhoid, from the inspection and treatment of water supplies, and from diphtheria antitoxin, probably far outweighs his gain from all the activities of his elected political representatives for the past twenty-five years.

Items 9 and 10 provide for the satisfaction of the tendencies to physical and mental play, vocalization, visual exploration, manipulation, mental control, "being a cause," and whatever leads man to want to run, jump, climb, hunt, fish, see, hear, taste, tinker, construct, sing, dance, read, think, write, etc., though no profit or praise is his as the outcome. The opportunities provided may be very simple and inexpensive, since such will satisfy men unless they have been spoiled by fond parents or commercial stimulation.

Items 9 and 10 might well be expanded to list some of the most important sorts of bodily activity, mental activity, and combinations of the two. Such a list would show that from the hunting, fishing, berrying and fruit-picking of primitive man to

the walking and contriving of the surveyor, productive labor has often provided interesting bodily and mental exercise. It would show talking as a delight to many from Adam to the last elected congressman, and listening to stories and to music as almost universal passions from the most naïve of savages to the radio's millions. It would show poetry, music, painting, and other fine arts created and diffused, and becoming for certain sensitive souls chief among the enrichments of life. It would show the same activity as work for some and play for others, a blessing and a bane. It would show a general craving to do something with one's muscles, sense organs, and brain, ranging from a minimum in some lethargic and dull creatures to a maximum in such as Theodore Roosevelt or Andrew Carnegie.

Item 11 is, and has always been, available to all save a few humans, without special care on anybody's part. So has Item 12, except where the folly or selfishness or jealousy of the old and powerful, or the edicts of narrow conventions, or the stress of poverty, has prevented. The love life has not been so much prevented as burdened with restrictions, ceremonial observances, and confusion with mere erotic gratifications (as by auto-erotic practices or frequenting prostitutes).

Item 12 should perhaps be restated as: "Opportunity for courtship, love, and life with one's mate, or for some better arrangements for love between the sexes and the production and rearing of offspring when such have been discovered." But on the whole I prefer to leave it. The original item was not intended to cast slurs at polygamy, either simultaneous by custom or successive by death and divorce, nor at various irregular erotic practices, which may well do much less harm than has been supposed. There seems no need, however, for philanthropic effort to be directed toward the impossible provision of more than one mate at a time for everybody, or toward the encouragement of irregular erotic practices. Modern psychiatry is strongly in favor of the more romantic and ideal forms of love between the sexes as the more healthy. The monopolization of many women by one man is one of the worst uses to which wealth has been put. Consequently, until man invents some better arrangement for a small social unit and for producing and

rearing future generations than the monogamous family, it seems best to set a certain premium upon the courtship, love, and life with one's mate which has satisfied decent people fairly well for several thousand years.

Item 13 does not require any mystical bond between a mother and the children born from her womb, nor any sentimental exaggeration of the quantity or quality of the milk of human kindness, to justify its inclusion. Some good men and women would perhaps be healthier and happier in a world devoid of children and of any creatures needing relief, comfort and consolation. But most good women would not. Since there are to be children and creatures in need of kindness, it would be folly not to arrange that those who will be made happy by meeting these needs should have the chance to do so.

Items 14 and 15 are potent satisfiers whose nature, somewhat misunderstood by moralists and sociologists, I have described elsewhere (*Original Nature of Man*, Chapter 7). One's community is, of course, a variable, that of a bishop differing from that of a baker's helper, though overlapping to the extent that both would not like being scorned by casual bystanders. Item 15 means what it says, without idealization, and is very differently caused in different persons. It need not be logical, moral, or refined. A coarse and selfish moron may have it as well as a saint.

The satisfactions of domination and submission are deliberately bracketed as Item 18, to suggest that there need be no conflict between them, because each in its place and to a suitable stimulus is part of the good life for man.

Item 20 is inserted in recognition of the zest of rivalry and victory, and with the intention of purging the competition of schools, sports, and business from unhealthy conditions under which the great majority are doomed to depressing failure or demoralizing success. It may be noted that both parties in contests between peers may get an unearned increment of satisfaction since a person who wins in 50 percent of the trials may well have in memory the sense of having won in 60 percent or more.

Item 21 is a very beneficent form of satisfaction, and one which will be more and more easily provided as means of measuring

achievement in schools, industries, and agriculture are improved and extended.

Item 23 will be objectionable to many pacific idealists who do not themselves desire it and think it needless or even harmful to others. They may be right; I hope they are, and I would not deny the possibility of keeping the human tendency to rage and attack bottled up from birth to death in most men and treated as an insane eccentricity when it did break forth. But on the whole, it probably is better to let men hate man-eating tigers, poisonous snakes, loathsome diseases, and their human counterparts.

Item 24 is a modest demand such as even the most conservative would make for law and order in accord with the morality of the times. It is defective in that it leaves the person who is in advance of his times unprotected in his eccentricities (except by Item 25), permits prophets to be stoned, and probably would not have saved Socrates or Jesus from execution. Item 25 alleviates it by permitting the verification of the truth of any statement, no matter how treasonable, subversive, or abhorrent to public opinion, to be its complete defense. Item 25 would have saved Galileo and will save many a reformer who limits himself to statements about the consequences of the proposed reform which can be verified or disproved by prediction, observation, and experiment.

In the case of scientific and historical truth about observable facts there can be a higher and better criterion than the existing laws and customs. A court of science could and should decide such matters. What the government or the populace think about them is irrelevant to their truth. In the case of practical desirability, it is harder to tell the prudent act from the silly, the beneficent reformer from the crank. If a physician should now announce that he proposed to kill his patients when it was their desire and obviously to their advantage and to the advantage of the world as a whole that they should die, he would probably be an unselfish and intelligent man, since he would lose much in fees for prolonging their futile misery and since many intelligent physicians have thought such procedure reasonable. But he might be a crank. Even if he were good and intelligent, his act might be imprudent, a better course being to work for legal justi-

fication for certain euthanasias when approved by boards constituted by public authority, and for correlated changes in medical ethics and in public notions of the value of mere life as such.

Item 26 is deliberately limited to the positive side of good will, because I am doubtful of the value of being miserable at the misery of others.

Concessions to Human Weaknesses or Irrationalities

Items 19, 20, 22, and 23 may seem unworthy to intellectualists, who may also demand that Item 8 should be restricted to what is beneficial to health, Item 14 to the approval of the good and wise, Items 9 and 10 to what is beneficial to intellect or morals, and Item 15 to the satisfaction of an enlightened conscience. Moralists, reformers, and philanthropists should not thus cater to childish, not to say vulgar, tastes, they may insist. They may be right to the extent that it may be our duty to work for a world fit to be the abode of none save thoroughly rational creatures, who do not require or desire celebrations, festivities, competitive sports, or adventures. I do not think that is our duty, believing first that the desires for innocent ceremonial, rivalry, and adventure are intrinsically good, and, second, that it is risky to starve them. But even if it were our duty, we may well delay it; there are much sillier and more harmful wants to suppress during life and exterminate by breeding.

Cost

Many of our items do not require great outlay of capital or labor. Life may be plain and simple and still provide them. All could be in a country devoid of golf courses, cemeteries, clothes other than one simple national costume, Pullman cars, and beauty-parlors, and even of automobiles, bath-tubs, electric lights, and radio sets, desirable though they are. Many luxuries satisfy only undesirable wants which have been created by the environment, often by commercialized forces, and which do no good that is not done much better by far simpler means. Enormous expenses are now incurred for Veblen's vicarious consumption and conspicuous waste, from envy and deceit, and to hide weakness and demerit. In many cases the better man's

wants are, the less they cost. In many other cases sheer habituation decides whether the costly or the cheap satisfies.

Items 3 and 5 require allotments for research and preventive medicine and hygiene, but what is so spent may be saved as a consequence of the increased health and efficiency.

Item 8 does not demand a great expense for better housing, however desirable that may be. It would require the reduction of overcrowding, but many of the refinements which, as philanthropists, we would most heartily urge, we must, as psychologists, admit are not essential to human happiness. How beneficial they are to human health and morality is not known. Bad housing, misery, disease, and vice are associated, but the causal relations are not clear.

Item 9 involves a considerable expense in cities either to provide playgrounds nearby or to transport children to them. Item 10 involves a considerable expense for libraries in some localities. Item 6 could probably be covered if what is now used up for military force could be used as a fund against earthquakes, drouths, and other mischiefs of nature. This would, of course, leave the country relatively defenseless against attack; and the advisability of this will be questioned. The general problem of the wants which are satisfied by military expenditures for defense and for aggression cannot be treated here. Except for war, the man-made disaster, the costs of security could be borne.

Items 14 to 23 and Item 26 require little or no expense for material equipment or services, being attainable, if at all, chiefly by changed ideas and attitudes of men in respect to themselves and their fellow-men, and other forms of social engineering.

Item 24 is provided for already by the courts and police and moral pressure from one's group.

Item 25 costs little and pays for itself millionfold.

Certain Criticisms and Amendments

Certain objections are sure to be made to the items listed. What about man's needs for religion? What about liberty, equality, and fraternity? What about social justice? What about peace on earth and good will toward men? What about democracy?

The worthy satisfactions of religion have not been rejected but included separately, because the term religion seemed too vague and multimeaning. Items 6, 7, 10, and 13 to 19 are supposed to specify the satisfactions to which religion (minus superstition and efforts to purchase favors from supernatural agencies) ministers.

Volumes have been written about liberty and the desirability of various forms and degrees of it, attainable and unattainable. For our purpose, it seems that liberty is valuable to men in so far as it means relief from needless pressure to do or suffer the disliked, and freedom to do what one likes. I should then answer that our list includes the best fruits of liberty and that such liberty as is helpful to secure these fruits is all that we should require. Some coercion there must be. Parts of an individual are again and again coercing other parts of him; and until the breed of men is very radically changed, it will be for the common good that some individuals should coerce others. Coercion by nature is unavoidable, and coercion by the truth is highly beneficial. Liberty is not a panacea and should not be a fetish.

Most of the attainable blessings for which liberty has been the war cry during the last two centuries, liberty of religious belief and of conscience, liberty to think and learn, equality of opportunity to those equally deserving, careers open in accordance with merit, freedom from coercion by lies, and the like, are specified or assumed by our list of items.

There is a more special sort of liberty which many would include as desirable; namely, liberty in the sense of self-regulation and freedom of choice, such as an adult American bachelor artist possessed of strength and wealth has, and a child or a Russian or a married man or a soldier or an invalid or a beggar does not have. The former has freedom from tutelage, regimentation, family responsibility, commands of superiors, restrictions by weakness, and restrictions by poverty. He can, for example, stay up late if he likes, vote as he likes, eat what he likes, paint when he likes, and go where he likes without the restraints which limit the others.

Such a one seems to us to enjoy a sort of perennial vacation. There is to all of us who are oppressed by physiological, financial,

moral, and other coercions a strong allurement in the hope of a life free from them. In our two weeks or four weeks of vacation, we sometimes realize it and the memories of such vacations arouse longing. Our heavens and Utopias are often glorified vacations. Benevolent reformers often aim to turn the world into a minimum of obedience, work, and responsibility with a maximum of self-expression, play, and entertainment.

This is all right in certain respects, but it is all wrong in others. It is right in that restrictions and coercions that deprive men of such conditions and opportunities as are specified in our list are bad. It is wrong in that it tends to disregard attainability and to regard superficial goods at the expense of more fundamental ones. Life cannot be a perennial vacation for all. Men should not be misled into making a fetish of enjoying only what they choose for themselves. If the meat someone orders for you is good, it is folly to poison it by the thought that you wanted fish. If the work on automobiles you are paid to do is interesting, it is folly to reduce its interest by lamenting that you want to work on airplanes or write poetry, and are doing it only for money. It is pathological to put a curse on any feature of life because it is not what you would have chosen.

If all these facts are kept in mind, there may be added to our list as Item 27, "liberty to each as much as he can use well."

As with liberty, so with fraternity, I advise our trustee to seek the desirable consequences rather than the thing itself. Item 26 is the chief among these. Items 16, 17, 18, 19, and 24, also, are real and potent values for men toward which fraternity may help. To be accepted as one of the brotherhood of men and to be the object of a general good will from all humans are valuable, but they will not take the place or do the work of actual close friends and kindly neighbors. To have a sense of kinship with all men and to feel well-disposed toward them are solid virtues and causes of noble pleasure, but it requires a high degree of abstract ability to attain them and keep them from becoming mere verbalisms or cheap sentimentalities. What is desired is a good will toward men which will operate vigorously in our thoughts about them and actions respecting them. This being understood, anyone who wishes may add to Item 26, enjoyment of the happi-

ness of others, "good will toward men, and a sense of kinship with them."

Wars between nations and within nations are the great disasters which man creates for himself. To prevent them so far as possible and to insure the innocent from suffering their consequences with the guilty is one chief duty under Item 6. Besides their recognized evils, wars have apparently been great intensifiers and distributors of disease-causing organisms. The satisfactions which they produce in the way of group activity, rivalry, adventure, and attack (Items 19, 20, 22, and 23) are producible far more cheaply and in healthier forms by other means. War is hell, and our trustee should get it outlawed as far and as fast as he can. If the statement of Item 6 does not clearly imply this it should be so changed to do so.

The desire for equality may refer to many and different desires, satisfiable by different states of affairs. We shall consider here the desire to have many or all men equal.

We may conceive states of the world in which all human beings, or all over a certain age, are equal in some one respect, or in two or more respects, or in all respects. Theorists have conceived many such. Communities have attained or approximated to such in the case of the right to vote, access to various religious privileges, protection by the courts, and other important matters.

The desire to have many or all men equal is the desire for such states of the world. It is a strong craving in certain humane souls sensitive to the injustices done to individuals and classes by nature and by their fellow men. Some of these egalitarians would impute their craving for equality to all fair-minded men, or all thinking men, or even to all men as a natural passion.

In this last they would surely be in error. There is no evidence that the genes of man give him either a desire for, or an enjoyment of, this sort of equality. The craving for an egalitarian society, is, on the contrary, a late product of extreme cultivation.

So far as original nature provides anything relevant to one's attitude toward differences in abilities, virtues, opportunities, achievements, happiness, esteem, etc., it provides a complicated and logically inconsistent set of tendencies to enjoy being superior, to pity certain sorts of wounded and distressed persons,

to be kind to certain sorts of weakness and deficiency, to admire, often with envy, those who are better off than we are in strength, beauty, popularity, and power, to exult at the downfall of others, especially the mighty, by which certain unconscious streams of our inner self-respect are fed, if the exultation can be kept from shocking our consciences.

The desire for an equalized world is derived not from any natural passion for equality as such, but, in superior persons, from pity, kindness, and certain intellectual processes, and, in inferior persons, from envy, self-esteem, the desire to be equal to somebody else, and the general tendency to accept any belief which is comforting.

Equality is a false and useless God for philanthropy. Benevolence and mercy are better. Justice is much better. Even if the world made equality its sole aim after subsistence was provided for, it often could not attain it by any methods short of a disastrous reduction of all to a level much below the present average, or by wholesale murder.

There is an enormous amount of variation in the natures of the fertilized ova which are the original nature of men. Some of these superiorities and inferiorities can be mitigated only slightly by any means within human control. The strong could be made weak by starvation and poisons, but many of the weak (e.g. some cardiac cases) could never be made much stronger. The beautiful could be mutilated, and some of the ugly and deformed could be much improved, but many of them could be improved little or not at all. The dull, the clumsy, and the unmusical could have their deficiencies somewhat compensated for by longer or more skillful education, but the alleviation could not bring many of them up to the average and could improve some of them only very slightly.

Equality, item by item, is a fantastic goal. Nor can we hope often to attain some average over-all equality as by compensating the blind by extra music or the dull by extra physical play. This is hard to do because the abilities and virtues of men are intercorrelated positively. As a consequence of this fact, we cannot equalize men in over-all ability, achievement, or esteem. It is easier to equalize in happiness. We can give the imbecile

food and toys and the gifted child food and higher education. We can give the blind, deaf, crippled, and weak certain extra advantages to make up the losses in happiness due to their condition. Some persons, however, such as those suffering from Moore's tears-suicide syndrome, [Moore, T. V., '33] simply cannot be made happy. Moreover, happiness cannot always wisely be equalized when that is possible. The brute who is happy when tormenting others should not be compensated for being deprived of this happiness.

The equalization of most forms of power (by health, strength, skill, knowledge, beauty, friendship, dependability) is unattainable, but the equalization of purchasing power by material wealth could be attained at least temporarily. Since material wealth is transferable, one can give all that he has of it to those who have less, though he cannot give them his courage or skill; and those who have political power can commandeer wealth for the poor or for the public or for themselves, redistributing it as they cannot redistribute health, intelligence, or happiness.

It is better to expend the time and energy in increasing goods than in equalizing them. This is obvious in the case of health, strength, skill, knowledge, peace, happiness, and other goods where an addition to any one person rarely involves decreases for others and often favors increase for them. It is almost certainly also true in the case of wealth.

The discomforts of dogs in the manger who will not enjoy a four-room house if neighbors have eight-room houses, or pork and beans because others have truffles, or an ordinary radio because somebody else has one trimmed with gold by which European stations can be heard, should be given little weight. If a person receives less wealth than he deserves, justice should provide such remedies as are possible, but if he receives less than some others, the matter is of very little importance. The test for any scheme of distribution of wealth is its consequences to the satisfaction of all good wants of all good men, not its consequences to the pleasures and pains of rivalry and petty pride.

It is easy to find imperfections in the present distribution of the world's wealth. An omnipotent and omniscient trustee for the world's welfare would doubtless change it radically. But

only a maniac or an ignoramus would divide it equally. Lacking omniscience, we should experiment very carefully with the redistribution of wealth, concerning ourselves chiefly with increasing it, and in particular with increasing those forms of it which are not abstracted from nature's resources, but added thereto—knowledge, inventions, factories, machinery, homes, schools, books, music, and the like; i.e., material and spiritual capital.

Certain other sorts of equality such as equal rights to buy and possess what you can pay for, to select your rulers and judges, to marry one who is willing to be your mate, to learn what you are able to learn, are important, but need not be considered for our present purpose which is primarily to set a just value upon the desire for equality, pure and simple.

That value we have found to be low, much lower than that of the pity and kindness whence it is derived in superior men. It misleads good people into attempting the impossible, choosing the lesser good and sacrificing great social improvements for a mere slogan.

So it seems best for a trustee for human welfare to provide the good fruits of equality and protect against its mischief, spending no energy in equalizing for equality's sake. He should, on the contrary, take pains to provide the conditions and opportunities of our list to those who will use them for the common good rather than to distribute them equally. In particular, knowledge and power should be given in much larger measure to the able and good than to the dull and vicious. The power to purchase the services and products of others and the power to produce the next generation rank, in this connection, with physical and political power.

We may now consider some of the means of attaining the good life as specified in the twenty-six items of pages 405 and 406.

WAYS AND MEANS OF ATTAINING AND MAINTAINING THE GOOD LIFE

The Family

A wise, careful and competent family may provide its children with most of the conditions and opportunities of our list. This

does not require great wealth, though it is very hard to manage in poverty. There are, however, few such families. As any good observer of many families knows, there is great variation among families of equal wealth and equal good will toward their children in the extent to which they make such provision. Some very devoted parents probably do less well by their children in Items 12 to 22 than if they totally neglected them. Some parents seem to have a positive genius for putting their children in the way of happiness. On the other hand, man's cruelty to man often begins in the family, even where intentions are of the best. It seems likely that if fanatical, animalistic, barbarous, and eccentric notions of the good life are replaced in the minds of parents by some such schedule as ours, there would be a great gain in the welfare of the rising generation at little or no cost to the parental.

There is a general feeling among scientific students of man that the family is the strategic place for improving personal habits and traits. It has the first chance; it is a "natural" group to which man is adapted; its situations and responses are real; its authority and example work at deeper and less sophisticated levels than do the church or state. This is less true of a modern family with two children living in an apartment with the father absent 8 or more hours a day, than of a farm family with four or five children. But even now and in the city, the family is fundamental. It may consequently be well to put on the family as much responsibility for the welfare of its members as it can carry, and help it when it needs help.

Even if the maximum amount that any reasonable individualist would propose is left to family initiative, there is much for government and its schools, churches, benevolent organizations, and, of course, economic activities to do.

Government (apart from education)

Historical instances could probably be found for activities of government serving every one of our items except perhaps No. 1, though I do not know of any clear cases for 16, 17, 20, and 21. Certain differences are interesting. Thus it is a well-recognized function of government to provide water at a fair price or free,

but such provision of food is much rarer. Protection against germ diseases and accidents of mines, factories, traffic, etc. is accepted as a duty by all civilized governments, but protection against inadequacies of vitamins and essential salts in the diet has barely begun. Government does much for Items 9 and 10, through parks, playgrounds, libraries, museums, etc., but little for Item 12.

What government does and what it leaves to be done by other agencies is due to a mixture of reason and custom. The reasonable parts are twofold, representing what is reasonable for the population as a whole and what is reasonable for the governing individuals or classes. Protection against a foreign attack is obviously reasonable for the governing classes, since to be conquered is for them to lose approval, power and property. In ancient times when a conquered population was murdered, raped, despoiled, and enslaved, it was reasonable for the entire free population also. At the present time its logical value to them is much less certain. In some cases, and apart from certain values of sentiment, the populace of A might be better off to surrender to B, and exchange the ruling class of A for the ruling class of B.* The customary part is illustrated by the existence of laws forbidding marriage within certain degrees of relationship, a matter which might well be left to public opinion guided by science, and the absence of laws encouraging scientific research, a matter of great public importance.

What government *should* do is not known. It may at once be asserted, however, that any sharp separation of the work of providing our conditions and opportunities between private and public enterprise, or between church and state, or between ed-

* This matter has been treated acutely and entertainingly, though somewhat onesidedly, by Veblen, in *The Nature of Peace*. He says, for example, "Any passably dispassionate consideration of the projected regime will come unavoidably to the conclusion that the prospectively subject peoples should have no legitimate apprehension of loss or disadvantage in the material respect. It is, of course, easy for an unreflecting person to jump to the conclusion that subjection to an alien power must bring grievous burdens, in the way of taxes and similar impositions. But reflection will immediately show that no appreciable increase, over the economic burdens already carried by the populace under their several national establishments, could come of such a move." ['17, p. 145]

ucation and coercion, is sure to be imperfect and likely to be mischievous. We should not assign responsibility for an adequate diet entirely to the family, or responsibility for inner peace entirely to the church, or responsibility for security against foreign attacks entirely to the government. Coordination of the different environmental forces to favor the good life for an individual or group is usually required. They should cooperate with a maximum of facilitation and a minimum of interference.

The Church

Some of the churches in this country at present serve many earthly wants in many ways. But almost every church, even one of those that confine themselves most strictly to supernatural affairs and the preparation of men for a life after death, contributes to items 11, 14, 15, 18b and 19 of our list. Membership, even attendance only, gives opportunity for human society. It adds a measurable amount of approval from the other members, and usually from the community at large. It may add enormously to self-approval, the inner sense of being worthy, since one who knows that God has forgiven his sins and approved his faith, and adopted him as one of his children, may well be content and proud. Probably neither worldly success nor philosophic acceptance of life equals the triumphs of religious habit in freeing men from regret, remorse, discontent and shame. The church offers a worthy master not only for the daily needs of the humble, but also to the occasional needs for submission of the habitually dominant. Proud and ruthless masters of men may feel a genuine pleasure in humbling themselves thus before their Lord in heaven; and their testimony and behavior may be entirely devoid of hypocrisy, and of inconsistency, save such as inheres in the specialization of human cravings for mastery and submission, each in its proper situation. The church provides for women as well as men membership in an organized group of supreme dignity, with a routine of appropriate activities and ceremonies.

Industry

Productive labor, including housework and the care of children, absorbs a large fraction of the time and energy of most men

and women and provides them with food, drink, protection, security, entertainment and power (Items 2 to 10, 13 and 18a) so far as these are purchasable. Directly or indirectly, love between the sexes often needs support from earnings. Much money is also spent in the hope of thereby winning the approval of others and of oneself.

Productive labor is also, as we say, a mode of life as well as a means of buying a living; and its direct influence, as whatever activities it consists of, may be of great importance. It furnishes many positive satisfactions. Hunters, fishermen, farmers tending animals and plants, surgeons, nurses, cooks, taxi drivers, traders, teachers, lawyers, carpenters, and masons—many in each occupation get from it enjoyable bodily or mental activity, self-approval, a chance to exercise power, satisfying rivalry, and the sense of achievement. These goods may come from unskilled and menial work. As I said in another connection, a feeble-minded girl may have psychologically the same satisfaction in making beds that a prima donna has from singing songs; and my friend Sullivan felt the same sort of pride in running the elevator in our college building that I felt in running my share of its teaching.

If people in business and the professions rate their likings for various recreations such as reading, outdoor games, sedentary games, listening to music, going to the theater, talking with old friends, and along with these the liking for "my regular job," the last is put on a level with the average of the former. [Thorndike, '35A and '35C.] Hoppock's studies ['35] of the attitudes of men in lower walks of life to their jobs indicate much the same state of affairs.

Productive labor does to a great extent now minister to Items 9, 10, 11, 14, 15, 18, 19 and 22, and by sufficient ingenuity in its management can probably be made to do so still more in the future.

Everything goes to show that activity of body or of mind, in and of itself, is more desirable than inactivity. Much of our dissatisfaction with labor is due not to what it makes us do, but to what it deprives us of. To work when one wants sleep, or entertainment, or social intercourse is obviously in so far forth an evil. So equally would it be an evil to be forced to lie in bed

when one wanted exercise, or to go to a party when one wanted to be alone. If we were good observers and honest we would often express our feelings of fatigue from labor as the child in school did who said, "I am tired of not playing." The reduction in the hours of work has been beneficial to workers by lightening loads that made some of them unfit to enjoy what little free time was left. But its greater service has been to give them time to satisfy worthy wants and to free their hours of work from the miseries of frustration and hopelessness.

Apart from its debarring men from certain other craved activities, productive labor is often bad by being too repetitive, too highly speeded up, and too meaningless. Repetitiveness is, however, a cloud with a silver lining. The lack of variety may tempt the mind to dullness and vacuity, but may free it to reflect, dream dreams or see visions, and leave it readier for whatever intellectual effort it wishes to make in its free time.

Speeding up beyond a reasonable degree of strain is bad. It is not so bad when taken for granted by machine-masters which set the pace impersonally as when enforced by human slave drivers or foremen whose requirements may carry some added sting of tyranny, insult, or degradation. But a very slight difference in production rates may make the difference between workers' satisfaction at mastery and chronic strain to avoid failure, and so be probably bad for the employer and surely bad for the workers.

Meaninglessness is bad. In fact, anything that is true and adds dignity to work is good. If work that means "I get 40 cents an hour" can also mean "I am a necessity to men who wear shoes. I help to make shoes just as truly as the violinist helps make music, just as truly as the priest helps make the church service," something is gained, though perhaps not so much as intellectuals may hope.

Utopias in which the productive labor of every person shows a balance of satisfaction apart from its rewards in purchasing power are perhaps unrealizable, but great progress has been made in the last hundred years; and further progress is surely possible by better selection of workers, better training of them for their work, better adaptation of tools, machines, and physical

working conditions to human nature, better public opinion concerning work, especially those forms of it which have wrongly been stigmatized as servile, degrading, or otherwise despicable, and the elimination of tyrannies, insults, indecencies, nagging, and other misuses of the employer-employee or boss-bossed relation.*

It also is probable that the science of industrial management can discover means of increasing greatly the "psychic income" of productive labor in the form of some of Items 9 to 22, at little or no cost to productivity, or even with a gain. A factory manager who was notably successful attributed his success to such simple measures as requiring every foreman to learn to pronounce a worker's name properly and call him by it!

Schools

There are literally thousands of varieties of schools contributing differently to the various items of our list, but three main groups may be noted especially. There are (1) schools which teach specific knowledge and skill useful in a trade or profession and preparing a person to earn a living and so to gratify whatever wants have purchasable satisfiers. Such are law schools, medical schools, schools of business, schools for auto-repairmen, etc. In sharp contrast are (2) certain boarding-schools which, while concerned with knowledge, power and skill, by custom aid children to become ladies and gentlemen and are valued by their clients as providers of approval, friendship, and other social goods. There are (3) the common schools which originally gave all children, but especially poor children, certain rudiments of learning to fit them to be members of the church and state, but which now increasingly seek to give them bodily and mental health, play, development of all their desirable abilities, and social goods.

Schools offer interesting illustrations of unintentional cruelty, of inept failure to cooperate with other agencies, of silly adherence to stupid or outworn custom, such as too often characterize

* That relation is not in and of itself alien to human nature; on the contrary, when a system of group payments leaves a group of workers free to manage their work, they customarily soon choose one to be foreman or boss.

even the finest institutions and activities conceived in good will and nurtured by intelligence and idealism. The free common school has been a noble achievement; but it was cruel when it made six-year-olds sit motionless; it has often taunted the dull and so stimulated the harmful envy and discontent which wise governments and churches try to reduce; it has maintained a forced competition among unequals when it had a golden opportunity to attain its ends far better by using competition with one's peers and with one's own past record.

Schools also illustrate the appearance in human institutions of beneficent by-products not expected by the planners. The common school was not invented to provide affection or friendship, but many a child of parents who are brutal, ill, harassed, or neurotic gets his first healthy love and friendship from a teacher. And many men and women teachers, prevented from marriage by circumstances or personal qualities, have had their lives enriched by giving and receiving affection or friendship in schools.

Public Opinion and Custom

Public opinion and the opinions of various classes, such as Baptists, Democrats, college students, physicians, shop-girls, burglars, the members of one's lodge, one's partners, one's relatives, etc. determine almost entirely what will be approved by others, and very largely what one will himself approve. Indirectly, they determine in part what activities will be enjoyed, since activities under their ban will be given a trial less often and under less favorable auspices. Opinions about what is are potent, and opinions about what is valuable (good, right, and desirable) are still more so, because less easily checked by facts. When enacted into laws, opinions determine what activities are permissible and forbidden respectively and where governmental protection and coercion will be applied.

A person cannot easily lead the life which would be best for him and for the world as a whole unless the opinions of the public and of the various social groups of which he is a member approve it as a life for him. Families, rulers, churches, schools, industry and trade—all are sensitive to, and interact with, public and class opinions.

The general rule for the improvement of public and class opinion is simple: They should parallel the truth or the nearest approach to it that is available. Welfare in the natural world, by any definition or doctrine, will in the long run be promoted by adaptation to realities rather than to falsities. Opinions about existences should consequently follow the sciences dealing with things and events; opinions about values should follow the sciences dealing with the consequences of events to the lives and wants of sentient beings. These sciences may make mistakes but only science can prevent or cure them.

To this general rule there are, however, certain exceptions: First, the following of science by opinion may be permitted a certain lag so that the truth may work down from its discoverer through his peers in science to the general body of experts (for example, physicians) and become their orthodox and authoritative statement of the most probable truth in the premises before it is taught in books and schools generally and impressed upon lay and public opinion by educational indoctrinations.

Second, attempts to make people accept any particular truth are undesirable in proportion as such attempts may cause antipathy or aversion toward science and scientific institutions or personnel. Scientific ideals, work, and workers as a whole are so valuable that they should not be imperiled in order to benefit the world against its will in some one particular. Truth is mighty and ought to prevail, but any sagacious reader of history and observer of human nature can think of conditions in which the science of today might have to fight political and physical force, and might perish in the fight. If, for example, science should find that the combination of genes from siblings produced as good offspring as the combination of genes of equal quality from totally unrelated persons, it need feel no obligation to teach the fact to the world's population. Avoidance of incest is highly desirable quite apart from its genetic results, and it would be silly to associate science in the popular mind with a shocking and repulsive suggestion, when no good could come of it.

Third, the effort to convert the truth known to a few into the opinion of many may be given up or postponed in proportion as it is likely to be misunderstood or misapplied. If the Einstein

equations as finally transmuted, distorted and mutilated in the popular mind became a belief that "the surest things in science may be insecure; we may be living on the inside of this planet instead of its outside; I may really be you; white may really be black; right may really be wrong; true may really be false," they would better have been left to the sole possession of the mathematicians and physicists who could apply them properly.

All three of these exceptions apply with especial force to the sciences of man, and especially the scientific study of wants, values, and the consequences of human acts and choices. The latter is so new and its problems so complex and subtle, and the dangers of popular misunderstanding and misuse of its conclusions are so great, that it cannot be expected to function as promptly and smoothly as physics functions through engineering practice or as biology functions through physicians and experts in public health.

Consideration of these exceptions should not, however, in any way lessen the importance of the rule that, in general, public opinion should follow science, thinking what is true rather than what is habitual or comforting or consistent with human hopes.

The topics discussed superficially and rather dogmatically in this section will receive more adequate treatment in later chapters.

THE WELFARE OF COMMUNITIES

The welfare of a community in the sense of the goodness of life for good people can be measured fairly well by a weighted average score of its status in the following items:

Items of Health

Infant death rate reversed
General death rate reversed
Typhoid death rate reversed
Appendicitis death rate reversed
Puerperal diseases death rate reversed

Items of Education

Per capita public expenditures for schools
Per capita public expenditures for teachers' salaries
Per capita public expenditures for text-books and supplies

Per capita public expenditures for libraries and museums
Percentage of persons sixteen to seventeen attending schools
Percentage of persons eighteen to twenty attending schools
Average salary high-school teacher
Average salary elementary-school teacher

Items of Recreation

Per capita public expenditures for recreation
Per capita acreage of public parks

Economic and "Social" Items

Rarity of extreme poverty
Rarity of less extreme poverty
Infrequency of gainful employment for boys 10–14
Infrequency of gainful employment for girls 10–14
Average wage of workers in factories
Frequency of home ownership (per capita number of homes owned)
Per capita support of the Y. M. C. A.
Excess of physicians, nurses, and teachers over male domestic servants

Creature Comforts

Per capita domestic installations of electricity
Per capita domestic installations of gas
Per capita number of automobiles
Per capita domestic installations of telephones
Per capita domestic installations of radios

Other Items

Percent of literacy in the total population
Per capita circulation of Better Homes and Gardens, Good Housekeeping, and the National Geographic Magazine
Per capita circulation of the Literary Digest
Death rate from syphilis (reversed)
Death rate from homicide (reversed)
Death rate from automobile accidents (reversed)
Per capita value of asylums, schools, libraries, museums, and parks owned by the public
Ratio of value of schools, etc., to value of jails, etc.
Per capita public property minus public debt

Suppose there were available ratings of American cities by an omniscient and all-wise judge who had before him not only these 37 items but also all the facts about the 26 items listed on pages 405 f. in the case of every citizen, and more facts concerning their intelligence, justice, kindliness, cooperativeness and charm, their freedom from bigotry, snobbery, and bad taste, the beauties of their homes and gardens, and whatever else makes for welfare. The ranking of the cities by the weighted average of the 37 scores (call it the G score) would not correspond perfectly with his rankings, but the correlation would be close enough for all the purposes for which I shall use the G score.

I have reported such G scores for the 310 largest cities of the United States in 1930 in another volume.* They vary widely. Comparing the ten scoring highest with the ten scoring lowest we find such facts as the following:

"The infant death rate is only two fifths as high; the general death rate is only three fifths as high; the deaths from typhoid appendicitis and diseases of childbirth are as 1 to 13, 1 to 2 and 1 to 3¾; the per capita public expenditures for schools are nearly 3 times as great, for teachers' salaries over twice as great, for textbooks and supplies four and a half times as great, for libraries and museums eight times as great. The average teachers' salary is nearly twice as great; the percentage of young people 18 to 20 in school is over twice as great, and the percentage of those 16 and 17 in school is nearly twice as great. The per capita public expenditure for recreational facilities is over three times as great. There are no slums in the high ten, 95 percent of the families living in homes with a rental value of $30 or more a month, and only a quarter of one percent in homes renting for less than $10 a month, whereas in the low ten twenty-four percent do. Child labor is only one seventh as frequent; wages of factory employees are nearly twice as high; ownership of homes is nearly twice as frequent. Automobiles are twice as common, gas, electricity and telephones about three times as common, radio sets nearly five times. Illiteracy is one seventh as common, the circulation of the good magazines two and a half times as common. Death from syphilis and homicide occurs one twelfth as

* Thorndike, E. L., *Your City*, '39.

often. The value of the plant used for educational and recreational purposes (schools, libraries, museums and parks) is nearly three times as great, the reported value of public property minus public debt is five times as great." [Thorndike, '39C, p. 50 f.]

Besides this weighted composite of a city's score in the 37 items which we may call its General Goodness score or G, I have for each city a score, P, representing more or less well its residents' intelligence, morality and devotion to the home; and also a score, I, representing more or less well the per capita income of its residents.* I have also as an approximate measure of the wealth of each city, the per capita value of the taxable property. Call this W. By the use of the technique of path coefficients the causation of the differences among the cities in G is found to be divided as follows:

W acts upon G only by influencing I. It contributes nothing in and of itself.

I by itself alone accounts for 23 percent of the variation (that is, the differences among the cities) in G.

P by itself alone accounts for 37½ percent of the variation in G.

What I and P have in common accounts for 23 percent of the variation in G.

Forces other than those represented in W, I, or P account for 16½ percent of the variation.

Differences in the personal qualities of the population are thus much more important as causes of differences in the goodness of life for good people than differences in per capita wealth and income. There is evidence that the I and P scores have as a common cause certain qualities of intelligence, competence, industry, sobriety, and thrift. So it is reasonable to suppose that about three quarters of the 23 percent caused by what is common to I and P belongs to the personal qualities of the population rather than to inherited property, favorable economic environment, or ruthless pursuit of wealth. After making this allotment, wealth and income are credited with 28¾ percent of the causation; the quality of the population is credited with 54¾.

* The eleven items from which the P score is computed and the nine items from which the I score is computed, together with the weights used are described in Appendices III and IV of *Your City*.

These results are for 295 cities, the giant cities of over a half-million being excluded. Their inclusion would make very little difference. If we exclude also the 55 cities which adjoin larger cities, and the 40 cities of the southern states (Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, and Louisiana), there remain 200 which form a relatively homogeneous group and one much freer from the influence of differences in the percentage of Negro residents. The relative shares of wealth and income on the one hand and the quality of the population on the other are much the same as before. The former are credited with 27½ percent of the causation of G; the latter is credited with 46½ percent.

"Cities are made better than others in this country primarily and chiefly by getting able and good people as residents—people who, for example, are intelligent, read books, do not contract syphilis, or commit murder, or allow others to do so, own their own homes, have telephones, and support doctors, nurses, dentists and teachers rather than lawyers and domestic servants. The second important cause of welfare is income. Good people, rich or poor, earning much or earning little, are a good thing for a city, but the more they have and earn the better. They and their incomes account for at least three fourths, and probably more, of the differences of American cities in the goodness of life for good people." . . . "The safe and prudent cause for any city to pursue is to improve its population and increase its incomes." [Thorndike, '39C, p. 67 f.]

I have studied the influence upon the G score (for the general goodness of life for good people) of certain features of government, the quality of past populations, natural physical advantages, and other measurable features, including the disparity of incomes, with the general result that these either do not exert much influence or exert it via the quality of the population. Having a modernized commission or city-manager government rather than an old-line common council or the like may account for two or three percent of the variation in G, but even that is doubtful. The quality of the population in 1900 has a very strong influence upon the welfare of the city (that is, upon the G score) in 1930, but its influence is exerted largely via the quality of the popula-

tion and incomes in 1930. The quantity and quality of education given in 1900 has influence upon the G score of 1930, but it operates largely via the quality of the population and incomes of 1930. [Thorndike, '39A, Chapters II and III] Equality of incomes is slightly associated with high G scores, but only via the P score.

For 142 of the 295 cities I have more or less satisfactory measures of the personal quality of the population in 1900 and the quantity and quality of the schooling in 1900. In the case of these cities about 80 percent of the variation in G of 1930 is accounted for by the I and P of 1930, and the use, in addition, of the scores for personal qualities and education in 1900 does not raise this percentage five points.

I have computed similar G scores for the 48 states of the United States. They vary widely. I have also obtained per capita income scores (I), and scores for the personal qualities of intelligence, morality and devotion to the home (P), of the same general nature as those for the cities.

The causation of the differences between the states in G is as follows:

14 percent to I
46 percent to P
23½ percent to what is common to I and P
16½ percent to forces not represented in I or P

As in the case of the 295 cities, five sixths of the variation in the goodness of life for good people is caused by the personal qualities and average income of the population; and the former greatly outweighs the latter.

Chapter 17

THE WELFARE OF FUTURE MEN

In planning how to provide a good life for good people (or for all people, good and bad) it is wise to consider separately short-time provisions for the present generation under existing conditions, and long-time provisions for future men in a changed world. For there are radical differences between the problems in the two cases, and also between the answers to the same problem.

With people and conditions as they are now, one large part of the problem is to prevent defectives, delinquents, and worthless persons from wrecking the good life for the great majority. Another is to alleviate the miseries and frustrations caused by disease and misfortune. Another is to attain and maintain healthful, useful and enjoyable habits of thought and feeling and action in the great majority. Another is to maintain and increase the world's income (i.e. production of goods) and to take care that a minimum of it is wasted in war, preparation for war, harmful indulgences, ostentatious display, and the like.

When fairly long-time provisions, say for the next hundred or two hundred years, are being considered and planned for, one fundamental question is how many lives shall be provided for. Shall the world restrict its birth rate, and if so, how much? Another concerns such choices as between trying to restrain and reform the persons who interfere with the good life for the majority and preventing them from being born. Another concerns the provision of persons of great ability, who, though numerically few, have a very large share in changing both the physical world and human institutions so as to provide more of the good life for more people.

Long-time provisions are likely to be neglected relatively to

the care for the present generation. An individual often sacrifices his long future to his immediate cravings; the human species does so habitually and as a rule. It lives from hand to mouth. Except for the natural ties causing parents to work for the welfare of their offspring, and for a rare abstract general benevolence and wisdom in a few, a society will get what it wants for itself reckless of the future. Gortner notes that "In spite of the fact that the world's resources of tin are exceedingly limited, we still demand tinfoil around candy bars and packages of cigarettes, and the world's available sulfur supply is being rapidly exhausted in the demand for cellulose products which have a silken sheen. Such illustrations could be extended almost indefinitely. . . . Viewing our wastage of natural resources, I sometimes wonder if we are civilized." ['33, p. 442]

A MEAGER LIFE FOR MANY VERSUS A GOOD LIFE FOR FEW

The number of men living on the earth is now perhaps a thousand times as many as it was a hundred thousand years ago. It is about 2½ times as many as it was in 1800.

The famous doctrine of Malthus that except for deliberate restriction of offspring the world would be kept full of persons living at a bare subsistence level, and indeed running over with a surplus who would die from insufficient food, seems to have been approximately true of many parts of the world for much of its history.

The race in which increased production is pursued by an increasing population which overtakes and keeps pace with it except for sudden spurts has become a more complex matter since about 1850 by declines in the birth rate. There has been a further complication by the extraordinary increase in the production of certain goods, due largely to the advancement of science. The so-called economics of plenty is a somewhat misleading name for a condition in which many millions of children have no shoes or books or milk or medical care. Widespread famines, however, are now rare in the western hemisphere, and few European or American children die of malnutrition. Whatever be the present status and future course of the race between production and population, it is certainly bad to have babies born

only to be slowly starved to death, and it is probably bad to use the world's resources to maintain a billion and a half (or more) persons at a subsistence level instead of a billion at a level nearer decency and comfort. It may be argued that half a billion at a much higher level, say that of the average white family in the United States, would be still better.

The number of persons has long been enormously in excess of what is needed to guarantee the protection of the species from destruction by other animals. It is, indeed, using up coal, oil, sulfur, iron, copper, tin, lead and certain soils to the prejudice of the species in the future. If there is reason to expect that there will be better people with better knowledge and customs a thousand years from now, it is reasonable to arrange to have more people then than during the next hundred or so years.

The questions (I) "How long do we wish the human race to be perpetuated?" (II) "How many persons do we wish to have on the earth from now till the end of time?" and (III) "How many of this total number do we wish to have in the generation of 1941 to 1970, in the generation 1971 to 2000, and so on?" are neither senseless nor unimportant, though questions concerning the quality of the persons are much more important.

Consider these two sets of extreme answers:—

A	B
I. For three million years or 100,000 generations.	I. For thirty thousand years, or a thousand generations.
II. 1,000,000,000,000,000	II. 300,000,000,000
III. Start with the present birth rate and increase it by constant increments large enough to produce, in connection with whatever the death rate turns out to be, 10,000,000,000,000,000 persons living an average of 50 years apiece in the course of the three million years.	III. Start with the present birth rate and decrease it by one tenth of one percent per year until a population of 500,000,000 is reached, and then hold the population at 500,000,000.

If one were compelled to choose one of these, any well-informed person would choose B, because A seems likely to be irreconcilable with a good life for man. But no well-informed person would choose either without first setting up some sort of a minimum standard of welfare to which considerations of numbers would be secondary.

Let that be set arbitrarily as any amount above zero, for example, as the average welfare of the world's inhabitants in 1900 to 1910. It would then be reasonable to let the population multiply so long as their multiplication did not prevent or threaten the attainment of that standard.

In so far as it is good to be alive, it is good for more men to be alive. It would, however, be much more reasonable to weight numbers by welfare and to prefer a population of half a billion with an average welfare of 10 to a population of a billion with an average welfare of 5. This is reasonable for the extremely simple reason that the second half-billion by delaying their lives would have the welfare of 10 instead of 5. It is as certain as anything in nature can be that this earth will last long enough to give birth to all the people for whom it can provide decently. We need not hurry to get people born lest they lose their chance at happiness! If life on this planet can be made better and better year after year, without increasing its population, there is excellent reason for delaying increases in population. We therefore consider outrageous the famous dictum of Paley that: "The quantity of happiness in a given district, although it is possible it may be increased, the number of inhabitants remaining the same, is chiefly and most naturally affected by alteration of the numbers: . . . consequently, the decay of population is the greatest decay that a state can suffer; and the improvement of it the object which ought, in all countries, to be aimed at in preference to every other political purpose whatsoever." [1785, p. 441 of the American Edition of 1810]

The Malthusian choice between a meager life for many and a good life for a few becomes a dead issue if the improvement in the quality of the population or the conditions of their lives generation after generation is so great that each person born adds

as much to the world's goods and natural resources as he consumes, and makes life neither worse nor better for other men than it would have been without him. The choice then would be between three alternatives (1) as good a life as we now have for as many as we now have, (2) an equally good life for more, and (3) an equally good life for fewer.

Both improving the conditions of life and improving the quality of the population are obviously important. But the former is likely to involve using up the world's natural resources more than the latter does. For example, intelligent persons will use up less wood and coal and oil than the average in keeping equally comfortable, good persons will waste less in war and invidious display; healthy persons will need less to keep them equally happy. The world's mental resources will be increased more by superior than by inferior persons under the same conditions of life.

Improved quality of any sort is desirable, but the benefits differ according to its location. In particular, the improvement by replacing the idiots and moral perverts by better persons makes it easier for the remaining to obtain and retain a good life by removing certain impediments and wastes. Improvement by adding above the ablest of the present one tenth of a percent still abler and nobler men provides positive contributions for a general and permanent advance. The benefits from the former would be demonstrable immediately and indubitably; the benefits from the latter would probably be enormously greater in the long run, but it would be very hard to prove this to the general populace. They would see the emptying of the asylums for idiots, the drop in the number of rapes, unprovoked murders and unspeakable crimes, and the tax-money freed for hospitals and schools, and would refer these benefits to their proper cause. They could not, without careful and expert investigations, see how much improvement in scientific discoveries, art and literature, government and statesmanship resulted from the substitution of super-best men for the best of their day.

Indeed, some persons have been and are skeptical of great improvements in welfare from having super-Einsteins, super-Curies, super-Rodins, Manets and Monets, super-Hardys and Merediths,

super-Edisons and Langmuirs added to the world. Let any such person write out a list of a hundred of the specially able and good persons born 1840 to 1870 whose names begin with A, C, E, G, I, etc. Let him then increase it by the achievements of a hundred born 1840 to 1870 whose names begin with B, D, F, H, J, etc. The least our super-excellent could do would be to make a comparable increase.

It is probable that quality somewhat superior to the top can be added, and it is practically certain that quality equal to that of the top hundred thousandth can be produced in double, quadruple, or even a thousand-fold its present amount. By selective breeding, the genes of men can be improved until congenitally dull and brutish men are as rare as dwarfs are now, and the average child has capacities better than any save a few have now. By improved training and facilities these better genes will have fewer hindrances to healthy growth, knowledge, power and useful work for the world.

There are however certain minor advantages to sheer numbers. Life in families seems to average better than life single; and life in families with two or more children seems to average better than life in families with one child or none. Other things being equal, the greater the number of persons, the greater the number of those persons of very great ability whose work will contribute to the good life for all.

It is worth while to note briefly the possibility of a very rapid decline in the world's population by changes in customs and aspirations concerning the family, in religion, and in other respects, and by the newer and easier methods of birth control.

Trustees for the welfare of man might then need to act against this in order to have enough people to keep the material and spiritual apparatus of civilization in working order. It is necessary for the good life that there be at least enough people to keep the main telegraph lines, transoceanic cables, light houses, radio stations, libraries, museums, research laboratories, medical schools, etc., as going concerns. If any given numbers were set as the upper and lower limits of an optimum population, rather complex plans and good management would be required.

THE DEPENDENCE OF THE GOOD LIFE UPON THE QUALITY OF PEOPLE

All matters of the size of the world's population are of relatively little consequence in comparison with its quality. Things as they are would provide the good life for a far higher percentage of the population than a cut which retained only the worst half of the population. Such a half would even have less to eat per person. On the other hand, if the best third of the population had eight children per pair seven of whom lived to bear children, and if the best third of these repeated the process and so on with the result of increasing the world's population steadily up to twice its present size in fourteen generations, it is practically certain that the world could then support this doubled population in a much better life than we have now. It would have more than made up for the loss in certain natural resources by the discovery of others; and it would have accumulated man-made resources much more rapidly than the past has done.

The problem of population control was until recently complicated by the dependence of restriction of population upon sexual abstinence. Now that methods of temporary and permanent prevention of conception which do not involve any such abstinence are available, the restriction of population requires only the willingness of possible parents to have fewer children, and a certain amount of legislation, money and care. Many of the feeble-minded could learn to use contraceptives and would be glad to do so if no expense was involved. The lower grades can be sterilized. They would feel no disgrace; indeed they need not know anything about the operation. Nor need anybody else know. The difficulty is no longer to restrict the production of undesirable offspring, but to maintain it where it is desirable. Children need no longer be a by-product of sex passion, but may be had for their value to parents, to the community, and to themselves.

The desirability of any given quantity depends mainly upon its quality. The population should, as we have seen, contain persons able at least to preserve the knowledge the world has acquired, and if possible to increase it. There should be persons

able to manage the machinery and institutions of the world, and if possible to improve them. If breeding is selective, it must not select against such. If by some biological catastrophe the next two or three generations had nobody above 85 I.Q. (which is somewhat below the average present intellect), radios, telegraphs and telephones would go dead, our power houses would be wrecked, trains would be at a standstill, typhus, cholera, and dysentery would sweep over the world, steamships would sink or corrode into junk, nations would disintegrate, most of mathematics, science, law, and government would vanish or remain as mysteries like the Maya language or the "canals" on the moon, physical force would work its will with little restraint until some *modus vivendi* on a low plane was hit upon by the few surviving humans.

Whether the present apparatus of material equipment, knowledge, institutions, etc. could be kept as a going concern if the world did not continually replace its top five percent in intellect and in managerial ability is very doubtful.

The population should probably not include many who can do nothing which machines cannot do better. As science and technology spread worldwide, and natural forces are harnessed and machinery is set up throughout the world, many persons who now earn subsistence by brute strength or assiduity will be unable to earn the sort of living which is necessary for a good life. Such persons may be given good care and happy lives out of benevolence, but there will be a pressure to value them at what their services are worth, and give them what they earn. That will not provide the good life for their children. Their children can be given a good life such as they can enjoy, by the help of charity, or they can be prevented from being born. Persons who could be useful and happy picking up sticks, throwing stones at crows, chopping wood, and wielding a sickle in a village community six centuries ago may be dangerous and wretched in a modern factory or on a modern farm.

It is probable that any reduction in the world's population by the non-birth of persons whose genes are in the lowest third by a reasonable composite score will increase substantially the average goodness of life for those who are born. By the end of a few

hundred years it would probably have increased the total sum of happiness computed *à la* Paley.

In actual practice *any* reduction in numbers which comes as the net result of controlling births in favor of the better genes will benefit welfare. It is conceivable that men might reduce and reduce until the earth contained only a handful of fine creatures who lived nearly perfect lives; but genetic improvement, bringing with it a greater homogeneity in quality and a better life, would in fact maintain a rather large population. Good people in a good world would want children enough to ensure that. The abler and better classes may have fewer children than the less able and good classes, but within the same class the abler and better have their full share.

Certain sinister forces work for increases in numbers regardless of quality.

Rulers, craving power by nature and training, have tended to increase it by getting more subjects born. They have tended to kill or maim these added subjects in wars to increase their power by conquest. The average worth of life is likely to be decreased by modern wars.

Employers of labor on a large scale are said to favor population increase in order to have a large supply of persons who must sell their labor to gain a living, permitting them to pick and choose at low wages and leaving charitable persons and the taxpayers to support the others. The average worth of life is likely to be decreased by the existence of laborers at a bare subsistence level, and by a large pauper class.

Parents are said to have many children when the children work as minors on the farm or otherwise, and to have few when they are compelled by law, custom, self-respect or affection to send the children to school for a large fraction of the time. Too much child labor instead of schooling is likely to decrease the average worth of life.

A wise trustee with power over the world would probably work chiefly for quality during the next few hundred years and be unworried even if the world's population declined to a billion or even less, if large gains were made in the quality of the genes, and the goodness of life. As life got better and better he would

be tempted to have more persons born to live it before some calamity put an end to man. But he would also be tempted to delay their birth until it got better still. It would be a pleasant dilemma.

EUGENICS AND THE GOOD LIFE

The philanthropists and reformers of the past suffered from extreme ignorance of biology in general and facts of human inheritance in particular. Nor are those of the present beyond reproach in these respects. Some of their proposals and activities seem to be valid only if traits acquired by a person are perpetuated in his genes and offspring; but they are not. Some are valid only if the original unborn individual differences among men are very slight; but they are very great. Some of the hopes of the devotees of eugenics, on the other hand, seem to assume a simplicity in the gene determination of important human qualities which is quite out of harmony with the evidence.

The essential facts are as follows: The genes are, in Jennings' phrase, packages of chemicals. A gene is simple compared with a person, but it is enormously complex compared with an atom, and an inventory of the genes in a single one of man's chromosomes, describing in the case of each all its chemical constituents and their arrangements, would probably fill a book ten times as big as this.*

If all the genes which are carried in all the spermatozoa and ova of all human beings were listed, and the properties of each were perfectly known, certain combinations could be chosen which would, when used to produce persons, promote the good life far better than certain other combinations would. Suppose a future population of 200,000 half male and half female to be made up

* By the recent brilliant work of Wendell Stanley on the cause of the tobacco-mosaic disease we can now have some idea of a molecule which has properties half-way between those of most molecules and those of a very simple gene. This molecule weighs about as much as 17,000,000 atoms of hydrogen, and presumably has complexities of structure and function in proportion. We may provisionally think of a gene as a stable arrangement of from two to a hundred or more different molecules each of a complexity comparable to that.

from combinations of genes. With perfect knowledge the choice could be made so as to maximize the good life for these two hundred thousand persons.*

Let us call this imaginary population produced from these gene combinations the "genetically best of 1940" and suppose that the world's population was replaced by an equal number of "the genetically best of 1940." Let us call the average score of this new population in a wisely weighted composite of health, intelligence, virtue, sanity, cheerfulness, etc., in the environment which it would create out of the present environment, A + K (K being the difference between it and A, the average score of the world's present population). The variance of the new population around A + K would be very small, perhaps .01 (A + K). Individuals could differ a good deal in particular talents and achievements but only very little in composite score.

Even in particular elements of "goodness" they would all be rather high because the correlations are positive. There would be perhaps a score capable of becoming Bachs and Beethovens and the least musical would be well above the average man of today. There would be enough high intellects to provide possible Newtons, Pasteurs and Darwins for each brand of science and engineering and for each profession. The average gene equipment for benevolence and humaneness would be perhaps two thirds or three quarters of the way from the average person toward Jane Addams or Abraham Lincoln. They would live at peace in the world, where there would be enough managerial talent to keep mundane affairs going smoothly. Not much would be needed, unless it should be impossible to get genes productive of high abilities and noble natures without certain taints of neuroticism.

We cannot thus choose, shuffle and arrange the genes directly; we can choose them only by the persons who carry them. Those

* Whether the 100,000 male or female combinations would be nearly identical, producing, except for environmental differences, a breed of nearly identical best possible compounds of health, ability, virtue, wisdom and happiness, I, lacking perfect knowledge, cannot say. It seems much more probable that there would be a variety of excellence to divide the labor of maintaining the good life for all.

carried by any person in each of his germ cells are not identical lots. If a million of the spermatozoa of John Doe were inventoried they would show very great differences. This is a safe inference from the fact that John Doe mated with Mary Roe produces children whose variation is about 87 percent as great as the variation of the general stock of the country of which John and Mary are citizens.*

Suppose that every person in the world were given an accurate score based on some reasonable composite of health, sanity, ability, morality, and other traits beneficial to the good life.** Suppose that the thousand men and the thousand women scoring highest were used as new Adams and Eves to people the earth. The scores of these two thousands would be very closely alike, and would be in the neighborhood of A + .99K on the composite scale where A is the present type or average and A + K is the average of the "genetically best of 1940" living in the environment which they make. But the scores of a thousand children born from the thousand pairs (or from one of the pairs, if that had been possible) would not average near A + .99K but at a much lower score, near A + .5K, and would not be closely alike but would vary from A + .99K or higher to as low as the average,

* The correlations between brothers within such a stock or race or race mixture for cephalic index and other traits uninfluenced by the home environment are about .50; those for stature, weight, and other traits not greatly influenced by the home environment are not much more. A correlation of .50 means that the variance among children of the same parents is 86.6 percent ($\sqrt{1 - r^2}$) of that among the total population from which they are selected.

** A reasonable composite would be one which made sure of not losing from the world any desirable gene. It would be arranged so as to include persons with certain harmful traits if there was any risk that by excluding them some desirable gene might be lost. For example, a person of supreme achievement in poetry would not be excluded even if he were a fool or a deep-dyed villain, unless the thousand already included enough persons gifted at poetry to ensure that the genetic basis of poetic achievement was included. A sufficiently able mathematician would not be excluded for being neurotic and having cardiac deficiency unless the thousand already included enough healthy persons of mathematical achievement equal to his. Indeed the ablest person in every important sort of activity would probably be put on the list regardless of his score in other sorts of activities. Any other precautions desirable to guarantee absolutely against the loss of any gene needed to make the best possible men would be taken.

K, and perhaps very much lower, though very low scores would be extremely rare.*

The new Adams and Eves are approximately those products of the most favorable variations of genes which had the most favorable environments. Even if their environmental advantages accounted for only a tiny fraction of the superiority of the two thousand Adams and Eves, the fact that they were selected by their quality as persons means that they were better than their brothers and sisters, and than their midparents (midparent equals average of father and mother). The genes of the midparents then included also many much less favorable variations. The genes which the Adams and Eves produce include many of these less favorable variations, because the action of the genes in producing an Adam is not identical with their action in producing the spermatozoa of that Adam.

This great variation in the genes produced by the same person, which seems not to have been fully appreciated by even specialists in genetics and eugenics, explains why so many extreme deviates, for example, persons of great ability, are the children of rather ordinary midparents. A correlation of .50 between midparent and child (not midchild) implies that the ablest midparent of a million has four thousand times the chance of producing the ablest child of a million that an average midparent has, but it also implies that ninety-nine of the hundred ablest children out of a hundred million will be born from the

* The exact numbers used here and later depend upon reasonable assumptions concerning the correlation between midparent and child, the amount of influence of the environment, and the variability of the genes of superior persons compared with that of the genes of ordinary persons. They will be somewhat different if these assumptions are modified, but the essential facts and argument will be the same.

The chief assumption concerns the correlation between midparent and child in score for general excellence after the influence of resemblances in their environments has been partialled out (except in so far as these resemblances were themselves caused by resemblances in the genes). I have set it at .50. This is probably too low, because the correlation for a weighted composite score for all the worthy features of intellect, character, skill, sanity, etc. will almost certainly show a much closer correlation between midparent and child than the average of the correlations for these features taken one at a time. If it really is .60, the benefits from selective breeding will come at a much faster rate than that stated here.

middle half of the population. The two facts are not opposed, but are harmonious parts of the same fact.

Its consequence for our present purpose is that eugenic progress toward a race optimally equipped in its genes for the good life is slow and somewhat insecure. Certain particular qualities caused by the presence or absence of single genes can be bred in or out with surety in a few generations. Certain others caused by the presence of certain known combinations of two or three genes can be bred in or out with surety though much more slowly.* But when the trait is caused by unknown genes in unknown combinations, or when many genes are involved even if they are known, progress can be made best by selecting by parental scores as in our Adams and Eves, and is necessarily slow, the reduction in the variation in one breeding being only 13.4 percent.

Suppose that by a miracle our two thousand best Adams and Eves produced the whole world's population, and that the two thousand "best" males and females of their offspring were chosen as Adams and Eves, and that these produced a new world's

* Mendel's discovery and the important experiments and studies of pedigrees by students of genetics during the past generation are of paramount importance to the understanding of the biology of inheritance, but the early hopes that intelligence, morality, artistic ability, musical ability, and other important abilities and interests would be found to be "unit-characters" caused by the presence of a single or double dose of a certain gene were doomed to disappointment. Some genes have been discovered which do cause idiocy, but over ninety-five percent of idiocy is not caused by them. Not a single case of the causation of some highly desirable human trait by one gene has yet been found. The search should continue. All the sciences of man should encourage biologists in analyzing the chromosomes, mapping the genes in them, seeking ways and means to show the presence of "recessives" which do not manifest themselves in the quality except in children where they are reinforced by another dose in the other parent, and studying the consequences of combinations of genes. But for the genetic improvement of man at present, and probably for many years to come, the best use of the knowledge of a person's genes obtainable as a result of such studies will be to attach a reasonable weight to it in such a general goodness score as has been described. For example, if it had been known that the ova of Madame Curie carried the gene for juvenile amaurotic idiocy, the gene for phenylketonuria, another presumable cause of idiocy, and all the other deleterious recessives known to biology, her score would have been somewhat reduced, but she would still have been high on the list.

population. The average of this third generation would move up to about A + .75K and its variation would be reduced to about 86.6 percent of that of the second generation or about 75 percent of the variation of the original world's population. A continuance of such selective breeding for 20 generations would, if no untoward accidents occurred, make the ordinary or modal gene constitution of the offspring nearly as good as that of the "genetically best of 1940," and reduce the chance of any gene constitution of any child producing a person lower than about A + .9K to an infinitesimal amount. The population which originally varied from about A — K to about A + K would vary from about A + .90K to A + K or higher. Even with breeding from the top two thousand and childlessness of all others, and miraculous fertility of the two thousand, the eradication of all but those with a status of A + .9K or higher will be slow.

The combinations of genes in a population whose type or mode was near A + K and whose variance was less than .02K would have got rid of most or all of the genes unfavorable to the production of the "best" persons, would have preserved all or nearly all of the genes favorable to such production, and would be nearly or quite as "good" as the combinations of genes chosen as the "best" by omniscience from the imagined inventory of the genes now in the population of the United States. Eugenics may hope for an entire race of persons as "good" as the best of the present genes are making.

May it expect a race even better? May it expect that, as unfavorable genes are eliminated, mutations will occur producing new genes some of which are favorable and extend the upper limit of "goodness" for the species? Mutations are occurring in man, and selective breeding would give "good" ones a better chance of being retained than "bad" ones. But the movement must wait for such mutations, and will be extremely slow. The mere fact that the type moves up from its present status at A to A + .5K or A + .6K or A + .7K does not at all imply that the top will move up from its present possibilities by even a hair's breadth.

It should be noted that selective breeding for a population to consist of some persons of general excellence and ability plus

some of moral excellence and docile dependability whose function will be to serve the former will involve the same possibilities, and somewhat the same slowness, as selective breeding for general excellence alone. Similarly for a population composed of three, or four, or five, or any number of types considered "desirable" to make a good life for the world. Progress can be somewhat more rapid if selection occurs contemporaneously for several types which use different genes, but it can never be very rapid if the types to be selected and fixed involve elaborate combinations of genes. Even a single quality often does. Neither intelligence, nor morality, nor health, nor sanity, nor cooperativeness, nor cheerfulness, nor submission, nor loyalty is a unit-character caused by the presence or absence of some one gene in either or both of the germ cells. Nor is there much likelihood that any one of these is caused by only two or three or four or five genes. The earlier hopes aroused by the rediscovery of the Mendelian laws of inheritance have been tempered by advances in knowledge. Though the laws are valid, their use when combinations of many genes (or units of inheritance if the unit of inheritance is smaller than the gene) are involved becomes in practice a repeated breeding from the persons most like the types desired.

A few words should be said about the rate of improvement when breeding is from only the top tenth, or quarter, or half, of the population in respect of the desired quality or composite of qualities, as it must be in a species where all births are from females who can have few offspring (a maximum somewhere near twenty, and an average under favorable conditions and with no birth control somewhere near seven).

The movement of the type or mode upward and the reduction in the variability will of course be slower. The resemblance between mid-parent and child due to the genes alone being .50, and breeding being continuously from the top ten percent, the improvement in the first three generations would move the type up to about A + .2K, A + .4K, A +.5½K, and reduce the variability to about .9, .8, and .7¼. Almost thirty generations would be required to bring about as good a condition as the very high selection gave in twenty.

A more practical question concerns breeding continuously from

the top half. The movement of the type upward will be approximately as follows:

In three generations, to a little over A + .2K.
In six generations, to about A + .4K.
In eight generations, to about A + .5K.
In ten generations, to about A + .6K.

The fifth generation would have very few below the present average, and by the tenth the population would almost without exception be healthy and cheerful, honorable and just, and able to practice a skilled trade or profession. It would by then include a very large number of persons able to improve science, the fine arts, government, welfare work, and business, and eager to do so. The mass of the population could and would trust these leaders. Charlatans, demagogues and cranks would be very scarce and would attract very few followers.

In twenty or thirty generations each bred from the top half, the population would be so able and good as to provide a very noble variety of the good life for all. It could continue, if desired, to the goal which Haldane guarantees can be reached (in less than a million years!) when the average man or woman "will never know a minute's illness. He will be able to think like Newton, to write like Racine, to paint like Fra Angelico, to compose like Bach." But this seems unnecessary.

THE ELIMINATION OF "BAD" MEN AND "BAD" GENES

Certain combinations of genes are favorable to the production of feeble-minded, insane, moral perverts, grafters and others who do the world more harm than good. Selective breeding against them is advantageous though probably not so advantageous as breeding for excellence, since idiots and delinquents probably do much less harm than their opposites do good.

Intelligent social workers have in general accepted the practice of segregation or compulsory sterilization for certain sorts of habitual criminals and of voluntary sterilization for the feeble-minded, insane and others burdened with some grave heritable defect. They also in general encourage birth control by the thirtieth or twentieth (or even the tenth) of the population who seem to them least fitted to have and rear children. Science

recommends that the acceptance and encouragement be extended somewhat further; and also that they be applied to persons as rated on a composite score for defects rather than on the extreme condition of some one of them. It is now known that mental and moral defects are not divided into those (such as color-blindness) caused almost entirely by the genes and those (such as ordinary blindness) caused almost entirely by the circumstances of life, with a gap between. On the contrary there is no gap at all, many defects being favored by certain gene conditions and also by certain stresses, shocks, misfortunes, and bad habits.

It should be, and probably will be, agreed that the quality of the population is a more important goal of social effort than its quantity to the extent that the relative values of persons to the world increase in proportion to their general excellence, at least as fast as in the scale shown below, in which A = the average of the world's present population in a reasonably weighted composite score for fitness to promote the good life, A—.60K = approximately the score below which the worst 135 in 100,000 of the population are found, A—.40K = approximately the score below which the worst 2280 in 100,000 of the population lie, and so on as stated in the scale, and in which the person produced by the best possible combination of present human genes would score about A + K, and the person produced by the worst possible combination of present genes would score about A — K.

A ROUGH SCALE SHOWING ESTIMATED INCREASES IN A PERSON'S VALUE TO THE WORLD'S WELFARE IN ACCORDANCE WITH HIS COMPOSITE SCORE FOR GENERAL EXCELLENCE

Score	Estimated Value
A − K	
A − .60 K or that now exceeded by all but 1350 per million	−0.25 or worse
A − .40 K or that now exceeded by all but about 2.3 percent	0
A − .20 K or that now exceeded by all but about 16 percent	0.25
A or that now exceeded by 50 percent	1
A + .20 K or that now exceeded by about 16 percent	4
A + .40 K or that now exceeded by about 2.3 percent	16
A + .60 K or that now exceeded by about 1350 per million	64
A + .80 K or that now exceeded by about 32 per million	256

The zero line below which a person does more harm than good is set very conservatively in this scale and will probably rise with the increased complexity of civilized life to A—.30K or higher. At A—.40K it puts as harmful only those who are clearly feeble-minded, morally perverted, or constitutionally useless for civilized life, or are so low in several of these or other respects that almost any sort of world would be better off without them. As heavy work and repetitive work is given over to automatic machines and closely supervised work is eliminated by a better organization, more of the dull will be unemployable. As the prudent conduct of life comes to depend more upon following abstract rules set by science and less upon concrete habits, fewer of the dull will be able to keep healthy, get fair value for their money, and avoid making public nuisances of themselves. As economic, legal, and social relations become more complex, more of those with psychopathic tendencies will break out into harmful eccentricities, become insane, regress into childish evasions of reality, or otherwise make nuisances of themselves.

The estimated score of a child may be taken as at A plus half the deviation from A which its midparent has, since the correlation attributable to inheritance may be taken as at least .50 for such a composite score as we are considering. The probable value of a child from each parental level is then as follows:

Midparental Score	Average Child's Score	Average Child's Value
A − .60 K	A − .30 K	+⅛ or worse
A − .40 K	A − .20 K	¼
A − .20 K	A − .10 K	½
A	A	1
A + .20 K	A + .10 K	2
A + .40 K	A + .20 K	4
A + .60 K	A + .30 K	8
A + .80 K	A + .40 K	16

Since the regression of offspring toward the mean of the population makes their average "values" plus even when those of the parents are minus and since the reduction in the variance of children of the same parents is only 13.4 percent from that of the general population, the elimination of harmful persons and genes will progress only slowly by restraining the lowest levels from reproducing. If, as is possible, the low end of the distribution

of mankind for general excellence tails out less than the high as shown in Fig. 44, it will be still slower. But the results, though less valuable than those from positive selection at the top, are

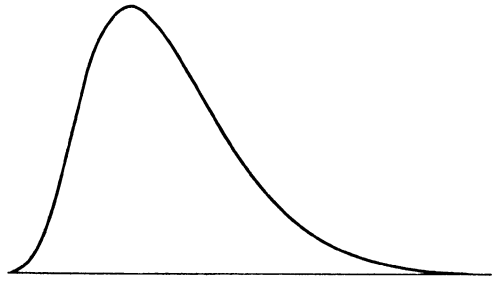


FIG. 44

sure and permanent; and the children would have wretched home environments if they had been born.

LONG-TIME IMPROVEMENTS IN THE ENVIRONMENT

Certain changes in the environment are permanent with only an inconsiderable amount of care. Such are the knowledge of science and history, the rules of law, compositions of literature and music, and the elimination of certain animal and plant pests. Some require more care, like sculpture and paintings, trade secrets, games and sports, rites and ceremonials, canals, tunnels, and fills. Some require much more, like customs, ideals, political, religious, and social institutions, highways, pipe lines, railroads. Some have permanent existence but lose their utility. So the Chinese wall, the pyramids, medieval castles, the books of ancient Egypt, Greek charms, and Aztec altars have outlived their usefulness. Some have lost the forms of their original existence but demonstrably live on in their products. So doubtless unknown tales live on in Homer, and music no longer heard may have helped Bach make his.

In contrast to these are such things as the bulk of yesterday's conversation the world over, some of which simply canceled the influence of other parts or of the conversation of the day before, and much of which stirred the air and kept certain persons entertained for the time being without making appreciable changes in

them. Still more of it was useful only in maintaining the welfare of persons for the time being and keeping industry, recreation, study and other features of civilization alive and healthy; and had no other permanence. Out of 10,000,000,000,000 words spoken yesterday perhaps one millionth had a more permanent influence. Other things being equal, the greater the prospect of permanence the more important the change. Man must therefore control his perverse tendency to overvalue shifts of fashion, exciting novelties, enthusiasms born of some special incident and whatever produces results which, though widely applauded, will be nullified by reaction, or wane for lack of support, or become useless in changed conditions. Thus, except for special reasons, it is better to add to the truth than distribute it to more persons; to cure persons than make them comfortable; to make houses than make fireworks; to take food than take stimulants; to discover how a disease is caused and how to prevent it than to make a million persons comfortable while they are enduring and recovering from it.

The capital saved for the future must be protected against destruction by war, bigotry, and other follies. This is true of mental capital as well as material. Let the libraries and laboratories be prostituted to some narrow nationalistic or racial creed and two or three generations of men of science and scholarship be put to work in concentration camps unless they are willing to prostitute their abilities to the service of government; modern science and art might vanish beyond recall.

EUGENIC PRACTICES

Improvement of the human genes, though much slower than some enthusiasts for eugenics have represented it, is the surest means of fostering the good life; it operates at the source by producing better people. It also produces indirectly better customs and institutions; it is an insurance against the deterioration of the good customs and institutions which the world has now; it is a permanent and a productive investment in human resources. it costs nothing—the superior genes are as "free goods" as the inferior, ready to be used. It is in conflict with only two wants of much consequence—the desire to have offspring and the aver-

sion against having one's body tampered with by anybody for any reason.

No well-informed and sensible persons object to the general principle of eugenics. If a million people had to be sterilized in the United States such persons would unanimously prefer to sterilize the million scoring lowest on such a composite scale as was described earlier rather than to sterilize the million scoring highest. They would unanimously prefer to have babies born from couples averaging in the top ten percent of married couples in the population by that scale than from couples averaging in the bottom ten percent, if they had to choose. They would unanimously agree that we ought to do what we can to avoid the loss of good genes and good gene combinations from the human stock, and to hasten the elimination of genes which contribute nothing of value directly or indirectly.

Most, if not all, would subscribe to this conservative statement of Karl Compton: "Hereditary weaknesses, both mental and physical, constitute a terrific annual drain on the happiness and on the finances of the country. They present a tremendous challenge to science, a challenge which I believe will ultimately be met. We need to know in what respects these weaknesses are hereditary and in what respects they are individual accidents. We need to know if and how they may be cured. If incurable, and hereditary, the welfare of the race requires their elimination, perhaps by some such means as have been found successful in repressing undesirable or developing desirable physical and mental traits in domesticated animals. Much scientific work has been done in these lines, but only a beginning has been made. . . . Such controls as are here suggested will be found unpleasant to contemplate by many people. But think, on the other hand, of the terrible unhappiness of defectives and their families; remember that their number runs into the hundreds of thousands; remember that they constitute one of the greatest drains on our economic resources. If science can find effective means to cure such cases or, if incurable, to prevent their occurrence, this alone would justify all the scientific work that has ever been done. To be sure, education and probably legislative action will also be required to complete such a program, which would fail without

supporting public opinion. But science must do its part first. Legislative action not based on thoroughly established scientific findings would probably do more harm than good." ['34, p. 391]

But some well-informed and able thinkers are fearful that any control of the next generation by those actually in power will be worse than the present go as you please practices, and not nearly so good as some form of education and moral suasion. So MacIver objects to the law of Idaho which permits the sterilization of mental defectives, epileptics, habitual criminals, moral degenerates and sex perverts. He says "Only in respect of the first of these classes is there reasonable biological evidence to justify compulsion in the name of the welfare of the race. As Bertrand Russell observes, 'the law of Idaho would have justified the sterilization of Socrates, Plato, Julius Caesar, and St. Paul.' A recent law of Oklahoma actually provides for the sterilization of third-term criminals! Compulsion cannot, without serious risk, do more than obviate the more extreme social dangers. Beyond that, it is necessary to rely on social education." ['36, p. 151]

Much in the legislation concerning sterilization is doubtless misguided, but on the whole its operations seem more beneficent than those of an equal amount of time and skill spent in "social education." Indeed the first lesson in social education for an habitual criminal or a moral degenerate might well be to teach him to submit voluntarily to an operation which would leave his sex life unaltered but eliminate his genes from the world. The same would hold for dull or vicious epileptics and for certain sorts of dull and vicious sex perverts. The genes of a few of these persons might be up to the ordinary human level but on the average they would be exceedingly low.* The training their

* The ingenuity and brilliancy of Bertrand Russell's comment are admirable as entertainment, but the probability that if the genes constituting Socrates, Plato, Julius Caesar and St. Paul had made four men born in Idaho in 1900, any one of the four men would now or later be sterilized under the Idaho law, may be conservatively put as less than one in a million. Nor in my opinion would the Idaho law justify it in the case of any of the four cases except Julius Caesar. Socrates was not an "habitual criminal" or "moral degenerate" in his own time in the sense of the Idaho law, nor would his genes have made him one in Idaho. Neither Socrates nor Plato was a sex pervert in his own time, nor would his genes have become such in Idaho. St. Paul probably did not have epileptic fits, but cataleptic trances like those of some modern mediums.

parents would give them might in a few cases of reformed criminals or marriage to superior persons be up to the ordinary human level but on the average it would be extremely bad. Indeed, the principle of eliminating bad genes is so thoroughly sound that almost any practice based on it is likely to do more good than harm. Add to it (1) the facts of correlation whereby defects and delinquencies imply one another so that moral degenerates tend to be dull, imbeciles to be degraded, epileptics to be dull and degraded, etc., (2) the facts of homogamy, that like tends to mate with like, and (3) the fact that genes which make able and good people also tend to make competent and helpful homes, and the argument for sterilizing anybody near the low end of the scale in intellect and morals whenever it can be done legally is very strong.

In the case of efforts to increase the birth rate among superior persons, some well-informed and able thinkers are fearful lest our wisdom be insufficient to prevent a bigoted or at least narrow selection of the superior according to our notions which would defeat the real purpose of genetic control. Boas, for example, writes: "The eugenist who tries to do more than to eliminate the unfit will first of all be called upon to answer the question what strains are the best to cultivate. If it is a question of breeding chickens or Indian corn, we know what we want. We desire many eggs of heavy weight, or a large yield of good corn. But what do we want in man? Is it physical excellence, mental ability, creative power, or artistic genius? We must select certain ideals that we want to raise. Considering then the fundamental differences in ideals of distinct types of civilization, have we a right to give to our modern ideals the stamp of finality, and suppress what does not fit into our life? There is little doubt that we, at the present time, give much less weight to beauty than to logic. Shall we then try to raise a generation of logical thinkers, suppress those whose emotional life is vigorous, and try to bring it about that reason shall reign supreme, and that human activities shall be performed with clocklike precision? The precise cultural forms that would develop cannot be foretold, because they are culturally, not biologically, determined; but there is little doubt that within certain limits the intensity of emotional life,—regard-

less of its form,—and the vigor of logical thought,—regardless of its content,—could be increased or decreased by organic selection. Such a deliberate choice of qualities which would modify the character of nations implies an overestimation of the standards that we have reached, which to my mind appears intolerable." ['28, pp. 113 f.]

No competent geneticist would make such blunders as Boas describes. He sets up a straw man to demolish. But the general warning should be kept in mind. If some fanatic should endow children of parents averaging 6 ft. 6 or more, or children of parents who could on the average sing two notes above high C, little good would come of it. If some enthusiast should endow children of parents who averaged above 175 I.Q., less good would come of it than if he made a similar endowment also for children of parents of great literary, artistic and musical ability. And if such a narrow selection of parents were made universal, certain good genes might become too scant to supply the world adequately with enough of certain sorts of abilities, or might even disappear entirely. However, the danger that breeding for high levels of ability A will reduce the percentage of genes productive of high ability B in mankind is very slight. The result is almost certain to be not only the great increase in the percentage of high-A genes directly sought but also a substantial increase in the percentage of high-B genes. There will for example be more "high-ability-in-music" genes in a thousand gifted men of science than in a thousand men taken at random, and more high-ability-in-logic genes in a thousand gifted musicians than in a thousand men taken at random. A still better result will be had, of course, by breeding by some such plan as that described earlier, which maximizes the production of many valuable genes and insures against the loss of any valuable sort, or its reduction to numbers inadequate for the world's welfare.

The possibility that a population bred for excellence might lose its fertility deserves attention. It is remote, but should be guarded against by including fertility associated with excellence as one feature of the composite which guides the breeding.

The possibility that selective breeding for excellence in man may become a practical concern of government, education, ethics

and religion is estimated very differently by different thinkers. And the possibility that legislators, schools or churches will succeed in establishing and maintaining useful customs in this respect is estimated as low as zero by some. Raymond Pearl, for example, says "The efforts of the eugenists to correct the evils of the differential birth rate, by endeavoring to induce the socially, economically, and in some part biologically, superior classes to reproduce more freely, as a sort of transcendental social duty, have not met with any discernible success, and in my opinion are not likely to. When the issue which is to determine human behavior is drawn between the present comfort, happiness and well-being of the reproducers on the one hand, and the indefinitely future welfare of society in general, or the race or state, on the other hand, he would seem indeed a simple-minded, not to say fatuous optimist who supposes that the latter will outweigh the former. It will do nothing of the kind. It was a worldly wise if not very altruistic sinner who first raised the question as to what posterity has ever done for us." ['25, p. 176]

On the other hand, many psychologists and sociologists think that if able and good parents could be sure that three or four children would involve no greater burdens on them than one or two, and would be as good form in their social class, they would in general choose the larger number, and be partly determined in their choice by a general benevolence toward the future. The Webbs go so far as to assert that "Child-bearing . . . is an occupation that the bulk of women would prefer to any other, if any proper provision were made for it." ['11, p. 319]

In my opinion a moderate expenditure of money, thought and ingenuity should enable any nation to discover what prevents some of the able and good from having children and what causes others of them to have many, and to influence these causes in the public interest. I should not expect a perfect solution in five years or in fifty, but should expect substantial progress to be made from the start. In fact certain things could usefully be done at once. One is to provide marriage allowances and allowances for children to men of very high intelligence and achievement during the period from 21 to 30. Such men now work some years as internes in hospitals, assistants in the great law

firms, instructors in colleges, apprentices in engineering concerns, and the like with pay at a subsistence level or even less. Many of them would be glad to get married if an allowance of so little as $1000 per year for six or eight years plus $500 a year for each child were made. The experience of the post-doctoral fellowships in science where the allowances for wife and children were even lower shows this. The moral qualities of such men average very high, the home environments which they will provide will average very high, and their tendency to choose wives of superior ability is very strong.*

Another thing that can safely be done now is to extend the Conant plan of full maintenance scholarships for able boys and girls for the four college years till there are ten thousand or more available. This is a prudent expenditure quite apart from any eugenic influence it may have. It would probably cause a considerable number of promising babies to be born, by removing the fear of the very definite and large costs of college education.

Whatever the merits of these proposals may be, a world that has pushed the number of children of the able and good down from over five to below two per married pair against strong proclivities ought to be ingenious enough to put it back halfway. If in the supposed interest of a certain ideal of life it can maintain so biologically perverse a custom as the celibacy of the clergy, it ought to be able, in the interest of human welfare, to make a four-child family as respectable as a four-car garage. Haldane has suggested that present civilization is killing genetically the type of successful business man which it has admired and fostered environmentally, as medieval civilization killed genetically the type of holy man which it fostered environmentally. We should take pains to avoid such a blunder in the case of the able and good maker of welfare who is our ideal.

* An eccentric Canadian left $100,000 to be given to the ten women having the most children within ten years after his death. If he had ordered it to be distributed among the women whose fourth child born during the ten years after his death had an intelligence quotient of over 175, his gift would at least have done much less harm.

Chapter 18

THE WELFARE OF THE PRESENT AND OF THE NEAR FUTURE

Trustees for man should consider the welfare of men in the distant future and not lessen it when nobody is advantaged thereby. They should also attach some weight to it when it conflicts with the welfare of the present and near future. But what they will be permitted to do by the public and its governments will commonly be what can be shown to be in the interest of the persons now living and their children. The span of three lives is a reasonable segment of man's life for present responsibility. Men and women of sixty or seventy should wish a good life for grandchildren whom they know and love, and should sacrifice somewhat for it. Fathers and mothers should wish to keep the world good or make it better from the same affection which makes them provide food and protection. Not only general philanthropy but the affection of parents for offspring and friend for friend stimulates all right-minded persons to work to keep their part of the world a good home for good people for years after they themselves have left it.

THE IMPROVEMENT OF THE ENVIRONMENT

Right minded farmers wish to leave their farms to their children in better shape than they received them. If they waste the soil's chemicals it is either through ignorance or with some regret and shame. And intelligent persons generally would hold a nation guilty that had not made up for forests cut and mines worked out by houses and factories and roads and schools built. The extermination of dangerous wild beasts, disease germs, the draining of swamps, the construction of dams, water works, and sewers, and other permanent aids to health and comfort are assets

which we give to the future as well as to ourselves (though sometimes they are so burdened with bonded debt that the net worth of the gift is small). Our psychology has included a naive confidence that if we make the physical and biological environment better for ourselves than it was when we got it, we are doing our children and children's children a service. Perhaps on the whole we have done them a service, but a more enlightened benevolence is leading men to inspect the accounts with more care, and make it clear just how much of the world's natural resources we are using up for food, drink, warmth, transportation, entertainment, communication and other perishables, how much we are transmuting into highways, railroads, harbors, bridges, factories, schools, dwellings and other more or less durable goods, and how much, if any, we are putting into a sort of insurance or reserve against depreciation to be held for the benefit of the future.*

It seems likely that man's early experiences with gold, silver, copper, tin and iron, four of which are almost imperishable, the fifth being also very durable with proper care, established a tradition that what you got from under the ground was a pure gain to your family or mankind forever. A gold pin, a copper kettle, or a bronze shield was.

However this may be, the reaction of the first generation to mine coal or pump oil was pride in the discovery and utilization, with never a thought that they were robbing future men by using up nature's resources. If anybody had suggested that, they could have retorted, "Except for us, future men would not even have known there was any. They would have had none at all. Let them discover something for themselves as we did."

This same attitude still holds among many. Gratitude in general is rare; and gratitude by the mass of people for what past generations have done for them is especially rare. They tend to take houses, roads, science, art, music and all else for granted like the sun, moon and stars. So the appeal to do unto the future as the past has done unto you is not much stronger than the

* This depreciation reserve might well be spent in whole or in part for the advancement of the natural sciences, by which man may hope to tap new sources of energy to do for the future what coal and oil have done for the past and present.

purer philanthropy of "Do unto the future as you would that the past had done unto you."

However, there is a general zeal among the able and good to maintain the improvements in the physical and biological (or material and living) environment which have been made, to carry them further, to avoid wanton consumption of the natural resources of the soil and the contents of the earth beneath it. There is an even greater zeal among them to maintain and improve the world's science, art, music, literature, good customs, and other forms of immaterial wealth. This latter zeal is supererogatory, since such wealth is not decreased by being used, but on the whole increased. If a hundred million more people hear or play one of Beethoven's symphonies, it is unchanged and there is an increased probability that more good music will be composed.*

The maxims for maintaining and increasing material and immaterial wealth are:

1. Increase the production of what aids the good life, including immaterial wealth.
2. Use consumption not only to provide the good life for the time being, but also to enable people to maintain and increase production.
3. Avoid waste, save in distribution and consumption, and invest the savings in durable goods. This often means adding them to the world's "capital."
4. Favor the forms of production and distribution which least impair limited natural resources.
5. Other things being equal, increase the amount of wealth that is held in trust for the welfare of man, especially of the good and able, at the expense of wealth held at the disposal of individuals.

Only rule 1 is operative upon immaterial wealth, because using it does not use it up. It does not use any limited material supply of anything, and it automatically becomes public property at once or after a short time of patent or copyright.

* There is a border zone between objects which are valuable chiefly for themselves as material wealth like bricks or copper wire and objects which are valuable chiefly for significance or beauty as mental or spiritual wealth like a musical score or a scientific monograph. In it are such things as cathedrals and jewelry.

It should be noted that these maxims differ from those in general circulation by mixing ethics with economics to the extent of insisting upon the quality of what is produced and saved, requiring that it aid the good life. They distinguish emphatically between a billion dollars worth of flour, cows, telephone lines and good books and a billion dollars worth of hashish, foxes, billboards, and prostitutes. It is of course true that an individual can exchange hashish for shoes, so that the moral act may be for him to do so rather than destroy the hashish. But for the world as a whole, the actual good done by the wealth saved, not its exchange value, is all important.

It may be noted in relation to rule 3 that certain recent arguments against thrift do not hold if 1 includes immaterial wealth and if 2 and 5 are operative.

D'Avenel has amplified the obvious contrast between a world of men seeking welfare with no environmental improvements, that is, with their naked hands and minds, and the modern civilized world with its buildings, tools, roads, ships, etc., into the doctrine that the proportion of a nation's income or dividend of goods which is attributable to capital divided by the proportion that is attributable to labor is a measure of the degree of happiness of a nation. It certainly deserves to be one feature of such a measure.

It may be noted in relation to rule 5 that the "other things being equal" is important. In some cases it may be better for mankind to have a parent leave his property to his children rather than in trust for mankind. In many cases it may be much better for a person to keep a property so long as he can manage it well and then put it in trust for human welfare, rather than turn it over earlier. On the whole, however, the endowments of universities, hospitals, libraries and philanthropic foundations do more good dollar for dollar than the same amounts of wealth in private hands.

The following corollary to 3 deserves consideration:

3a. Without raising the tax rate, increase the percentage of tax receipts spent for permanent public property that benefits the good life, such as parks, playgrounds, schools, libraries,

museums, hospitals, roads, sewers, and water supplies, either directly or by paying off public debts.

Such public saving and investment at the expense of army, navy, poor relief, street lighting and cleaning, salaries of public employees, etc., is not unanimously approved. I will not argue its merits beyond pointing out certain facts. First, good communities do it or something much like it. They keep the ratio of the value of public property in parks, hospitals, schools, libraries and museums to the public debt high and they keep the per capita value of such property high. Second, it is much like what good and able parents do. They save on food, clothing, and entertainment and display to invest in education, which is a permanent equipment of their children. Third, the saving of a nation will be chiefly at the expense of military establishments and poor relief. The saving of a municipality will be chiefly at the expense of the number of municipal employees. Laudable as these expenditures may be, some of them can probably be restrained with little loss to welfare.

Private and Public Improvement of the Environment

About three quarters (77%) of the adults dying in the United States do not leave estates large enough to be probated and only 13 percent leave $2500 or more.* The great majority of men thus leave almost no material property. A few of these, possibly one in five thousand, do leave appreciable immaterial wealth in science, the arts, memorable deeds, or other forms.** It is possible to argue also that some of them were paid less of the product produced with the aid of their labor than their labor contributed, and that this balance represents a forced saving by them. Reputable economists, even though strongly socialistic, will deny this; and in any case such a balance would be very small. Some of them may have contributed toward the improvement of the environment by gifts made or taxes paid during their lives which were so used. But the amount of such is probably very small.

* See p. 58 of *National Wealth and Income,* issued in 1926 by the Federal Trade Commission, Washington, D. C.

** For example, the material estates of Poe and Walt Whitman, Walter Reed and the musician McDowell were surely near zero; and those of Lincoln and Grant were small.

Certainly nearly three quarters of American men and women give back to the environment little or no more than they have received from it. Such contributions as they have made are via their children and in their friends and neighbors. They range from the defectives, dependents, and delinquents, who have been a burden upon society, through the great number of ordinary workers to the able and good, but unfortunate or unadapted to the production of either material or immaterial wealth, and include a sprinkling of large earners who were spendthrifts.

Next come a middle class who leave estates mostly of moderate amount to their children or other relatives and also a little at death or during life for benevolences or taxes part of which may have been used as a more or less permanent investment for welfare. A study, as yet unpublished, by Dr. Steuart Britt shows that the percentage of testators leaving anything to anybody except relatives is small. We have then a sizeable group of savers whose savings go almost entirely to relatives. Nobody should scorn them. They have paid their own way and have insured the world to some extent against having to support their children and other relatives. Except for their savings the burden of dependency would be heavier. In so far as their heirs include benevolent persons, their savings may yet improve the environment. A larger percentage of them than of the penniless will be found to have contributed valuable immaterial wealth.

Lastly there are the persons, few in number but important in the history of welfare, who usually, after providing enough or more than enough to guarantee their children support in the sort of life to which they are accustomed, including benevolent gifts by them, leave their estates to research institutes, to schools, museums, libraries, churches, hospitals, charitable organizations, foundations to serve welfare in general or in specified ways, and the like. A very large part of these savings are in the hands of trustees, to be used to improve the environment of man, directly or indirectly. They are often put there long before the donor's death.* Something between 1 and 2 percent of this nation's

* It should be added that these givers of money have often been themselves creators of immaterial wealth. Large gifts of money were left to universities by two men, G. Stanley Hall and H. C. Warren, active in the science with which I am most familiar, psychology.

pecuniary income or dividend of purchasable goods is now at the disposal of trustees of foundations, universities, museums, etc., as a result of such gifts. The percentage of the nation's material and immaterial income from the immaterial wealth of science, the fine arts, etc., produced with the aid of these gifts is surely considerable. The payments directly productive of such immaterial wealth have been substantial and have borne good fruit. The universities have enabled men of science and learning to get a living without much drudgery. The museums have supported artists by buying their paintings.

This is not to deny that much immaterial wealth is produced independently of any considerable aid directly or indirectly from these gifts. Many writers, painters, and musicians teach themselves or have private teachers, and support themselves independently of libraries and museums. A considerable number of men of science have been supported by work for the federal government, and by the large industrial corporations; a few, by inherited wealth. But private gifts play an important part. If some foolish populace or mad dictator should seize the funds in question and spend them on armies and doles, the loss to welfare by the decrease in the production of immaterial wealth would be calamitous. Debasing the currency has the same effect, though to a less degree.

Public improvement of the environment and the maintenance of improvements previously made by public or private agencies is characteristic of all civilizations. In primitive communities it is concerned mainly with placating spirits and deities and constructing communal shelter and protection. It has commonly put the material environment ahead of the immaterial (the spirits and deities were material in our use of the term). An enormous percentage of its work has been the protection of groups of men from attacks one upon another, which end could have been attained at no cost if the groups would leave each other alone to work and play in peace. The work has often been saddled with nepotism, favoritism and worse forms of corruption. Herbert Spencer's famous diatribes against public action are more or less justifiable. The funds of Harvard University or the Carnegie Corporation would probably be found to have done far more per

dollar for the public welfare than the funds spent by any nation, or than the funds spent by all save a few municipalities, have done for their citizens. It is significant that the able and benevolent men of affairs who have made gifts to the public almost never give to a city, state, or national government. Either they do not trust the public to decide what is for its welfare or they do not trust the elected representatives of the public to do what the public asks or to act for its welfare. They put the power in the hands of appointed trustees, usually self-perpetuating.

Yet in spite of inefficiency, folly, and graft the schools, parks, hospitals, etc., made by the public, are probably a blessing. A museum or a park can be worth only half what it cost and still be better for welfare than a graveyard. A state road can be badly designed and dearly built, and still be a good public investment. We cannot, perhaps, prove against Herbert Spencer that the tax money spent for the museum, park, and road would not have been better spent if left to the taxpayers to spend as they pleased. Indeed many a thoughtful lover of mankind must have wished that Carnegie and Rockefeller and Hayden could have been tax-exempt so that their gifts could have been increased by that much!

But the principle that the public can tax and spend not only to keep people and their property safe year by year but also to make life better for the future is itself worth something. Also the principle that the selfish as well as the benevolent should do something to improve the environment which the past has so greatly improved for them is worth something.

The ordinary course of events is that the able and good contribute from private funds to establish a library, museum, park, college or the like, and after it has proved its worth, ask public funds to maintain or improve it. Obtaining such funds is almost universally regarded as a triumph for the good forces in the community and a step forward in the march of welfare. In so far as it forces the public, especially the selfish public, to give for welfare, and accustoms the public and government to using public funds wisely, it probably is a forward step. If the funds were diverted from less useful services, we could be surer that it was. But usually the funds come from an increased tax. There is also

the psychological danger that the public will be encouraged in its fatuous belief that if the government pays, we are getting something at no cost and will vote for pork-barrel appropriations against its real interest. If the government runs a free library for the few people who want to read and a free museum for the few people who want to look at statues and paintings, why shouldn't it run free movies for all who can show a card to prove that they are out of work? Why shouldn't it give each man on his seventy-first birthday a hundred dollars in honor of his having been a voter for fifty years? So they may argue.

It is then conceivable that the real triumph might be for the able and good to serve the public's real interests in entire independence of government, maintaining an *imperium* for welfare within the present *imperio* for giving voters what they will vote for. The test is, as always, the consequences. The consequences of "social" legislation, aimed at welfare as government sees it, were, until recently, highly praiseworthy. The recent record is not so clear. It may be that putting welfare into the hands of politicians and voters is a backward step.

As an antidote to this somewhat discouraging analysis, we may note the extent to which desirable public improvements in the environment are being made in ten large American cities. They are Oakland, San Diego, San Jose, Santa Ana, Santa Barbara, Stockton, Colorado Springs, Springfield (Mass.), Kalamazoo and Madison (Wis.).*

The infant death rate during the first year of life is down to 5 per hundred live births. There are almost no deaths from typhoid. Eighty-two percent of those 16–17 years old are receiving full-time schooling, in almost all cases free. Thirty-five percent of those 18–20 years old are in school. The average salaries of the teachers are $2608.00 in high school and $1944.00 in the elementary school, $1.84 per person is spent from public funds for recreational facilities, and for each thousand of population there is a park space over 850 feet square, so that, if the entire population went to play in the parks, each of them would have a space 25 feet by 30 to play in. Only one family in twenty

* Some suburban cities like Pasadena or Brookline would make an even better showing.

lives in a home renting for less than $15 a month. The average wage of a factory worker is $1350. For every hundred persons, including infants in arms, there are thirteen owned homes, thirty-four automobiles, fifteen radio sets, and eighteen telephones. The public property in schools, libraries, museums, parks and hospitals amounts to $116.00 per person. [Thorndike, '39C, p. 52 f.]

Over forty years ago Leroy-Beaulieu wrote a pleasant picture of the environmental improvements accomplished and hoped for in the municipalities of France. American ideals differ somewhat from the French but his description is worth quoting. In a peaceful world, his hopes could have been realized.

"Municipalities everywhere are creating schools, public baths, installing fountains, sewers, water and gas pipes, establishing public walks and museums, opening places for instruction and recreation. As soon as the costs have been liquidated at the end of twenty, thirty, or forty years when the loans incurred for these enterprises have been entirely repaid, the public has absolutely free use of all this social wealth. Either municipalities or philanthropic, charitable, and religious bodies build or enlarge hospitals, poorhouses, and asylums, establish lodging-houses, economical heating apparatus, and the like. Since such establishments, once born, do not vanish, since new ones are continually arising, one can judge what a civilized country will be in a century or two, what enormous importance public property will have acquired.

"To be sure, much still remains to be done. Most of our cities and towns, for example, do not have porticos where the people can walk in shelter when it rains, extensive parks where they can find amusement, comfortable baths where a person of humble means can refresh his body for a trifling fee, lodging houses where people temporarily homeless can find a decent place to rest, popular libraries open in all parts of the city, clubs where men of all classes who are fond of company and have only narrow quarters of their own can meet in the evenings and on holidays either at small cost or none. But have patience, little by little by individual initiative, by the voluntary sacrifices of men of property, and by the action of municipalities and col-

lective bodies, all this common property will come into being.

"Happy our descendants who, coming after the epoch of the development of large-scale industry, will benefit from public works fully paid for, and will enjoy a common property of perhaps 40 or 50 milliards of francs in a country like France! This property, it is true, will not permit individuals without savings to live in idleness; it will not give them food, clothing, and housing; but it will procure for them a multitude of conveniences, comforts, recreations, and guarantees in case of trouble." ['96, p. 487 f.]

It is not enough for all the able and good to improve the environment. They must see to it that their improvements are protected against destruction by barbarians, fanatics, fools, and reckless adventurers. Pareto has pointed out that a capital investment of one centime at the time of Christ's birth would by now have produced houses, roads, buildings, bridges, etc. to the value of billions of billions of dollars, if it had been undisturbed by wars, crusades, speculations and the like.* The roads and walls, the theaters and baths, the laws and administrative techniques, the peace and justice of the Romans were lost to the world because the Romans did not keep the barbarians out nor teach them to use the good environment properly. Fanatical Christians destroyed thousands of beautiful temples. There were not enough wise men at hand to preserve Sappho's poems. The Parthenon was razed by shells; the trade of honest men is ruined by pirates; thrift has been stabbed in the back again and again by gambling rulers who debase the currency.

It is unfortunate and unjust that benevolence should have to seek domination which is odious to it, and that right should have to ally itself to might which it despises. But benevolent and just men must either do this or wheedle and entice the world's population into decent action, which is perhaps worse. Coercion or cajolery must support a good environment unless men can be made better.

* *The Mind and Society*, '23, English translation of '35, Vol. IV, pp. 1664-1667. At a productivity of 4 percent it would have amounted to nearly $5,000,000,000,000,000,000,000,000,000,000,000 by 1940, but with continued peace and prudence the rate would presumably have fallen.

THE IMPROVEMENT OF PEOPLE

Many of our present afflictions, difficulties and lacks are caused by man himself, not by adverse forces in the environment. Such, for example, are envy, greed, injustice, ostentation, waste, useless shifts of fashion, war, competition where cooperation is preferable, the coercion of the good and wise by force or numbers, unemployment, and a substantial fraction of disease and deformity.

The remedies and preventives are to be found largely in genetics and education. Suffice it to say here that eugenics is sure but slow, whereas education is rapid but extremely variable and insecure. It has performed wonders, but not always the wonders which have been hoped from it. It is usually the force on which we must rely as a first no less than as a last resort, but it offers no panacea.

The sciences of government, law, economics and sociology also provide suggestions for the improvement of people, the psychology of some of which will receive attention.

The improvement of the population by reducing the numbers of defectives, delinquents, and dependents presents problems some of which may properly be discussed at this point.

DEFECTIVES

The burden of physical and mental defects is obvious. The genes share somewhat directly or indirectly in the causation of most of them, the share varying from probably 70 percent or more in the case of defective intelligence to 3 percent or less in the case of broken arms and legs where the only genetic influence is by greater clumsiness, carelessness, and stupidity. In a few the genetic causation is simple so that the defect could be bred out in a few generations by proper birth-control, if the result was worth the privation. But in most it is so complex that the defects may best be treated as features in a total weighted score for gene quality.

Important environmental causes are diseases, war, industrial accidents, automobile accidents, falls, burns, etc. within the home, and intoxication. Psychological factors in persons are

influential in all of these, and still more so in the psychic injuries, from terrifying shocks, premature sexual experiences, unhealthy love attachments, and bad habits. Some mental defects have special importance because they are contagious or at least communicable. This is surely true, for example, of homosexuality and certain drug addictions, and probably true of certain other sex defects and morbid fears.

The progress of medical science supported by progress in the biological sciences, including psychology, may be trusted to reduce the harm done by any given environment in producing defects. The improvement of the environment should go forward with due consideration of minimizing the causation of defects.

An important question is what sort of persons are being maimed in body and mind. If only the reckless drivers were hurt, traffic accidents would not be so bad. If only unorganized, hysterical, infantile persons were upset by psychic shocks in childhood, we could be less worried by Freudian discoveries.* But if the accidents fall like rain upon the just and unjust alike, the calamity is unmitigated; and if healthy, good and able are preferred victims, as in many modern wars, the calamity is multiplied.

The production of defectives in body or mind is one of the most intolerable features of life, and philanthropy wisely attacks it at its roots whether these are in the folly of nations, the callousness or greed of employers, the carelessness of workmen, the demand of persons unfit to drive a car to have the same rights as others, or the desire of self-indulgent mothers to obtain semi-sexual pleasure from their children.

Once the harm has been done, whether by genes or environment, the crippled, blind, deaf, dull, insane, and other defectives must be adapted to their condition and to the world, and the world must be adapted more or less to them. Where the victim prefers death it would often be humane to let him have it, as many cultures have done. On the other hand, where the victim can and will, if his defect is minimized, manage to build a new life good for himself and as useful as can be expected for others,

* There is some evidence that the more startling cases reported by psychoanalysts are of this sort.

it is prudent to minimize it. Defects are of the nature of inferiorities, but defectives are made miserable and resentful by being treated as inferior, even in the most kindly spirit. A person who has had a defect from early childhood or has become accustomed to it from long experience, or has wisely taught himself to make the best of it by disregarding it, does not chronically think of himself as defective, and may do so only very rarely, unless the fact is brought to his attention *ab extra.* In a well conducted asylum for imbeciles, they no more lament, "I cannot read. I cannot drive a car. I cannot play bridge." than the members of a stock-exchange lament, "I do not understand Einstein. I could not make a living as a preacher. I cannot write good poetry."

Productive labor fitted to a person's abilities and interests and without too great strain or worry is better than idleness for most persons, and the progress of the last generation in adapting tasks, machines and working conditions to the important varieties of defect is beneficent.

In social intercourse minimize the defects. In economic relations harmonize productive labor with the defect. These are good rules, but must not be made into fetiches. An even better rule is "Do not avoid reality. Do not be deceived." When rules conflict the best compromise should be attained. There are cases where the expense of arranging for the defective to earn is so much greater than the amount he will earn that the possible improvement to his morale and self-esteem is not worth it. The reality then is that his life serves the world best by being lived in non-productive idleness. Habituation to this is commonly easy! It can be seen in any insane asylum; hundreds of men pass day after day in airing their delusions. It can be seen in any sizable town; women get dressed in order to go shopping, then go to the beauty parlor in order to look well at the bridge club, happily and with a good conscience.

Since there are not enough funds available to take the best possible care of all the world's defectives, there is the problem of allotting the funds. Assuming that a certain fixed sum or fixed fraction of the national income is to be spent to care for defectives, the reasonable allotment of it would be to spend little

or none of it in prolonging the life of suffering incurables, as from cancer, and to spend little in prolonging the lives of dangerous defectives, such as imbeciles who may set fire to buildings, poison food, or misuse electric apparatus, or of utterly worthless and repulsive defectives, such as certain insane whose death will be a blessing to their relatives and friends. The main principle of allotment would be the maximizing of the good life for good people. But this must be interpreted broadly. Many defectives are victims of misfortunes for which the neighborhood, or city, or nation is more responsible than they or their families. Money contributed to the care of defectives is reasonably considered to some extent as a fine which society imposes on itself for its shortcomings and which therefore is reasonably in part proportioned to the magnitude of the calamity. Also, our treatment of defectives as of all others must not be such as will cause us to become brutal or unjust.

Popular ideas of what is fit and proper are influenced not only by these and other rational considerations but also by certain instinctive and traditional tendencies, such as to relieve, comfort and console the perceptibly miserable rather than those who conceal their suffering, the small, frail and weak rather than the fat and lusty, and the beautiful and appealing rather than the ugly, antagonistic or repulsive.

There is, finally, a widespread tradition that it is better to keep many defectives barely alive, rather than to let some of them die and provide a good life for the survivors. This seems to be a transfer from the more reasonable doctrine that philanthropy does its duty by the able-bodied if it gives them shelter, food and clothing, requiring them, if they will not work, at least to entertain themselves. But the mere facilities for living do not have as much value to the defective as to the able.

The possibility of euthanasia *versus* a miserable life, suggested by the desire of some defectives for death and by the dubious value of the kind of life that can be provided for others, is suggested by many other facts also. It would be a convenient and easy solution for many ills, but might bring in other ills of its own. The whole question of who should be encouraged and who should be permitted to die, though much less important than

the question of who should be encouraged and permitted to be born, deserves thorough study which it has never received.

DELINQUENTS

This section cannot be a psychology of criminals. That would require a volume or more.* It seems best to restrict it to certain matters of special importance and certain matters which have been somewhat neglected.

TYPES OF CRIMINALS

Criminals, that is, persons guilty of breaking the criminal law, present an almost infinite variety in what they do, why they do it, what sort of persons they are, how they came to be so, and how they respond to various sorts of treatment. Certain groupings are more or less useful, if they do not cause us to neglect intermediate groups and differences within the group.

They may be divided into casual and habitual criminals. Those in the former class, whose offenses are really extremely rare, as of a man who under great stress steals food, or stabs a tormentor once in a year or so, would be of very little consequence, except that the absolutism and rigidity of the law may brand them as ordinary criminals and send them to jail or prisons where they are encouraged to become such, and that the public, for lack of discrimination, may treat them as regular criminals. "In 1875 a girl of thirteen who could not pay her fine was sent to the local jail for wheeling a perambulator on the pavement [i.e. the sidewalk] of a fashionable street." [Burt, '25, p. 102]. The establishment of juvenile courts and parole systems and an increasing use of common sense by judges are mitigating these evils.

The more habitual criminals may be listed as:—(1) those who

* The reader will find the psychology of criminals treated along with other important facts in standard textbooks and treatises, such as:—
Sutherland, E. H., '24. *Criminology.*
Glueck, S., and Glueck, E. T., '30. *500 Criminal Careers.*
Michael, J., and Adler, M. J., '33. *Crime, Law, and Social Science*
Healy, W., and Bronner, A. F., '26. *Delinquents and Criminals.*
Burt, C., '25. *The Young Delinquent.*
Healy, W., '15. *The Individual Delinquent.*
Goring, C., '13. *The English Convict.*

make it their business,—thieves, killers, con-men, counterfeiters, etc.; (2) those who fail to control their passions,—rapists, wife-beaters, drunk and disorderly, etc.; (3) those who are moved by obsessions and strange quirks which are branded by society, such as some kleptomaniacs and homosexuals; (4) rebels against the established order—anarchists, atheists, pacifists in war time, deserters, inciters to revolution.

The first class may be divided into those who live on the virtues of others, such as kidnappers, beggars, racketeers and forgers, and those who live on the follies or vices of others such as dope-peddlers or keepers of brothels and con-men.

The psychological variety among the obsessional and other psychiatric cases, and among those who fail to hold their temper, lusts, etc., within legal limits is obvious. It exists even among those who seem to be ordinary thieves. I think it is Healy who reports that a boy was found guilty of a third major theft and would have received a long sentence, had not a psychologist or social worker studied his history and found that what he had done in every instance was to get into an empty seat and drive off the wagon and horses! He did not try to sell them, but simply drove around until he was arrested!

If the obsessional and morbid cases are turned over to psychiatry and the rebels against government and orthodoxy are treated as cranks, martyrs, or notoriety seekers as the case may be, and if all genuine first offenders and rare offenders (but not habitual offenders caught for the first time) are regarded as cases to be given such individual treatment as seems best for the welfare of all concerned, there will be left a great body of persons who may be called vicious criminals. They are self-indulgent or brutish or both. If they are decent to their families and friends, they indulge themselves by stealing their living instead of earning it. If they earn an honest living they are likely to spend most of it on themselves, as for drink or dope, or to be mean or brutal to their families, fellow workers and neighbors. When they seem to be weak rather than vicious, it will usually be found that they are weak in unselfishness and justice; they are strong to resist opportunities to work hard or to help their wives and neighbors. They are easily led into crime, but social

workers find it extremely hard to lead them to industry and decency. Their weakness is vicious. The absence of good interests which Cyril Burt notes in juvenile offenders is true of these vicious criminals except that the percentage would be much higher. In three percent of his cases "there was a complete absence of all cultural interests in children otherwise bright and intelligent, and in as many as ten percent an absence of affection for any relative, acquaintance or friend." ['25, Table XIX, p. 521]

The treatment of this large group of vicious or viciously weak criminals remains as a major social problem after physicians, psychologists, and social workers have taken care of those whose criminal conduct is caused by disease, dullness and misfortune.

THE AFFILIATIONS OF CRIMINALITY

Criminal parents have much more than their share of criminal children, the sib of a criminal is much more likely to be a criminal than the sib of an unconvicted person, and the twin sib similar in sex and appearance to a criminal is much more likely to be a criminal than the non-twin sib of a criminal. How much of this family resemblance in criminality is caused by resemblances in the genes is not known. The best way to approach the problem is the other way about by measuring the difference or variation in criminality of unrelated persons, the variation of sibs brought up apart, and the variation of sibs brought up together. It would be highly desirable to measure also the variation of "identical" or very similar twins brought up apart and the variation of such twins brought up together. The causation of the variation could then be analyzed into (1) a percentage due to the genes *per se*, (2) a percentage due to home environment *per se*, (3) a percentage due to factors common to the genes and the home environment, and (4) a percentage due to all other forces than these. Such an analysis will, I prophesy, give allotments somewhere near the following:—Genetic factors, .15; Home training, .15; Common to genes and home, .40; All other, .30. In the facts available at present these four sorts of forces are confused. Crime runs in families, but so does the home training, and also overcrowding, poverty, and many other things. Crime is cor-

related with homes broken by death, divorce, or desertion, but these may in part mean inferior genes. Crime is more prevalent in certain "races," but these show also inferior homes and live in inferior surroundings. Crime is much more prevalent in certain parts of a city than in others, but these districts may select bad people as well as make them bad or worse.

This much greater frequency of crime in general and juvenile crime in particular in certain neighborhoods is the favorite cause of those students who are trustful that some one major environmental cause of crime can be found to explain it. Cyril Burt ['25] found it in London. Shaw and his co-workers ['29] found it in Chicago, and Maller ['37] found it in New York City. The districts are characterized by "congestion, poor housing and lack of recreational facilities." [Maller, '37, p. 25]

Doubtless the same genes developing in such neighborhoods will make many more criminals than they would make in high-grade suburbs, but the effect should not be exaggerated. Those who take it to be the major cause and would assign 50 percent or more of the causation of the variation in criminality to a complex of "economic, social and cultural factors" do exaggerate it. Bad genes select a bad environment, and make its economic, social and cultural factors worse.

Many of the facts about the New York areas point clearly to the home rather than the neighborhood as the cause. For example, the rates for broken homes are very high.

Another cause of criminality which is often alleged to have great potency is poverty. It is doubtless a genuine cause, but the expectation that if all children were well housed, fed and clothed, few or none of them would get into trouble with the law is a notable exaggeration. In her important studies of the business cycle Dorothy Thomas ['25] found that the correlations of pauperism and crime with good times were definitely opposed. Using all the cycles from 1854 to 1913, the correlations with the peak of prosperity (0), with the year after (1), with the second year after (2), and with the third year after (3) were as shown on the next page.

Maller ['37] found that the number of persons brought before the Children's Court in New York during the five boom years

1925–1929 was increased by only six percent in the five depression years 1930–1934, and some of this may have been due to the natural increase of population. There was actually a decline in the major offenses. Yet the median income for families of delinquent children fell from $41 per week in 1925 to less than $25 in 1934. If so little difference is made when incomes are raised by the upswings of the business cycle or lessened by depression, how can we attribute crime largely to poverty!

	0	1	2	3
Indoor pauperism	−.32	−.52	−.51	−.36
Outdoor pauperism	−.11	−.32	−.30	−.15
Casual pauperism	+.02	−.34	−.46	−.29
Average of these three pauperism correlations	−.14	−.39	−.42	−.27
All crimes	−.25	+.09	+.18	+.15

The clearest affiliation of criminality is with sex. Crime has been so far in history a male characteristic. For example, of the children brought before the New York City Children's Court as delinquents from 1903 to 1936, nearly 17 times as many were boys as girls.* It is customary to treat this as having no general significance and requiring no explanation, but this may be only because everyone is used to it. It certainly requires explanation. The explanation will be found, I think, to lie partly in sheer custom, partly in the fact that girls and women stay in the home more than boys and men, and partly in the stronger original bent of men toward violent action and of women toward kindly behavior. It thus in part suggests genetic roots for criminality.

A strange apparent affiliation of crime is with religion.** The figures showing this may be caused by lying in answering questions or filling out blanks, but it has not been denied by those intimate with criminals; also Bartlett and Harris ['36, p. 655] found that delinquent boys "were definitely superior in ability to identify biblical and religious names and terms," averaging

* In the last third of the period, however, the ratio was down to about 7 to 1.

** See, for example, Havelock Ellis, *The Criminal,* pp. 156–161.

29.8 out of a possible 50 to 22.7 for non-delinquent high-school boys of comparable ages. The reform-school boys had religious instruction on Sundays, which may have accounted for all their superiority, but this seems doubtful.

AFFILIATIONS WITHIN A GROUP OF 500 CRIMINAL MEN

The Gluecks in an intensive study of the careers of 500 young men sentenced to a Massachusetts reformatory found correlations between engaging in crime after being discharged on parole and various features of their careers before entering the reformatory as follows:—

1. Having coefficients of contingency under .20:—

"(a) Whether our young men were native-born of foreign or mixed parentage, or both parents and sons were foreign-born, or both native-born; (b) whether one or both of our young men's parents had had no education or a common school education; (c) whether the parents were economically dependent, marginal, or comfortable; (d) whether the parents had been criminal or law-abiding; (e) whether our young men were native-born or foreign-born; (f) whether they had moved about considerably in the pre-Reformatory period or had remained in one region; (g) whether they were Protestant, Catholic, or Hebrew; (h) whether they had attended church regularly or irregularly; (i) whether their pre-Reformatory attitude towards the family was good or bad; (j) whether they had left the parental roof when they were under fourteen years of age or fourteen or over; (k) whether they had begun to work at under fifteen years of age, or at fifteen or over; (l) whether they were skilled, semi-skilled, or unskilled workers during the pre-Reformatory period; (m) whether their use of leisure was "negative" or harmful during the pre-Reformatory period; (n) whether, preceding their arrest for the offence for which they were sentenced to the Reformatory, they had been arrested as often as once in less than nine months, or once in from nine to seventeen months, or once in eighteen to fifty-four months; (o) whether, when sentenced to the Reformatory, they were from fourteen to seventeen years of age, or eighteen to twenty-one, or twenty-two to

thirty-six; (p) whether the offence for which they were sentenced was a major or a minor crime; (q) whether it was a burglary, larceny, or robbery, or a sexually motivated offence; (r) whether they had committed the offence alone or in company with others; (s) whether they were of normal intelligence, or classifiable as dull, borderline, or moron.

"2. Continuing our summary, the following pre-Reformatory factors, in which there was a coefficient of from .20 to .40 and in which analysis of the tables disclosed a clear relationship, may be regarded as *appreciably* associated with the continuance or non-continuance of criminality:

"(a) Whether or not our men met their economic obligations; (b) whether they were first delinquent when under eleven years of age, or at eleven to thirteen, or fourteen to sixteen, or at seventeen or over; (c) whether or not our men had been arrested preceding arrest for the offence for which they were sentenced to the Reformatory; (d) whether they had committed serious or minor offences preceding the offence for which they were sentenced to the institution; (e) whether or not they had had penal experience preceding their imprisonment in the Reformatory; (f) whether the physical condition of our men when they entered the institution was good, fair, or poor; (g) whether or not they were mentally sound—that is, whether, from a psychiatric point of view, they were normal, psychopathic, or psychotic.

"3. The following pre-Reformatory factor, in which there was a coefficient of .40 to .60, and in which analysis of the table showed a high association, may be regarded as *considerably* related to continuance of criminality: Whether our men's work habits were good, fair, or poor." ['30, p. 256 f.]

The coefficient of frequency of offenses in the reformatory is .33, and that for criminal conduct during the parole period is .47. This last is by itself alone practically as prophetic of post-parole crime as a composite of the seven most significant features of pre-reformatory and reformatory life (.47 compared with .48). If the person is studied for several years after the end of the parole period and a score kept of his industrial habits, economic responsibility, attitude toward his family, type

of home he has, and his use of leisure, the prophecy can be improved.

Among criminals the amount of crime and idleness give the best prophecy of further crime. Nothing else has much predictive value.

The same is shown by the percentages of violation of parole among those of the 500 who were habitual criminals, first offenders, ne'er-do-wells, skilled laborers, etc., as shown in Table 22. The neighborhood also is significant here.

TABLE 22*

More Likely to Violate Parole		Less Likely to Violate Parole	
Hoboes	40	Farm boy	15.1
Ne'er-do-wells	46.4	Criminal by accident	17.7
Paroled to rooming house community	54	Paroled to farm	17
Habitual criminals	58.8	First offenders	12.9
Never employed	38.5	Skilled laborers regularly employed	5.6
Sexual psychopaths	40	Emotionally unstable	16.6
Neuropaths and psychotics	38.1	Sex offenders	8.0
Feeble-minded	37	Eleven months' sentence or less	13.7
"Lone wolves"	33.1	Prior recommendation of leniency	12.9
Negroes	35.7		
Irish	31		

TREATMENT

A very little wise treatment may reform those who are criminals by accident or misfortune, who may be fairly accurately described as those who do about as the readers of this chapter would have done at the same age in the same circumstances.

A few illustrations will suffice. The first concerns two tiny but habitual thieves. "The raids and petty robberies of this diminutive pair sprang solely from hunger. On the father's death, six weeks after my visit, a sympathetic friend sent the two orphans to a country home; and as soon as they were well fed all pilfering ceased. They improved with amazing rapidity in health, appearance, and behavior. Tommy, when I next saw him, though still muffled up in rags, was so plump and chubby as to be

* The facts of Table 22 are from Glueck and Glueck ['30], but the table is quoted from Michael and Adler, '32, p. 199.

barely recognizable. With both I have kept touch for over ten years; not the smallest suspicion of dishonesty has attached itself to either of them since." [Burt, '25, p. 79]

The writer was once consulted about a child of wealthy parents in a boarding school who was stealing repeatedly. Inquiring what he did with the money, I was told that he apparently spent every penny of it for candy. Yet it had not occurred to the parents to supply the boy with candy or with money. So far as I know he never stole after this was done.

Arthur Woods writes concerning some of his experiments as Police Commissioner of New York City:

"The experiment was tried about a year ago of assigning Crime Prevention Patrolmen to some of the more busy precincts for the purpose of having them ferret out conditions in the precinct which seemed to be having the tendency of leading boys and girls astray, so that vigorous measures could be taken to combat these influences. A great deal of good has been accomplished by these men.

"Many temptations to petty stealing were discovered. The kind of stealing that this gave boys a chance to do was regarded by them purely as play, but led soon to the genuine article, and the thoughtless playful boy found himself, often before he at all realized it, a law-breaker. Conditions in many parts of the city seemed made to order to lead boys into crime. In fact, it has often seemed to me that in some parts of the city it is practically impossible for a growing, healthy boy to play at all without doing something against the law. The boys, most of them, are as good boys, and if given a chance would grow up into as good citizens, as any other boys, but they are, by no fault of their own and none of their parents, required to grow up under conditions where they haven't half a chance." ['17, p. 78 f.]

"The Welfare Officers found plenty of work waiting for them. Boys were playing truant, were smoking cigarettes when eight or ten years old, were taking drugs, were practising unnatural habits, were stealing fruit, candy, coal, were spending their time in pool parlors, were trying to make friends with young men of questionable character. Or they were just running wild, like healthy young animals, and the wildness was bringing them into

conflict with the ordered tameness of city life. The Welfare Officer was to get acquainted with the boys, treating each one as a separate problem, and trying to hit upon what might be needed to swing the boy away from his bad habits or associates. Sometimes the mere friendship of the big brother policeman was enough, sometimes father or mother or friend, when spoken to, was able to do what was necessary, having had no idea of what the boy had been doing. Often boys were taken to settlements, or clubs of various kinds, were given work, if old enough, were introduced to other boys of better character than those they had fallen in with. The policeman didn't preach, he didn't threaten; he made friends with the boy, appealed to his pride, and tried to find a wholesome outlet for his natural activity. It was extraordinarily satisfactory work. Thousands of boys were helped, and we would not admit one failure, the nearest approach to failure being cases where we had not yet succeeded. And results were already showing, in improved order in neighborhoods where boy-population was large, and in the reduction of juvenile offenders.

"The same work was done, to a less extent, for girls. It was not so extensive as the work with boys, for the two reasons that girls didn't seem to get into such bad ways as boys, and that policemen were more successful with boys. Women police officers, working among girls along these lines, could produce splendid results.

"As another means of bringing about a better understanding between police and children we started the custom of Christmas trees in Station Houses. Some forty-five thousand children were invited to these trees, all of whom had been carefully looked up, principally by the Welfare Officers, and been found to be in such pitiful circumstances that otherwise they would probably have had no glimpse of Christmas except what they might get through shop windows. Christmas cheer overflowed. The policemen, from Inspector and Captain down to patrolman, outdid themselves in warm-hearted welcome to the small guests and their parents. The Captain told them they were always to remember that policemen wanted to be their friends, and different officers entertained them with song and dance and story. The trees

were brilliantly illuminated, and laden down with bright things, and the Station Houses themselves, those dreary, forbidding, mysterious places, had been furbished and decorated and hung with Christmas evergreens till their most habitual frequenter would never have believed he could be in the same place. The presents, sweaters, caps, gloves, or shoes, and some candy, some fruit, and a toy, for every child got something to wear, something to eat, and something to play with, were given out by policemen in full uniform. As one beaming, perspiring patrolman said to me: 'Well, Commissioner, I believe those kids will believe now, when we tell 'em to cut out hitching on wagons, that it's a friend that's talking!'" [Woods, A., '18, pp. 116–120]

Such treatment will not, however, avail with the vicious criminals described earlier. Nor has treatment been yet found that does avail. Reformatories do not reform. To make the person as miserable as possible, to keep him in solitude that he might reflect on his iniquity, and to ply him with religious admonitions were favorite treatments of bygone days. They failed. To provide routine work and a simple life with bonuses in the shape of shortened sentences for good behavior is a standard present method. It fails. The men will behave well in order to get out —in order to commit crimes when they get out. Six out of ten habitual criminals violate their parole when they get out from a well-managed modern reformatory.

Teaching trades to those who know none, teaching wholesome recreations to those who know none, providing adventure for adventurous youth, providing work for those who will work, taking the profit out of crimes of whatever sort so far as is possible, and permitting men in prisons to earn money for their dependents will perhaps do better. But the time and labor cost of changing the habits and personality of one of the vicious criminals into those of an honest and kindly citizen would be very great, and would be much better spent in doing something for the worthy poor and suffering.

It might be worth while to try the procedure of confining vicious criminals to penal colonies where thieves would live with thieves, confidence men with confidence men, killers with killers, etc. It should be worth while in some cases if only as an ex-

periment in criminology. Suppose that each new inmate of the thieves colony were left there with say $365 worth of food and clothes and material for shelter, to get along as well as he could with men of his own sort for two years. If a brutal child sticks a pin into his dog, it is often good treatment to stick a pin into him, and possibly an island full of thieves or killers might, after a few reciprocities, turn to peaceful sports and work. Such experiments would not be very hard to administer if the government took no responsibility beyond preventing any ship from removing inmates illicitly, and protecting persons who were demonstrably far more well-behaved than the average.

DEPENDENTS

A person is economically dependent when he uses up more natural resources and wealth than he produces. When he uses up natural resources he is dependent upon future men, and this sort of dependency is not usually considered. The customary definitions use the balance of wealth consumed over wealth produced or extracted from nature's store. It is also customary to leave out of account those who are provided for by the work of relatives, living or dead, who thus keep them from being public charges. Children supported by their parents and adults supported by inherited property are then not thought of as dependents. It seems better to include them, but to divide dependents into those dependent upon relatives and friends, and those dependent upon organized charitable institutions or the public.

There are many other sorts of dependency. If a person receives more affection than he bestows he is a pauper in affection. Some gloomy souls are paupers in cheer. Some worthy but boring persons are paupers in respect of entertainment; and so on with other personal benefits given and received without money price, which help make the good life. This section will, however, be restricted to dependency as ordinarily considered, with pauperism as its most characteristic form.

The form of distribution of income in a modern state differs greatly from the form of distribution of any of the abilities that have been measured. These show no great departures from a

symmetrical type like Fig. 10 on page 175, or Fig. 46 below. But the income curve for adults is like Fig. 45, plus an undistributed 0.5 percent of incomes below zero.

As compared with Fig. 46, which shows a 'normal' distribution around a mode of $1000, Fig. 45 shows a deficiency of incomes

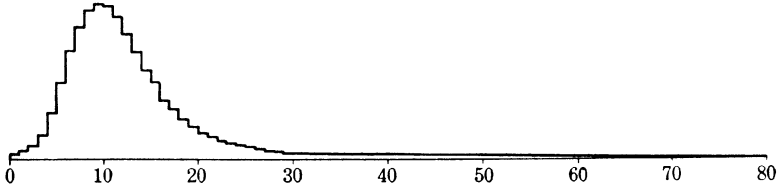


FIG. 45

from 0 to about $400, with an excess of incomes from about $500 to about $900, and a deficiency from about $1000 to about $2000 and a great and increasing excess from $2000 on, including a long tail of incomes above $3000. The incomes of the business managers, lawyers, surgeons and entertainers whose services are most desired will run up to two hundred or more times the income of the common man. The long tail is important for the

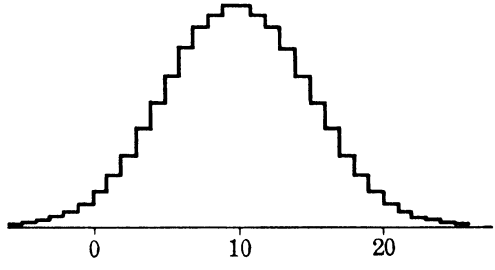


FIG. 46

problems of dependency because most of the funds for both charitable and public relief come directly or indirectly from those having incomes three or more times that of the common man.

Out of the incomes in the upper stretches of the income curve society must support those whose incomes are below zero or below a subsistence level, or they will weaken, sicken, and often

die. Temporarily they may be supported in part from past savings, but only in part, since past savings are mostly not in the form of food, clothing and medicines. And the supply of savings must in the long run come from incomes.

What may be called the standing army of dependents are the true unemployables, the persons whose services are worth nothing or less than nothing to the agriculture or industry of the country. They are so crippled, ailing, dull, eccentric, disloyal, or vicious that prudent employers will not hire them at any price. Next come a larger group of persons whose services are worth from nothing up to five or ten dollars a week when business is booming, or when crops must be harvested, or when the labor needed to keep capital busy is reduced by war, pestilence, etc.

Next come a group of persons whose services are worth substantial amounts, but not so much as the price they set, collectively as in unions, or individually. They accept private or public charity rather than a wage lower than what they think is their right, or is needed to uphold the cause of labor, or is needed to uphold their personal dignity and sense of inner worth. Sometimes such voluntary enlistment in the ranks of the dependents is good, at least for laborers of that particular sort, in the long run; sometimes it is bad for all concerned. It is always a natural psychological tendency. If a man receives four dollars a day instead of three by reason of a boom, or an employer's folly or generosity, or an inflation of pecuniary wages above real wages, the most comfortable explanation for him to give himself is that he is worth it.

Many employers understand this. So they discharge old men whom they might be glad to keep at reduced wages. They know that many men would aggravate the inefficiency which old age brings by a decrease in loyalty and cooperation. Employers who have to cut wages which a boom or unwise decision has put too high do not say, "Thinking that I could make more money myself by doing so, I paid you more than you were worth. From now on I will pay you just what you are worth." They say, "I must cut your wages or quit. It is regrettable, but such and such and so and so compel me to do it."

There are some dependents with hitherto valuable services

which they offer at rates below, even far below, the ordinary market price, but with no takers, because some advance of technology has made their skill useless or because business and industry are so disorganized that who gets work or keeps work is partly a matter of chance.

Finally, there are dependents by misfortune in the shape of the death, illness or mutilation of the breadwinner, fires, floods, and other "acts of God."

Dependency in the age of machinery and power is very different from dependency in the feudal age of agriculture and household crafts. One who was not crippled or bedridden could then at least gather sticks for fuel, pick berries, or dig roots. The lord of the manor did not often sell off the wheat, rye, eggs, poultry, pigs, etc. Custom forbade, and there were few to buy it. What was left after he and his retainers were fed was for the peasants to eat. If he let them starve or freeze he lost fighting men and laborers. Calamities came by ravages of lord by lord, and by failure of crops. The unfortunate could look to their neighbors, their lord, and the church.

Things are now interlocked in a productive "structure" or "organism" so intricate that almost nothing adverse happens which does not make a sizable crop of paupers. A village community managed itself after some fashion. But no modern city or village does.

If the United States were divided up into blocks 6 miles square and each shut off from all the others most of its inhabitants would die within three months. If its present population were put back on the virgin land as it was in 1620, each having only such equipment as the settlers at Plymouth had, most of them would die before the first winter was over. We need our farm machinery, power plants, mines, oil wells, water-works, etc. to keep us alive, but we do not know how to keep them fully at work.

Even in the worst period of depression with its great volume of dependents they, along with the country's natural resources, enable us to produce over twice as much as we could produce without them. If we had only our own brains and brawn and such tools as the Pilgrim fathers had, and if every person, male

and female, aged sixteen to seventy-six, worked, we should do well to produce $20,000,000,000 worth per year.

We have poverty in plenty, and support many in voluntary or involuntary idleness as a result of many and complex causes. Among the psychological causes are inadequate knowledge, intelligence, and foresight, the force of habit, inability to earn a living under modern conditions, and unwillingness to do so.

Many people have no ideas or utterly fantastic ideas about how much the national income is, how much each person would get if it were divided equally, how many persons there are working or sincerely trying to get work, how much return the owners of the railroads, factories, mines, etc. get per year per hundred dollars invested. The total income for the good and bad years 1925 to 1935, or 1920 to 1940, if all divided equally, would give less than $500 per year per person. A large part of it, however, probably over half, is earned by our material equipment, and much of this must be spent to keep that equipment in fit condition to continue earning for us. A man and woman working and three children not working would, after the nation had paid to keep its material equipment unimpaired, receive by equal division perhaps as much as $1600 per year.

People do not know this. Skilled laborers who are now getting more than they would from such an even division think that they would get double. Many of the negroes of the South do not know whether they would get twice as much, or ten times as much, or a hundred times as much as they now do. Families with incomes of from $3000 to $4000 often have the notion that if incomes were divided equally they would be better off than now!

Workingmen and many professional men have fantastic notions of the return which comes from money invested in business, setting it at 10 or 15 or even 25 or 33⅓ percent. They contrast this easy road to wealth with the 3 or 3½ percent which is all they can get from the savings bank or the bond which the boss advises them to buy. They are easily gulled by shysters who promise them such returns. They do not know that the returns with equal safety are the same on money put in business, in land, in labor, or in the savings bank (subject to a small premium for

the conveniences offered by the bank). So they do not think it worth while to save.

The last ten years, and probably any ten, teach plainly that there will be fat and lean, that earnings will rise and fall, and work will abound and be scanty. Intelligence and foresight command men to allow for this in their spending, to use an advance to supply a cut later, to insure against the business cycle as they now insure against seasonal unemployment. Do they obey?

The combined action of ignorance, lack of intelligence and lack of foresight is beautifully illustrated by the payment for warmth in winter. The cheapest way to get warmth is by clothing. Yet many families will burn their furniture when from ten to a thousand times the heat value could be obtained by selling or pawning the furniture and buying woolen clothes. They will pawn their overcoats to buy food, most of the energy of which is then dissipated in heating all outdoors. A man will pay good money for a drink of whiskey which has less power to warm him than a newspaper worn under his coat would have.

Pauperism has roots not only in ignorance and improvidence, but also in habits, physical, intellectual, moral and social. James McKeen Cattell relates that "when a New York City magnate was asked whether he got most gratification from his steam yacht or private railway car, he replied that he did not see how anyone could get on without either." The depth of humiliation and misery was reached by one of Edith Wharton's heroines when she had to wear a pair of ready-made shoes! But we are all tarred with the same brush. The backbone of American democracy, mechanics of the east and farmers of the west, cannot get on without a car and a radio. Whatever standard of living men get used to they will feel they cannot get on without. As Bowley says: "The standard that exhausts the income soon becomes customary and conventional, and the goods bought are regarded as necessaries of life. Again, in many cases in modern times, especially in the middle class, people are anxious to live, or to appear to live, at a standard proper to the possession of a larger income, and are thus always badly or uncomfortably off. It is well known that standards differ greatly in different coun-

tries for classes whose occupation and education are similar; and it is evident that standards are arbitrary and conventional. During the latter half of the nineteenth century, wages, both nominal and real, increased so considerably that it may not be an exaggeration to say that at the end of it an unskilled labourer had in many respects reached the standard of an artisan in 1850. Since the rise was slow and cumulative, it would not be noticed by the individual, . . ." ['15, p. 156]

The habit of spending all one's income on yachts, radios, butter, bread or other consumer's goods leaves a person vulnerable to general economic disturbances and personal misfortunes, and stops the flow of savings into environmental improvements and capital goods which now earn half our living for us. If all men had lived up to their incomes for the past hundred years or so nobody save a few large land owners would have autos or radios, and the great majority of us would have less than we now give to paupers. We can support the dependents, because the invested capital so largely supports us.

A common habit of workingmen in this country two generations ago was to be grateful to anybody who would give them a decent job. Their gratitude was perhaps somewhat misplaced, since it was the advancement and application of science as well as the enterprise of employers that gave them decent jobs. But it had the merit of appreciating the reality that decent jobs, something better than working sixty or seventy hours a week for "black bread, a hovel and lice" as their grandparents had to do, were not a prerogative of anybody who was willing to work, but something which was a gift from something or somebody. This seems to have been replaced by a bad habit of being grateful to nothing and nobody, not even to the man's union. It is a bad habit because it denies or avoids reality in favor of self-esteem.

The insidious growth of another bad habit along with good ones as a result of the workingmen's insurance societies has been described by the Webbs:

"As every Friendly Society official knows, there is a very real tendency in the mind of his members, powerful enough to affect the statistics of the society as a whole, to feel that they are, each year, morally entitled to draw, at any rate, as much as they

have paid in; and therefore a tendency not perhaps to strive quite so much against the minor ailment or the danger of unemployment to which they succumb. It is an ominous feature that, in spite of all the general improvement in health, the Friendly Society members are, judging from the statistics of sick pay, not themselves getting healthier. The sickness-rates of the Friendly Societies go steadily up, notwithstanding that the death-rate, which usually measures the amount of real disease, is falling among the Friendly Society membership as among the population at large. It is more ominous still to notice that the sickness-rate, and therefore the average amount of sick pay drawn, is greatest in the centralised national societies, where the members feel they are all drawing on a common purse; less in the one national society which obscures that fact by a nominal allocation of funds among its branches; and least of all in the local lodges and branches of the great Orders, in which the local members know that they have jointly to bear the burden of their own ill-health. But it is found even there. It is not a good thing that there should come to be recognised, in certain Trade Unions, a set of men who regularly draw, year after year, practically all the unemployed benefit to which the rules entitle them. Both the Trade Unions and the Friendly Societies have failed, in fact, to prevent a quite extensive growth of malingering. In these depressing psychological reactions—inherent, we think, in the provision made by insurance in the ordinary sense—we have a grave set-off against the encouragement of thrift, the independent exercise of self-government, and the satisfaction of providing for one's own needs, which have been universally placed to the credit of the system of raising the means of providing against calamities by the personal and voluntary contributions of the beneficiaries." ['11, p. 167 f.]

This habit of willing acceptance of support to which one is legally but not morally entitled favors pauperism, and dependency in the broader sense.

Inability to earn a living in the modern world is obviously partly psychological, concerning such matters as lack of intelligence, of cooperativeness, and of ability to endure factory conditions. Unwillingness to do so is almost entirely psychological.

There is a percentage of persons to whom the work of the modern world is so distasteful that they will steal, beg and suffer to avoid it. Some of them would have tolerated and even enjoyed the duties of a hunting civilization, and are industrious as poachers. Others, of a very different type, would have tolerated sociable work as agricultural laborers in a village community under close family supervision. Others would have been willing to fight in the old marauding days, but not in a modern mechanized army.

The first and third sorts often became the adventurers, "sturdy beggars," and the "liverymen" or retainers of lords in days of old. Now they often become adventurers, hoboes, and "heelers" of racketeers and the like. Most men share this intolerance of regular work, but workers overcome it more or less completely in favor of the satisfactions of a home, friends, a community life, security, money for certain comforts and luxuries, etc. They satisfy their cravings for irresponsibility, wandering, hunting, combat, etc. in their vacations and leisure time.

The preventive of dependency is productive employment. Given a certain status of science, pure and applied, the key to productive employment is peace and capital in some countries, peace and entrepreneurial ability in others. In England, the United States and Canada it is now obviously the latter, since there is abundant idle capital. The psychology of this ability to manage things and men together in producing goods which men want and to market the goods for enough to pay for the things (raw materials and usage of plant and equipment) and the labor, has been insufficiently explored. Some of its notable possessors, like Andrew Carnegie, would have won success in almost any occupation. In others it seems to be highly specialized. The senior Rockefeller could hardly have become a great man of letters, artist, military leader, or surgeon. Taussig and Jocelyn have shown that ability as an executive runs in families to an extent greater than home-training can account for. Whether strictly entrepreneurial ability does so is not so sure. What its constituent elements are is not known; probably it can be composed in many different ways, as political leadership can. Perhaps economists attach too much importance to it,

crediting it with achievements which resulted mainly from advances in science and technology. Perhaps socialistic experiments may devise some governmental substitute for it which will put it out of date like the ability of conjurers and trappers. But it seems to be a very precious asset. Its possessors have often lacked personal winsomeness, magnificence of any sort, and the diffuse general benevolence which is often called the "social point of view." They can easily be made the butts of literary men, but they are rarely geese, and if they are, they lay the golden eggs of employment. They help largely in rescuing us from being drawers of water, hewers of wood, gatherers of nuts and diggers of roots.

The treatment of dependents is an epic of fine devotion and charity, a tragedy of man's cruelty to man, and a comedy of errors, according to what parts of it one selects.

As an illustration of the first, one may take the general response of British parents to legislation requiring them to take proper care of their dependents and at the same time aiding them to do so.

"Few persons realise the enormous increase in personal obligation in the households of five-sixths of the population that was involved in the Education Acts. There are, we believe, still some who fondly imagine that these Acts relieved parents of responsibility! Such persons can never have known what it has meant to the father, and still more to the mother, in many hundreds of thousands of poor households, to have to do without the elder children's help; to adjust the exiguous family budget without their little earnings; to get them up and dressed and sent off regularly and punctually to school; to conform, with many a painful struggle, unsuspected by those more fortunately situated, with the ever-rising school standard of personal cleanliness, hygiene and clothing; often to prepare the separate meals necessitated by the lack of correspondence between the school and workshop hours, or by the distance of the school from home. It is, in fact, impossible to measure the vast, far-reaching and ubiquitous influence on the parents, in this teaching of regularity, self-subordination and self-control, which the elementary school has exercised. The quite new requirement, now being more and

more made, that the children's heads and bodies and clothes shall be reasonably free from the once universal vermin, is only one among many successive rises in the "National Minimum of Child Nurture" which it is the real function of the Local Education Authority to enforce. In the universal medical inspection of the children, and the insistence on proper medical and surgical treatment of hitherto disregarded ailments, we recognise a further elevation of this National Minimum. Up and down the country we see the parents, on the children's need being brought home to their consciousness, gladly taking the not inconsiderable personal trouble, submitting to the very real tax of loss of working time, and, in the vast majority of cases, even paying part of the cost, required to get these ailments properly treated. In the background, as with the greater part of all our moral obligations, there is the liability to prosecution and punishment, on conviction of glaring failure to fulfil this new parental responsibility; but it is remarkable (as now with the duty of school attendance) how rarely the law has to be called in. It is only when the Local Education Authority—its hands forced by the defects in the rest of our administrative system—descends to the mere "relief of destitution," as in the case of spasmodic doles of dinners to half-starved children, that we find a danger of undermining parental responsibility. If, instead of being empowered merely to give food to the starving child, the Local Education Authority had been made definitely responsible for searching out all forms of child neglect; if it had been expressly charged to insist on the parents themselves remedying that neglect to the extent that they had power to do so; and if steps had been at the same time taken to ensure that every willing worker had been guaranteed a real opportunity of fulfilling his parental obligations, the universal ensuring of food for the children would have achieved as great a rise in parental responsibility as the universal ensuring of education has already done, and as the universal ensuring of cleanliness and personal hygiene is already visibly beginning to effect." [Sidney and Beatrice Webb, '11, p. 302 f.]

As illustrations of the second, one may take the customs of treating the unfortunate poor like criminals, of separating aged

husbands and wives in asylums, and of farming out children to manufacturers.

As illustrations of the third, one may take the Speenhamland system of 1795 which amounted to a stimulus to employers to pay low wages at the expense of the community, and demoralized both employers and employees, the custom of giving the poor a dinner and dole in honor of some person, and an old-age security law by which the poor hand over to government some of what little real wealth they have, and receive in return a number, a tag, and a smooth promise that the government will pay it back with more in the future! In the meantime government loans it to itself to spend as it pleases. Ashley's quotation from a contemporary description of the medieval custom is instructive. "At the burial of a man of much worship in Kent, there was such a number of beggars, besides poor householders dwelling thereabouts, that unneth they might lie or stand about the house. Then was there prepared for them a great and large barn, and a great fat ox sod out in frumenty for them, with bread and drink abundantly . . . and every person had twopence, for such was the dole. When night approached, the poor householders repaired to their houses; the other wayfaring bold beggars remained all night in the barn; and the same barn being searched with light in the night, they told fourteen score men and women." Thus . . . "the burial was turned to bousing, fasting to feasting . . . and lamenting to lechery." [Ashley, '93, p. 331 f.]

KINDLY BEHAVIOR

To raise the general level of health, ability, morals and taste of a population is more important than to reduce the number of defectives. To increase kindly behavior in all is more important than to handle criminals better. To increase wealth and income of all is more important than to reduce dependency in the idle rich and incompetent poor. So in this section we study the qualities and behavior referred to variously as the good will, the "social attitude," altruism, kindly behavior, and "following the Golden Rule."

Like almost everything else in human life, kindly feeling,

kindly acts, and desires for the welfare of others are the results of the combination of forces resident in the genes and forces resident in the outside circumstances,—of heredity and environment.

Just what the genes of a typical human being contribute is not fully known, but the following may be used as a reasonable present estimate:

Man as a species is by original nature more disposed to kindly behavior than the baboon, but it would be possible to argue that the original nature of the chimpanzee is kindlier. Man has a repertory of smiles, pats, caresses, fondlings, coos, murmurs, offerings of food and the like (including suckling in the female) which seem to be unlearned. It is certainly possible that they can be, since roller canaries produce their very elaborate vocal feats though kept in sound-proof boxes from birth. Man uses those kindly acts especially in response to human infants, other dependent animals and what is alive, delicate, small, and soft. Other things being equal, he enjoys the signs of happiness in others much more than the signs of their distress. It would be folly to rely upon a tendency in the genes to kindness in the form of encouragement to the awkward and shy, or forgiveness to persons who step on our feet, or support for a man of genius whose face we dislike and whose work we do not understand. The original tendencies of kindly behavior operate in a person who has a status of mastery very differently towards the submissive on the one hand, and toward rivals and rebels on the other.

As a result of such kindly behavior and enjoyment of the happiness of others, man, when he reaches the stage of thinking of other creatures as sentient beings, develops a tendency toward kindly feeling or good will.

Such provisions as the genes make for kindly behavior are presumably adapted to a manner of life much more like that of chimpanzees and gorillas than that of modern Europe. They are specialized along lines of feeding and fondling those who whimper and wail, picking up the fallen, holding those who cling, and the like. They cause responses to sensed situations only. If we feel pity as a result of ideas caused by hearing of misery it is by a secondary, derived attachment. In and of themselves they consequently are an inadequate basis and a very misleading

guide to rational and effective benevolence in an age of electric apparatus and adulterated foods, when the chief enemies of man are germ diseases and wholesale war.

They are consistent with much competition, greed and cruelty. A slight shift in the nature of the stimulus may change the response from kindly attentions to curious staring and manipulating, or to teasing and bullying, or to pursuit and attack. So also may a slight shift in the mental 'set' or attitude of the responder.

The original roots or germs of kindly behavior and kindly feeling do not dwell in an insulated mental area or behavior-tight compartment. On the contrary, they are intimately related to the more specialized provisions in the genes for feeding and caring for the young of the species, and to some of the provisions for courtship and love. The repertories of acts overlap, and there are fairly frequent confusions whereby one of the three situations, a baby to be nursed and protected, a mate to be made love to, and a fellow-creature appealing for kindly treatment, arouses responses more usually made to another of the three.

Individual differences in these original dispositions to kindly behavior and kindly feeling would be expected on general grounds to be as great as individual differences in stature, strength, intellect, or cheerfulness; and inferences from observation confirm this.

The sex difference of stronger original tendencies to kindly behavior has perhaps been exaggerated by poets and proverb-makers. But it surely exists. There is of course much overlapping, many males being by nature more kindly than some females. But it is by no accident or environmental favoritism that women so quickly put men out of the profession of nursing, and figure so numerously among social workers, and monopolized the kindergarten. They are better fitted to relieve, comfort, and console.

Differences due to race, that is, remote ancestry, probably exist. If a group differing from the general status of *homo sapiens* in the original determiners of kindness was isolated by geographical or social barriers, its members would of necessity continue this difference. The great bulk of differences in kindness among races are however probably due to differences in the social environment or "culture," and are often specialized. So

the New Guineans described by Margaret Mead ['30] are very indulgent toward children, but not in general, the excess kindness of parent to child being balanced by excess unkindness of child to parent.

Kindly behavior is very amenable to training, both as regards its general amount and the situations which evoke it. So also are the acts to which kindly feeling leads, in which, as we say, it "expresses" itself. Repetition and reward strengthen the connections between observable weakness and need in any member of the family, tribe, or other "closed society" in which a man is bred, and kindly acts and attitudes on his part. Such kindliness is a duty and often a pleasure. Kindliness is both by nature and by custom concentrated especially upon the young and tender of one's family group or closed society. It is evoked less by those less often seen and dealt with, and becomes weak toward those who are strange in shape, color, clothes, language and manners.

The relations between parent and child, and between fellow members of a social group include, of course, much more than kindness. A child is a thing to be nursed and petted, a mischief-maker to be shaken and scolded, a rebel to be mastered, an expense to be reduced, etc. This could be illustrated from the life of any modern community, but I choose Abram's colorful account of five hundred years ago:

"Children were brought up very strictly; if they rebel, says the 'Good Wife' to her daughter, 'But take a smert rodde and bete hem on a rowe.' Parents, too, often looked upon their children as a source of income. Wyndham sold the marriage of his son to obtain money to bring about a marriage for himself. John Paston was very angry with his eldest son because he was no use to him. 'Every pore man,' he grumbles, 'that hath browt up his chylder to age of xij yer waytyth than to be holp and profited be hes chylder, and every gentilman that hath discrecion waytith that his ken and servantis that levith be hym and at his coste shuld help hym forthward.' Mothers, judging by the Pastons, were anxious to rid themselves of their daughters, who were sent away from home, and acted as servants or ladies-in-waiting to the persons in whose houses they lived. Sometimes their parents paid for them, but sometimes they were expected to help them-

selves. Margaret Paston, writing to her son, asks him to find a place for his sister, and add, 'I wull help to her fyndyng, for we be eyther of us werye of other.' She was very displeased at the idea of having her daughter Anne home, and said, 'with me shall she but lese her tyme, and with ought she will be the better occupied she shall oftyn tymes meve me, and put me in gret inquietenesse.' When Elizabeth Paston, the daughter of Agnes and Judge Paston, objected to marrying the husband chosen for her by her mother, she was 'betyn onys in the weke or twyes, . . . and hir hed broken in to or thre places.'" ['09, p. 174 f.]

By nature or nurture or both, persons differ greatly in kindliness. This is proverbial and needs no comment. The same is true of groups of persons. Some ruling classes have habitually indulged in cruelties which would occur today only in a few perverts. The treatment of slaves has ranged from unnecessary and profitless cruelty to the moderation of Arabia, where custom "enfranchises a slave who has accepted Islam at the end of seven years of bondage, and when that period has arrived, the master, instead of exacting from his slave the price of freedom, generally, on giving him his liberty, adds the requisite means for supporting himself and his family in comfort." [Encyclopedia Britannica, Eleventh Edition, Vol. II, p. 286]

The treatment of children has included harshness from sheer custom and from a high sense of duty (as in the denial of childish pleasures by the Puritans and the initiation ceremonies of Australian primitives), and also extreme indulgence. Within hardly a generation the primary schools of the United States shifted from a militaristic regime in the interest of the teacher enforced by corporal punishment and fear to a regime of instructive play.

On the whole, within historical times the trend, despite dips down, has been toward greater benevolence to a greater number of fellow-creatures. The British planters in Africa may be callous toward the natives in comparison with certain humanitarian ideals, but they will be kind compared with the Pharoahs. The Italians will be gentle friends in Abyssinia compared to the feudal armies which raided the lands of a neighboring province. Boissonnade writes of the latter: "Cottages went up in flames, harvests were burned, cattle killed or driven away, vines and fruit-

trees cut down or uprooted, mills destroyed, and even churches profaned. When the peasants were unable to take refuge in the heart of the woods they were seized, fleeced, tortured, mutilated, hanged. Sometimes their hands and feet were cut off, they were flung upon the fire; captives had their eyes put out, women were violated and their breasts were hacked off. After exploits such as these whole provinces became deserts. Not infrequently famine followed in the train of prolonged feudal warfare to complete the work of destruction and death. It was essentially this chronic state of insecurity and robbery which for 200 years caused the stagnation of all cultivation, and the poverty of the mass of the people. The feudal warrior, indeed, easily became a brigand, and war degenerated into an enterprise of pillage. 'Honour,' says a troubadour at the beginning of the twelfth century, 'is (for a gentleman) to steal and to plunder.'" ['27, p. 151 f.]

It would be interesting and valuable to devise measures of the amount or intensity of kindness to one's family, one's friends, one's neighbors, one's fellow citizens, one's race (in the popular sense), all men, all sentient beings, and to the whole sentient world present and prospective, and to discover the correlations among individuals between kindly behavior in one and another of these widening spheres. I am strongly of the opinion that these correlations will be positive among the inhabitants of the United States today, and will be so in any community under ordinary conditions. There are two exceptions which are rather proofs than disproofs of the rule. The first is the extremes of kindness toward offspring combined with callousness toward almost all others. The second is the occasional cases of general humanitarians who grossly neglect their parents, wives, children, and neighbors. Both cases are rare and, I think, often pathological. The generally heartless person who pours out affection upon her child may be combining sex-passion with mother love. The lover of mankind who neglects his kin is often a lover rather of applause (from self if not from others).

It is reasonable to suppose that any given individual under any given circumstances has a certain fund of kindly behavior to expend and that if he spends much on dogs and horses there will be less for women and children. If he spends much on his

family there will be less for his neighbors and for mankind in general. It is an open question whether the kind of person who has a larger fund than others have will spend it more widely than they, or will prorate it among near and remote claimants in the same proportions as they do. It is very unlikely that he would concentrate it upon the near more than they do, because his greater amount of kindliness would probably be correlated with a greater and broader sensitiveness. He probably will spend it somewhat more widely than they do.

But it is also reasonable to suppose that many causes which stimulate or increase kindly behavior to any will increase it somewhat toward all. A child who is taught to smell the flowers in his mother's garden instead of pulling them to pieces, to feed his kitten instead of mauling it, to pat baby sister and bring her toys instead of glowering at her, to help servants instead of annoying them, and the like, should get a certain broader gain in his treatment of other people's flowers, other pets, other infants, and so on. The amount of this can easily be overestimated, but kindness, as well as envy, can grow by what it feeds on. One's fund is maintained and increased by spending it.

The persons in whom kindliness toward all good people is a potent force are few, so few that Helvetius could write that he mentioned them "only for the honor of humanity." By my computation eight percent of human activity in the United States is spent for the welfare of others; but probably not over one thousandth of this, perhaps five seconds per day per person, is spent for the welfare of mankind. It is significant that a very common reaction of even the most benevolent people to reading the specifications of twenty-six items for the good life presented in Chapter 16, is to ask, "How many of these do *I* have?"

Kindliness has often been misdirected, from the monks of five hundred years ago who "gave daily at their gates to every one that came for it. Yea, no wayfaring person could depart without a night's lodging, meat, drink and money, it not being demanded from whence he or she came, and whither he could go," * to the workers of New York who give their nickels and

* The quotation is from an anonymous writer of about 1590, reported by Ashley, '93, p. 314.

dimes to beggars who distribute mawkish printed pleas in the subway.

At the present time there are three specially important mental 'sets' or attitudes which direct, or at least influence, kindly feeling and action in the civilized people of Europe and America. We may call these the natural-traditional, the Christian, and the scientific. Almost everyone is influenced by all three, but in very different amounts.

By the nature of the genes and the deep-rooted traditions from ancient community life we tend to feed our hungry, comfort our obvious sufferers, rejoice with our fellows when they rejoice, weep with them that weep, protect them when attacked, and the like. This natural-traditional philanthropy is provincial, temporary and opportunistic.

By so much of the Christian doctrine as has been accepted by us we tend to broaden the meaning of 'our' to all of our sect or to all Christians or even to all mankind. We tend, however, to minimize the happiness and misery of this life in comparison with that of life after death, and to broaden the field of welfare and misery to include the life after death. It thus becomes theoretically the chief kindness of a Christian to insure the soul's salvation. Relatively, welfare in things temporal becomes of minor importance. The Christian set of mind did not, however, decrease the absolute amounts of worldly kindness. The brutalities of Christian conquerors toward subject peoples were not due to any conscious or unconscious arguing that saving their souls hereafter was so great a boon that it was no sin to steal their property and enslave their children. These brutalities were due to the general human nature of the conquerors rather than to their Christian set of mind. The Christian priests generally treated the conquered better than their native rulers had treated them.

The Christian set of mind does tend to shift the natural and traditional responsibility for the welfare of one's group to God when it is comfortable to do so. This use or misuse of the doctrine of God's will and divine providence is especially unfortunate when it impedes the progress of science. In general, however, it compares favorably with the earlier uses of magical doc-

trines and is a notable improvement upon them. We should compare it not with the extremely recent doctrine that man must always do his best to make the best of nature, but with such doctrines as those of the Australian tribes who attribute all diseases, calamities and deaths to vicious magic which it is their duty to ferret out and punish. At its worst the Christian set of mind has caused men to distrust natural benevolence, deny innocent means of happiness, and endure unnecessary remorse and fear. At its best it has endorsed the brotherhood of man, the duty of cooperating with a God who is the supporter of all good in all men and a kingdom of heaven on earth which is free from bigotry. Even at its best it has not entirely freed itself from supernaturalism of the magical sort.

The scientific set of mind is in this last respect in sharp contrast to the Christian, and to ancient traditions. In philanthropy, as elsewhere, it leaves nothing to magical forces the action of which by their nature cannot be observed, predicted, and put into harmony with known matters of fact. It also habitually eschews reliance upon any other world than that known to our senses, leaving any other to religion. The very person who as a Christian most devoutly believes in the resurrection of the dead and life everlasting will, as a physicist or physiologist or psychologist, exclude that life from his postulates and conclusions. The scientific set of mind also pays more heed to the consequences of kindly feeling and action and especially their more remote consequences. Not brotherly love as a duty so much as brotherly love as a satisfier and harmonizer of wants; not the relief of the beggars within his gates but the abolition of poverty; not the consolation of the lame, halt and blind but measures which will cure and prevent—to the scientific mind-set each kindly act has a potency in the general stream of natural events far beyond its present ennoblement of the giver and relief of the recipient.

Science in philanthropy as elsewhere seeks control through comprehension rather than comfort. Comfort through acceptance of and resignation to the miseries of blindness or cancer, for example, is for science an odious defeatism, a sin against the holy spirit of truth. Whether a belief will cause comfort or distress is a very minor consideration in comparison with whether it is true,

in the sense of effective in predicting the course of nature and in controlling nature or ourselves in relation to the rest of nature.

The scientific attitude toward philanthropy stresses action to the relative neglect of feeling. It is chiefly through action that feelings produce their consequences. Feelings are also hard to observe and experiment with; and the historic successes of science have been with the physical features of nature.

Science is of course realistic. If it teaches a man to love his neighbors, it will not do so by way of romantic misconceptions of their natures. Can it do so, or must we expect that science, though superior in directing love into helpfulness, is inferior in increasing it? Graham Wallas has answered this question in a penetrating and inspiring passage which is the more worth quoting because his own life was so fine an example of the teaching:

"Most of the great artistic interpreters of mankind have added to the permanent sum of human goodwill just in proportion to the force and detachment with which they have told the truth. It is largely due to Sir Walter Scott that Englishmen can love Scotchmen much more easily than, for instance, they can love Irishmen. But if we now think with affection of the Scotch national type, it is because we remember, not the heroes and heroines whom Sir Walter deliberately tried to make sympathetic, but the dour Cameronians, the canny peasants, the unashamed lads and maidens, in describing whom he had no purpose except to make a recognizable picture. The least touch of romantic idealisation would have made so typical and lovable a Greek as Homer's Odysseus into a figure as detestable as Tennyson's Lancelot. Modern reproductions of Rembrandt and Millet have enabled thousands of young people to look with genuine kindliness upon the quiet self-satisfaction of an unintellectual old woman, or the heavy walk of a sweat-drenched labourer. But Rembrandt and Millet worked with such detachment that they were denounced by their contemporaries as libellers of the human race.

"Psychology has the same detached purpose as literature, though it is the inherited human type, rather than that type overlaid with all the variations of individuality and place and tradition, with which it is mainly concerned; and I find myself sometimes wondering what may be the effect of the growth of Psy-

chology on the efficiency of Love. In the past those psychological generalisations which called themselves the Science of Political Economy undoubtedly stood in the way of Love. The employer saw his operatives with their weary eyes and half-open mouths at the end of a twelve hours' day only as "free agents," and their poverty only as the "stimulus of competition." But the more complex and, as one hopes, the truer description of mankind which the psychology of the twentieth century is slowly building up may help Love rather than hinder it. If, after a period of psychological reading, one stands on a railway platform or at a window, looking at that unknown crowd which make the solitude of London, the faces which one will never see again seem less indifferent than they did before. Those men who are innocent of psychology, but have an exceptional gift of reading physiognomy, may see more than the less gifted in spite of their book-learning. But book-learning and the habit of attention which it produces does seem to make it easer to interpret the less obvious signs of psychological states, and more probable that those states will stimulate a certain degree of Love. The tired mother snapping at her tired child, the weak smile of the dreamy youth, the intense self-consciousness of the two talkers who are "showing off" to the other inmates of the omnibus, all seem intelligible and kindly. And if formal psychology lends a measure of reality to those whom one sees only for a moment, it can also sharpen and make more poignant the mental picture, which every member of the Great Society forms, of that larger multitude of his contemporaries whom he will never see, but whose lives he must necessarily influence.

"The majority, however, of those who will be affected by the action of any inhabitant of a Great City or State are separated from him, not by space and multitude only, but also by time. Every ton of coal that we burn, every scar on the face of nature that we help to make, every new custom which we start or old custom which we modify, above all every act or refusal to act which affects the procreation of children, will influence the uncounted millions who do not yet exist. And perhaps the most important emotional effect of the growth and spread of psychological science may consist in such an extension of our imagina-

tion as may make more real to our feelings those in whom our type, with slow developments, must persist, even though nearly everything which now influences us after birth may change beyond our power of prophecy." ['14, pp. 150–155, *passim*]

We must not expect too much from facing the facts of the world. Neither science in general nor psychology in particular will make men gods, angels, or paragons of kindness. But there is no antagonism between science and the essentials of natural humanity; on the contrary, there is a substantial positive correlation. So the gains from facing the facts will involve no net loss in instinctive kindliness. We may hope that the scientific student of human nature and social activities will extend kindly behavior to include the welfare of men's minds, will cure rather than palliate, will prevent rather than cure, will weigh future consequences as well as present relief, and will protect the interests of the able and good against a too sentimental indulgence of the weak or worthless.

There seems to have been, in England at least, a notable increase in kindly behavior in the nineteenth century over any previous century. Dicey ['05, sec. edition, '14, p. 106] notes as an "example of increased humanitarianism between 1736 and 1818 that while the imaginary Jeanie Deans is sent home in a carriage by her patron, her real prototype, Ellen Walker (1736), was allowed to walk back to Scotland, and brought the pardon only just in time to save her sister's life." Humanitarian legislation was notable from the beginning of the century through the era of Benthamite reform, and to some extent later. Dicey suggests that it may have declined in the later years, but conditions were then improving so rapidly that legislative action was not so necessary. The percentage of paupers was falling rapidly from 1850 to 1900. The percentage of children in school and the real wages of workers were rising rapidly.

As evidence that people cared more for the welfare of others stands the fact that industrialists felt bound to claim that their recommendations were in the interest of the employees (and may have sincerely thought that they were). So, for example, the founder of the Taylor system of setting wage rates wrote that "a long series of experiments coupled with close observation, had

demonstrated the fact that when workmen of this calibre . . . received much more than a 60 per cent. increase in wages, many of them will work irregularly and tend to become more or less shiftless, extravagant and dissipated. Our experiments showed, in other words, that it does not do for most men to get rich too fast. [Taylor, F. W., '13, p. 74] He refers to "a long series of careful experiments . . . impartially made to determine what compensation is really for the man's true and best interest when all things are considered." [*Ibid.*, '13, p. 138] This is a new note. The poor were not told in the catechism that it was in their true and best interest that God had called them to the state of poverty. Nor were the peasants of *L'Ancien Régime* told that it was in their true and best interest that they were taxed so heavily.

The majority of impartial observers think that the demoralization of Europe which followed the World War has weakened general humanitarianism. Voters, they say, are greedier, rulers are more ruthless, racial and class hatreds are more encouraged and used as a weapon, "Live and let live" is treated as an outworn and unmanly doctrine. Psychology leads us to expect that this would be so and that the able and good will have to exercise extraordinary political ingenuity to restore a measure of toleration and good feeling.

Chapter 19

OTHER CAUSES OF WELFARE

Almost every advance in knowledge and almost every change in human nature or human customs acts directly or indirectly on welfare. What psychology has to offer concerning some of these has been presented in the last three chapters. The facts about many others we have arranged to present later in connection with the psychology of government, law, economics and business. Certain facts about wealth and income and their distribution, knowledge of the sciences of man and its distribution, the attainment of harmony among human wants, and the extraordinary complexity of many problems of welfare will be more useful if presented at this time.

WEALTH

Wealth is a form of power easily usable to increase welfare. It can, in Soddy's words, "build up a type of civilization nobler and more humane than was possible in a world held in the grip of, and limited by, want." ['35, p. 12] Other things being equal, the greater the income of a community the greater its welfare should be. But the other things are rarely equal, and the extent to which the goodness of life is in fact dependent upon its past or current income needs study.

As was seen in Chapter 18, income which is saved and put into improvements in the environment benefits welfare unless certain rarely-acting contrary forces prevent. The probability at the present time that savings will be put into improvements rather than nuisances is high.

Savings may, however, be spent for durable goods which are to a considerable extent nuisances, and for the rest mostly waste. The great chateau of Chambord was built at enormous expense.

Its upkeep probably did the world more harm than good for hundreds of years. It is rather ugly and has chiefly the value of an interesting historical monument like the Pyramids, which are an even more striking example of the waste of wealth in folly.

Income which is currently spent may or may not improve the environment or man himself, according to how it is spent. Modern individuals and communities are, in general, less considerate of welfare in their use of current income than in their use of savings. Men who would spend their salaries in drink, gambling, or ostentation will not so readily borrow on their life-insurance to do so. Communities which will endure the waste of current taxes by graft or inefficiency would probably be aroused by a capital levy to be spent similarly.

Invested past income is a form of power with capacities for welfare according to what it has been invested in—roads, bridges, houses, schools, pictures, books, or whatever else. Current income is a more adaptable form of power since it is in process of consumption or investment and is used from week to week to direct the use of men and things—toward feeding the hungry or overfeeding the gluttonous, toward protecting people from cold and wet or toward adorning women to excite the envy of their neighbors, toward educating youth or corrupting it, toward providing people with what will satisfy genuine wants and toward burdening them with objects, retainers and ceremonials which really decrease their total enjoyment of life.

From the point of view of welfare a considerable amount of income is spent harmfully and an enormous amount of it is wasted. Much of this damage and waste is caused by psychological forces. Consider the waste (1) from the use of fashion-goods, (2) from small-quantity purchases which a little foresight could prevent, (3) from advertising which is not informative or entertaining or productive of economies in production, (4) from Veblen's "vicarious consumption" by lackeys and retainers who do you no good, his "conspicuous waste" to show that you have an abundant income, and other expenditures to demonstrate one's social rank or to gain a reputation for a social rank which one does not really have.

The waste from fashion was described in Chapter 8. The

waste from buying in too small quantities may be very great, the price per unit bought one at a time being in some cases twice the price per unit when eight or ten units are bought at once.

The waste from harmful or useless advertising may be judged fairly well from the following statement by Hoyt ['28, p. 106 f.]:*

"But a greater case can be made out against the cost of agressive sales methods. The total yearly expenditure in the United States for national advertising alone is estimated to be over a billion dollars, or, as we have said, ten dollars for each man, woman, and child in the country. Who pay the billion dollars? Of course, the consumer pays it. He gets some of it back, to be sure, in so far as increased demand results in increased production, which leads to a decreased cost of production and a fall in price, but, as we have seen, this very often does not happen. A large amount of advertising, probably over one half, has for one aim the creation of a prestige value for the product; and for this prestige the consumer is certainly expected to pay. A manufacturer of plated silverware, for instance, describes his product in terms of distinction and sells it at twice the price that unadvertised plate of the same quality demands on the market. Economists are familiar with "class price," that is the setting of various prices to appeal to different classes on what is essentially the same product. The woman who must have the best soap thus pays fifty cents a cake for the same product (in a less distinctive wrapper) that her more canny neighbor buys for five cents. Stuart Chase and F. J. Schlink found many cases in which the same product was offered at widely varying prices, sometimes by the same company; or where a superior product, not advertised, could be bought at considerably less than the cost of an advertised inferior product. The long-run equalization with which students of economics are familiar proves in this case a very long run indeed; not so much because competition is slow as because consumers are so easily played with. There is even a sense in which some consumers undoubtedly enjoy

* The economic and psychological effects of advertising are complex; and modern advertising must be compared with what it has replaced as well as with what reformers would replace it by—before any sweeping condemnation of it. But it certainly has much waste.

being played with. P. T. Barnum made the famous statement: 'The people like to be humbugged'; and some advertising writers make a great point of the additional satisfactions consumers derive from what critics call the "fictitious values" of high prices and pretence. If a person gets the idea he is elegant, aristocratic, and superior by paying a dollar for a bottle of lavender bath salts, the materials of which are worth three cents, then, say such writers, your advertisement has done him a real service." ['28 p. 106 f.]

On the use of income to buy invidious distinction and a low form of self-esteem I quote a comment by Bowley in connection with the general rise in wages and the standard of living in England. "A very great deal of the improvement in all classes has been wasted by a continual straining after what I may call conventional uselessnesses, by which one group tries to mark itself off as superior to another group; and there is a foolish and costly race to maintain and destroy this division, where the competitors waste their breath and the gap remains. No one can estimate how much is spent on the trappings of respectability or on the desire for show. This is quite unconnected with the supposed increased expenditure on amusements and travelling, which there seems no need to condemn, and which may be financed by a decreased expenditure on drink." ['15, p. 159]

Veblen has risked a quantitative statement. He says:

"Supposing the standard of comfort of the community to remain approximately at its present average, the abolition of the struggle to keep up economic appearances would very considerably lessen the aggregate amount of labor required for the support of the community. How great a saving of labor might be effected is not easy to say. I believe it is within the mark to suppose that the struggle to keep up appearances is chargeable, directly and indirectly, with one-half the aggregate labor, and abstinence from labor—for the standard of respectability requires us to shun labor as well as to enjoy the fruits of it—on the part of the American people." ['19, p. 399 f.]

The practice of indicating a man's rank by the amount of his expenditures, especially on retainers, is very old. The *Liber Niger* of Edward IV "draws up specimens of the households of

different persons of different ranks. A duke should spend £4,000 a year and have two hundred and forty attendants; a marquis should spend £3,000 and have two hundred attendants; and persons lower down in the social scale should spend proportionately less. . . . Other household books give the same impression; members of the aristocracy could not visit each other without taking a string of servants with them. *The Household Book of Lady Alicia de Brienne* relates that 'Dominus Johannes Howard, cum uxore, filia ancilla, ij armigeris, ij valectis and iij garconibus,' came to see the mistress of the house." [Abram, '09, p. 94 f.]

The rich are aided and abetted in these wasteful expenditures by people who admire them for it and scorn as a "tightwad" a rich person with frugal habits. There seems to be preserved by oral tradition a genuine belief that it is the duty of persons of rank or wealth to spend much and not to economize in anything. Consequently there are probably more complaints against the rich for making so much money, in doing which they often perform very valuable services for welfare, than for spending so much on luxury and display, by doing which they are really taking bread out of our mouths.

The median or average income of the residents of a city is an important determiner of the goodness of its life for good people, though not so important as their intelligence, morals and skill. I have elsewhere ['39 A] presented the scores of 295 American cities in an index, G, of the good life made up from thirty-seven items like the infant death-rate (reversed), the percentage of sixteen- and seventeen-year-olds in school, the infrequency of illiteracy, the per capita public expenses for parks, etc. As was reported in Chapter 16, the variation among them is determined roughly as follows:—

37½% by the personal qualities of the residents
23 % by their wealth and income
23 % by forces which improve both personal qualities and income
16½% by forces unrelated to personal qualities or income

THE DISTRIBUTION OF WEALTH AND INCOME

A body of impartial trustees for the welfare of mankind present and future would rate proposals for the distribution of wealth and income according to their probable effects in satisfying all human wants, each want being weighted reasonably in accord with principles of the pattern described in Chapters 14 and 15.

The present distribution is obviously defective in many particulars. Each reader of this paragraph can point to some person who has wealth or income which he misuses to debauch himself or injure his neighbors and to some other who lacks wealth or income which he would use to benefit himself or others. All of us are aware that a certain percentage of those inhabitants of India and China who have only a few pennies a day to live on are as meritorious as the unskilled American laborers who have twenty times as much. All of us realize that a rich father who bequeaths his property equally to a decent and a vicious son is distributing it badly from the point of view of the general welfare, and that a community where thieving and graft are profitable is distributing its income badly. The difficulty is to find any total arrangements of business, law, taxation, customs, etc. which will surely be better than our present arrangements.

The particular proposals which theorists and reformers make or which governments are now adopting seem likely to get welfare out of the frying-pan into the fire.

Consider first the famous, "From each according to his ability; to each according to his need." If this is interpreted as, "Let each do his best for mankind; then mankind will provide him with what he needs in order to have a good life," it is an attractive idealistic doctrine. But it is a very inadequate one. For it provides no means of getting each to do his best for mankind except the promise that such action will be rewarded by what the person needs in so far as the world's products when divided up are able to supply all needs. Nor does it provide any means of deciding what the needs of each person are. If each person decides for himself, the world will be like a city given over to soldiers to loot. If governments decide, the needs of the citizens of certain nations will be a matter of endless dispute, and the

needs of the citizens within a nation may have very undesirable relations with their votes.

As a matter of fact the second half of the prescription is likely to be put into force before the first; and this would of course spell disaster. Whether each person takes what he thinks he needs, or each nation takes what it thinks its nationals need, or some super-government distributes the world's property and income to persons according to its judgment about the needs of each—if the persons are then left to produce each according to his inclination, the result will be disaster. The habits of useful production will have been disorganized and the motives for it will be greatly weakened.

A second proposal is that the wealth and income of the great human family of the world be shared as is the wealth and income of a single family. The meaning of this, if ninety-nine out of a hundred single families are used as the model, will be a distribution caused by autocracy, affection, wheedling, and guile, tempered by a host of customs good and bad. Even in the hundredth family where the golden rule rules, there has to be a long and careful training of the young to obey its precepts, and many special techniques for its application. Some agency must decide whose turn it is to mind the baby, wash the dishes and feed the pig. Some agency must decide who shall eat the chicken's neck. If the producers of the family produce a balance, some agency must decide for what it shall be spent or saved; and if there is a shortage, some agency must decide how it shall be borne.

When a population numbers hundreds of millions, even if all are more benevolent than half the world's present population, only a small amount of either the production or the distribution of wealth can be entrusted to anarchistic benevolence. Human nature being what it is, "From each according to his ability; to each according to his need" will, in operation, be "From each according to some authority's command; to each according to some authority's permission."

If elected governments do anything in respect to the distribution of wealth and income, it is almost inevitably to take it from their opponents or from the innocent bystanders and give it to

themselves, their supporters, or to certain opponents whose support or neutrality is purchased thereby. In some cases, they are well aware of what they are doing; in others they deceive themselves into thinking that they are acting impartially. A government of the ablest and best will do so less than a government of the dull and vicious; and the results of its favoritism will tend to be much less harmful. A representative government represents its nationals, but it represents especially those whose votes it has had and hopes to have again. All this is elementary psychology.

There is, naturally, a tendency for a government to get the taxes to support it and the enterprises it favors from persons the taxation of whom will cause it little trouble. Thus the old monarchies taxed the peasants who had little power to harm them. Thus the democracies of today tax the rich who have few votes and the dead who have none. The government of a democracy is thus strongly moved to tax the few rich to benefit the many poor. At first the benefits took mainly the shape of free schools, more parks, libraries and museums, public health enterprises, and the like. These were in fact an enforced gift, via taxation, from the rich to the poorer. But they were felt by many, both rich and poor, to be a fit and proper contribution to welfare via government. Recently the benefits are largely in the shape of more or less concealed doles, consumed by the poor regardless of merit with no cultural gains. Many of the persons who welcomed taxation for the earlier purposes feel that these later belonged rather to private charity. Rightly or wrongly, they feel that widespread public doles are not so good an enterprise as widespread public schools or parks.

There has recently emerged into prominence the claim that it is the duty of government, as well as of philanthropy, to attain greater equality in wealth and income, that disparity is essentially bad, that parity should be sought for parity's sake, and that it is so important a good that the powers of government should be operated in its favor.

This suggests three questions: (1) whether parity of income is a good; if so, (2) when it is and (3) why it is.

Evidence on the first and second questions has been very

scanty, but certain data reported in the 1930 census concerning United States cities permit statistical treatment which gives definite and dependable answers.

Neither the wealth nor the income of the families or individuals of even a single city in this country has ever been recorded. But the 1930 census does report the value of the family home if owned and the amount paid for rent by families living in rented houses or apartments for each of the 295 cities, distributed in classes as shown in Table 23.

These amounts, especially those in the lower brackets, are presumably in fairly close correspondence with family incomes. And the variability of a community in respect to them is presumably in fairly close correspondence with its variability in family incomes. Better estimates of it could be had by first multiplying these amounts by successively higher amounts, in accordance with the well-known fact that the greater the income the less the fraction of it that is spent for rent. But for a first approximation to the answer to our problem I shall use these records as they stand.

TABLE 23

Owners	Renters
Less than $1,000	Less than $10 per month
$ 1,000–$ 1,499	$ 10–$ 14.99
1,500– 1,999	15– 19.99
2,000– 2,999	20– 29.99
3,000– 4,999	30– 49.99
5,000– 7,499	50– 74.99
7,500– 9,999	75– 99.99
10,000– 14,999	100– 149.99
15,000– 19,999	150– 199.99
20,000 and over	200 and over
Not reporting	Not reporting

I have studied the data for owners and those for renters separately, and also when combined by calling the monthly rental of an owned house one hundredth of its value. This equating makes these estimated rentals higher perhaps than real-estate experts would advise, but lower perhaps than the families in question would pay if they rented instead of owning. I shall use here only the data as thus combined. Amount paid for rental

will mean such an amount or its equivalent by this rule in the case of owned homes.

TABLE 24

THE FREQUENCIES (IN PERCENTS) OF THE DIFFERENT AMOUNTS PAID BY FAMILIES FOR RENT (OR EQUIVALENT IN THE CASE OF OWNERS) IN TWELVE CITIES

Cities	$10 or Less	$10–$14	$15–$19	$20–$29	$30–$49	$50–$74	$75–$99	$100–$149	$150–$199	$200 or More
Augusta, Ga.....	34.70	19.20	10.00	12.0	12.1	6.24	1.95	1.99	0.71	1.14
Meridian, Miss....	35.70	14.30	8.50	13.1	14.9	7.69	2.42	2.08	0.67	0.62
Paducah, Ky.....	19.20	23.30	13.80	16.6	13.6	8.16	2.10	2.00	0.78	0.50
Kansas City, Kan..	9.10	15.25	16.30	24.5	24.4	7.63	1.51	0.88	0.25	0.18
Bay City, Mich....	7.84	13.80	16.90	24.0	26.7	8.35	1.57	1.12	0.32	0.40
Tacoma, Wash.....	4.39	9.29	13.50	27.0	31.7	10.00	1.86	1.44	0.37	0.47
Yonkers, N.Y....	0.22	1.06	3.00	12.2	23.4	23.30	11.20	12.40	6.40	6.86
Syracuse, N.Y.....	0.30	1.31	3.26	12.5	28.3	22.80	12.20	11.50	4.40	3.40
Dearborn, Mich...	0.40	1.11	1.29	6.7	28.5	30.50	16.30	10.90	2.70	1.48
Brookline, Mass...	0.01	0.98	1.45	4.8	9.4	13.80	16.60	25.10	11.40	16.30
Evanston, Ill.....	0.14	0.24	0.39	2.4	9.0	19.80	18.75	21.90	11.40	15.90
Montclair, N.J....	0.05	0.34	0.83	4.6	12.4	13.50	8.90	18.90	15.15	25.20

We have, then, for each city a record such as those shown for twelve cities in Table 24. These twelve cities are not taken at random but include three in which the rentals in general are very low, three in which they are fairly low, three in which they are high, and three in which they are very high.

I compute for each city the 5 percentile rental (i.e., the rental less than which is paid by 5 percent of the city's families and more than which is paid by 95 per cent of them), the 10 percentile rental, the 25 percentile rental, the 50 percentile, the 75 percentile, the 90 percentile, and the 95 percentile. The results in the case of the 12 cities of Table 24 are shown in Table 25. I compute also for each city various differences (such as 95 — 5 percentile, 90 — 10 percentile, 95 — 50 percentile, 50 — 5 percentile) and various ratios (such as 95 percentile divided by 5 percentile, etc.). Each of these measures a certain feature of the variability of the city's families in amount paid for rent or its equivalent. They are shown for the twelve sample cities in Table 26.

I correlate these measures of disparity with a weighted index, *G*, of the general goodness of life for good people computed from the following thirty-seven items: infant death-rate (reversed);

general death-rate (reversed); per capita deaths from typhoid (reversed); per capita deaths from appendicitis (reversed); per

TABLE 25

THE RENTAL PERCENTILES 5, 10, 25, 50, 75, 90, AND 95 COMPUTED FROM THE FREQUENCIES OF TABLE 24 (In Dollars)

Cities	5	10	25	50	75	90	95
Augusta, Ga.....	5.1	5.9	8.4	14.0	29.2	58.2	85.2
Meridian, Miss.....	5.1	5.9	8.3	15.0	34.6	61.3	83.2
Paducah, Ky.....	5.8	7.2	11.3	17.7	33.2	60.9	79.5
Kansas City, Kan...	7.4	10.3	15.2	23.8	38.1	51.4	67.8
Bay City, Mich.....	8.5	11.1	16.3	25.2	40.1	55.3	70.3
Tacoma, Wash.....	10.3	13.0	19.2	28.5	43.2	60.3	72.8
Yonkers, N.Y.....	20.6	24.4	37.2	60.8	102.5	175.6	225.2
Syracuse, N.Y.....	20.1	24.1	35.4	54.7	78.3	140.3	181.7
Dearborn, Mich.....	23.3	30.4	40.9	59.6	84.9	123.5	146.4
Brookline, Mass.....	25.2	35.6	64.9	105.5	161.7	235.9	279.5
Evanston, Ill. ...	34.0	45.1	66.4	99.0	160.2	234.5	278.1
Montclair, N.J.....	28.2	36.7	62.6	124.3	200.7	262.1	301.1

capita deaths from puerperal diseases (reversed); per capita public expenditures for schools; per capita public expenditures for teachers' salaries; per capita public expenditures for textbooks and supplies; per capita public expenditures for libraries and museums; average salary of high-school teachers; average salary of elementary-school teachers; percentage of persons eighteen to twenty years old in school; percentage of persons sixteen to seventeen years old in school; per capita public expenditures for recreation; per capita public park acreage; rarity of extreme poverty; rarity of less extreme poverty; percentage of boys ten to fifteen years old gainfully employed (reversed); percentage of girls ten to fifteen years old gainfully employed (reversed); average wage of workers in manufacturing plants; per capita number of homes owned; per capita support of the Y.M.C.A.; balance of physicians, nurses, and teachers over male domestic servants; per capita number of automobiles; per capita domestic installations of electricity; per capita domestic installations of gas; per capita number of telephones; per capita number of radio sets; percentage of illiterates (reversed); per capita circulation of *Better Homes, National Geographic,* and *Good Housekeeping* maga-

zines; per capita circulation of *Literary Digest;* per capita deaths from syphilis (reversed); per capita deaths from homicide (reversed); per capita deaths from automobile accidents (reversed); per capita value of public property in schools, libraries, parks,

TABLE 26

MEASURES OF DISPARITY: DIFFERENCES AND RATIOS OF RENTAL PERCENTILES IN THE TWELVE CITIES OF TABLE 25

CITIES	DIFFERENCES Unit = 1 Dollar				RATIOS	
	95 − 5*	95 − 50†	50 − 5‡	90 − 10§	95 ÷ 5‖	90 ÷ 10¶
Augusta, Ga.	80	71	9	52	16.7	9.9
Meridian, Miss.	78	68	10	55	16.4	10.5
Paducah, Ky.	74	62	12	53	13.8	8.4
Kansas City, Kan.	60	44	16	41	9.2	5.0
Bay City, Mich.	61	45	17	44	8.3	5.0
Tacoma, Wash.	62	44	18	47	7.2	4.6
Yonkers, N.Y.	204	164	40	151	11.0	7.2
Syracuse, N.Y.	161	127	35	116	9.0	5.8
Dearborn, Mich.	123	87	36	93	6.2	2.8
Brookline, Mass.	254	174	80	200	11.1	6.6
Evanston, Ill.	244	179	65	189	8.1	5.1
Montclair, N.J.	272	177	96	225	10.6	7.1

* The 95 percentile rental *minus* the 5 percentile rental.
† The 95 percentile rental *minus* the 50 percentile rental.
‡ The 50 percentile rental *minus* the 5 percentile rental.
§ The 90 percentile rental *minus* the 10 percentile rental.
‖ The 95 percentile rental *divided by* the 5 percentile rental.
¶ The 90 percentile rental *divided by* the 10 percentile rental.

and hospitals; per capita value of public property *minus* public debt; ratio of value of public property in schools, libraries, parks, etc., to value of other public property used for municipal services.

Parity (the disparity score reversed) is a good symptom for a city, accounting for six percent of its variation from the American mean in *G*, the general goodness score.

We can discover the way in which parity in incomes as indicated by rentals was beneficial in these cities. It did not act by any magic or by any mysterious economic influences. There are only three possibilities: parity selected better people, made people better, or was itself a by-product of a better population.

The proof that these are the only possibilities lies in the facts that for cities identical in P (a composite index of the quality of the population) parity *does not correlate with* G and that consequently *the percentage of the variation determined by P alone is as great as the percentage determined by P together with a parity score.*

As one feature of the study of the 295 cities, an index (P) of the personal qualities of the population was computed for each city, using the items shown in Table 27, with the approximate relative weights noted after each.

TABLE 27*

CONSTITUENTS OF INDEX P OF PERSONAL QUALITIES OF A POPULATION

	Approximate Weight
Per capita number of graduates from public high schools in 1934	1.50
Percentage which public expenditures for the maintenance of libraries was of the total public expenditures	.75
Percentage of illiteracy (reversed)	.87
Percentage of illiteracy among those aged 15–24 (reversed)	1.00
Per capita circulation of public libraries	1.66
Per capita number of homes owned	1.50
Per capita number of physicians, nurses, and teachers *minus* domestic servants	1.25
Per capita number of telephones	1.00
Number of male dentists *divided by* number of male lawyers	.66
Per capita number of deaths from syphilis (reversed)	1.00
Per capita number of deaths from homicide (reversed)	1.00

Whatever good parity does is done by its association with P. The correlations of parity measures with G for cities identical in P are zero (in fact slightly negative on the average). The influence of P together with that of parity accounts for no more of the variation of the cities in G than the influence of P alone.

The correlational analysis is not able to allot the benefits of parity in income among selecting better people, making people better, and being itself produced by their goodness. But general

* The P score is, of course, not a perfect measure of the intelligence, character, interests, etc., of a city's population, but it would probably correlate well over .85 with such a perfect measure.

observation suggests that the third has the largest share. A population high in *P* will be employable, industrious, and thrifty, but not money-mad. A dozen millionaires will not raise a city's *P* score more than a dozen high-minded carpenters or accountants. A population high in *P* creates parity and selects for parity by making its city unattractive to defectives, delinquents, and bums.

In so far as the causes which make some cities better than others can be trusted as guides to the ways of making all cities better than they are now, parity for parity's sake is a false god. There may conceivably be a magic potency in economic equality which would show itself in certain sorts of civilization and in our cities if life were fundamentally different from what it is. It does not show itself in the facts for our cities.

If guided by the facts, a benevolent and wise trustee for the welfare of a city, wishing to increase the goodness of life for good people therein, would support measures which would improve the quality of a city's population and increase their incomes, especially the lower incomes, but would pay no attention to parity for parity's sake. Until contrary facts are discovered the citizens of a city should do the same; the government of a city should do the same. This is probably true also of counties, states, and nations.*

Philanthropy should then try to make the rich richer, but still more to make the poor richer, and still more to make people abler and better. As the people of a community become abler and better they will probably become less disparate in income, but if they do not, no harm will be done. Philanthropy need spend no more effort on the disparity of people's incomes than on the disparity of their toenails. Government may do likewise, or it may safely confine itself to the last and most important task, since the history of its efforts to make the poor richer is not encouraging.

KNOWLEDGE

Increases in welfare require enough knowledge in the experts to ensure sound plans for getting them, and also enough knowledge in the public to permit the experts to operate. Addressing

* The details of the correlations and determinations are available in an article in the *American Journal of Sociology*, Vol. 44, pp. 25–35. [Thorndike, '38]

college graduates a few years ago, Owen Young said: "Just as the young men and women of my time were lured to the field of invention and discovery in the physical sciences, so you will have to face the problems of that much more difficult science of human relations. It will not do for you merely to determine what you would like human relations to be. It will be necessary for you to find out what human behavior is, and then fashion the social machinery which will make for human happiness, and the sensitive controls which will be so necessary to keep such fragile mechanisms from running to their own destruction." ['34, p. 17]

In so far as the last sentence is true, the students of welfare are in a very different position from the students of physics or physiology, or the inventors of dynamos or surgical operations. The latter have to convince their peers, and perhaps also certain men in business and in professions, of the truth and value of their discoveries. But they do not have to convince the public; it has already learned in the main to operate whatever machines the factories use, and to let the surgeon cut as he thinks best, if it lets him cut at all.

The public knows little or nothing about what the physical and biological sciences are doing, and except for occasional threats of fundamentalist religious interference lets them go as fast and as far as they like. How much the public needs to know of the sciences of man is not certain. People should know at least enough to trust the experts in these sciences, and whether there are any experts, and how to find out who they are.

Very few of them know this now. But one chief reason is that the experts are not expert enough. There are, it is true, experts of the highest type in regard to what the law is and how it applies to such and such cases, but what we are concerned with here is experts to inform us what the consequences of such and such legislation will be, and what legislation should be enacted to produce such and such results. There are experts of a very high type in history and government, but what we are concerned with here is experts who know who will start wars, and when, and how they will turn out, how to harmonize conflicting interests within a nation, etc. As sciences of prediction and control, psychology, anthropology, sociology, history, law, government, economics,

business, education and religion, do not have men who would even claim to have expert knowledge comparable to that of physics, chemistry and biology.

These sciences have advanced far beyond traditional opinion, but not so far that the most inferior of their experts is superior by a wide gap to the wisest layman. In the case of the treatment of delinquents and dependents or in what is called welfare work, for example, there is no large body of demonstrated principles, based upon many thousands of instructive, often crucial, experiments, which no layman can understand without special study and which enables the experts to proceed to important discoveries which increase the body of principles and to important inventions which apply it, at a rate corresponding to that in the physical sciences. There are important principles, the psychological ones among which have been noted in this volume. There have been important inventions such as the profession of nursing, the organized management of private charity, the social settlement, the children's court, the probation system, and national parks. But these have been fewer than one would wish.

The inventions have also come more from trial and success and less from the principles than one would wish. Psychologists should have recommended the employment of women nurses in armies and the establishment of nursing as a profession for women, but they did not. Experts in welfare or in government should have planned for national parks, but apparently the idea was born almost casually in the mind of Cornelius Hedges, a member of the Washburn expedition in 1870. "General Chittenden, the historian of the park, describes the members of the Washburn expedition sitting around their camp fire at the junction of the Firehole and Gibbon Rivers, near the present West Yellowstone entrance. They had just visited the geyser regions.

"It was suggested that it would be a 'profitable speculation' to take up land around the various objects of interest. The conversation had not proceeded far on these lines when one of the party, Cornelius Hedges, interposed and said that private ownership of that region, or any part of it, ought never to be countenanced; but that it ought to be set apart by the government and forever held to the unrestricted use of the people.

"This view found immediate acceptance with the others, and they vigorously set about to bring it to pass. The act establishing the park was passed in 1872. . . . The act establishing Yellowstone Park marked an innovation in the policies of government. It was the first time a vast tract of territory had been dedicated to the use and enjoyment of all the people." [Hoyt, '28, p. 211 f.]

The lack of expert knowledge in the social sciences may be excused by their youth, and will doubtless be remedied rapidly as able and curious minds work and play with the facts of human behavior and institutions.

The common man probably needs relatively more of it than he does of the knowledge of the physical and biological sciences. He can, for example, probably get on better without knowledge of the second law of thermodynamics than without knowledge of the fact that the human mind never acts except from some stimulus, from outside or from within. His ignorance of chemistry is at least empty of prejudices, but his ignorance of human nature and institutions is penetrated and distorted by fetishes and follies, some dating back to prehistoric times, and is poisoned by his readiness to believe anything which makes him feel comfortable, proud, at home and in the saddle. He has to be brought up by people, work for people, live with people, rule or be ruled by people, all in a way which demands more knowledge about people than his life with electrons or light quants demands knowledge of these. For guidance in many of his social relations he cannot afford to consult the expert as he now consults a physician, engineer, or clergyman, but must do the best he can on the spot.

The distribution of knowledge of the social sciences, and of advice based upon them is obviously important. Social workers, teachers, vocational counselors, psychologists, psychiatrists, economists, business advisers, and others may aid welfare by the knowledge and advice they give as truly as by their own acts. Many thousands of dollars that would have been spent on the musical education of those with inadequate musical capacity are now saved by such consultation. Much excess kindness now wasted on children who do not profit by it, or on parents whose real or alleged pains and disease are manufactured, perhaps un-

consciously, in order to extort attention and care is being cured by such consultation. Professor Carver of Harvard used to astonish the women students who wished careers of service, by recommending the career of investment banker or business consultant. But surely he was right. Impartial advice about spending, saving and investing is genuine welfare work.

Some matters which the people in general decide directly or through their elected representatives are so important for welfare that it is of great importance that they should either learn the necessary facts of economics, psychology, education, sociology, etc. or learn to delegate the decisions to experts. The following statements will illustrate the need:—

. . . "We may even ask that any Government Insurance scheme shall be so framed as to operate, in conjunction with the efforts of the Public Health Department, actually for the prevention of sickness. This requirement, it is sometimes urged, is surely satisfied by the manner in which insurance schemes inevitably lead to preventive measures. We cannot say that we are impressed with the efficacy of our own voluntary insurance against sickness in developing any such measures. The managing committees of our Friendly Societies seem to take sickness for granted, as an inevitable visitation of Providence, just as their fathers and grandfathers did. They do not even ask that obviously preventable sickness should be prevented. We do not find the Friendly Society members using their almost irresistible electoral force to make the Local Health Authorities maintain a high standard of sanitation, or develop the municipal hospital service; we do not see the Societies insisting on every city having its Tuberculin Dispensary and its Phthisis Sanatorium; we do not find the insured members particularly eager supporters of a system of Health Visiting, or enthusiastically demanding School Clinics. Beyond the establishment or support of a few Convalescent Homes, and a few subscriptions to hospitals used by their members, we are not aware of any help given by the powerful Friendly Society movement to the cause of Public Health." [Sidney and Beatrice Webb, '11, p. 189]

Writing of public aids to transportation a generation ago, Hadley said:

"In supplying these needs, the government serves a public necessity. But there are two opposite causes which often prevent it from doing its work judiciously. Either the taxpayers know that they are paying for these improvements, or they do not. If they know it, as in the case of country roads, they will grudge every penny of necessary expense, and will waste in horseflesh and wagon-wheels many times the amount of capital which would have sufficed to put the road system in proper shape. Seeing no pecuniary return for the money which they spend, they will cause themselves great pecuniary loss by their shortsighted economy. If, on the other hand, the taxpayers do not see whose money is being spent, as in the case of ship canals and other works of national importance, they will look only at the question of convenience, and will fail to see that somebody must pay for this convenience by taxation. They will commit the fallacy of confounding government property with public wealth, and will ignore the fact that unwise expenditures on government property lessen the public wealth instead of increasing it." ['01, p. 394 f.]

The first folly of Hadley's tax-payers has been reduced, probably by the more emphatic lesson of the automobile that good roads mean comfort if not money, and save on the money spent for transportation; but the second is rampant in spite of a trebling of the number of persons who stay in school past age fifteen.

An even more damaging indictment of popular choice against welfare is contained in a statement by H. R. Luce, the publisher of *Time, Fortune,* and *Life,* concerning what people want. "The first and principal danger of the press-which-gives-the-people-what-they-want is the obvious danger that there is no significant restraint on vulgarity, sensationalism, and even incitement to criminality. The second danger, which is more characteristic and perhaps even more insidiously deleterious to public taste and morals is the fact that there is in this situation an enormous financial incentive to publish twaddle—yards and yards of mediocrity, acres of bad fiction and triviality, square miles of journalistic tripe. . . . The press must assist the people to govern themselves. And to do that, the press must offer to the people of this

country in the next few decades such an amount and such a quality of instruction in the facts and problems of public affairs as no people yet under the sun have been willing or able to receive." ['38, p. 63 f.]

RECONCILIATION AND HARMONY OF WANTS

In some cases man works against himself when sufficient genius can find ways and means to reconcile the conflict at no cost whatsoever. The sex cravings of the male and the female are harmonized by courtship and union. A mother with no baby to nurse and a baby with no mother to nurse it are most pitiable, but a mother with her baby are a natural harmony of satisfactions. Dogs want to have human masters as much as boys and men want dogs to attend and serve them.

The bard and his hearers, the artist and those who view his products, the natural leader and his willing followers—these are samples of activities which are satisfactory to all concerned. A group of a dozen leaders would often quarrel and fight; a group of fifty natural followers who dislike responsibility and command would often be sad, restless, fearful, and mutually recriminatory. Give each of the leaders four or five of the followers, and the work or play goes forward with satisfaction to all.

Along with his discoveries of ways to utilize animals, plants, metals, wind, water, and other natural objects and forces to satisfy his wants, man has made what we may call social discoveries and inventions, some of which operate largely by reconciliation and harmony. By barter, A, who has unwanted X and wants Y, exchanges with B, who has unwanted Y and wants X. The invention of barter was a great step forward for welfare. The invention of money as an instrument to measure value, and as a medium of exchange or generalized barter, enabled a person or group to get rid of anything which it possessed that some neighbor wanted, receiving in return the power to obtain more or less of anything which it wanted that some neighbor possessed.

The invention of each early step in the division of labor not only increased production but enabled persons to do more of certain work that they wanted to do and less of the work that

they wanted to avoid.* It was often a gain in happiness as well as efficiency when one daughter could specialize in caring for small animals, one for the garden, and one for spinning and weaving.

The discovery that the person who kept money safe could without damage to that function lend money to those who needed it and would surely repay it harmonized the wants of owners, borrowers, and bankers. The invention of the savings bank, as a means to extend to small owners the privileges which large owners had, served a similar purpose.

The inventions of insurance against fire, loss at sea, etc. enabled individuals to buy security, companies to sell it, and actuaries to be paid for interesting computations. The invention of the clearing house saved labor for all its member banks. The invention of the cooperative store has probably saved people some money, given them business experience, and decreased unjust attacks on retail traders.

I will add two cases of harmonizing wants which may appear ludicrous to the reader, but not if he will divest himself of prejudices and realize the importance of preserving peaceful cooperation in an Eskimo community in spite of the stresses and strains of theft, abduction, murder and the like. The first shows an Eskimo invention whereby an injured party gets revenge and preserves his self-respect, the injurer gets a chance to present his defense with a minimum of hard feeling, and the community gets free entertainment.

"A Greenlander who has suffered some injury, whether by theft, destruction of property or the abduction of his wife, will compose a satirical song in mockery of the culprit and challenge him to a public singing contest. Drumming and chanting, he throws his enemy's misdeeds into his teeth, exaggerating and deriding them and even rattling the family skeletons as well.

* Some of the later extremely fine subdivisions introduce unwanted monotonies, but a great surgeon specialist may enjoy taking out his thousandth appendix as much as his hundredth. A man who does nothing but take x-rays of teeth may be quite happy at the job, and rather annoyed when he has to substitute for the man who takes x-rays of fractures.

The accused person receives the mockery with feigned composure and at the close of the challenger's charge returns in kind. Apart from the period of singing, no hostility whatsoever is displayed. The spectators follow proceedings with the greatest interest, egging on the performers to their utmost efforts. Such contests need not be settled in one evening but may be continued for a number of years, the litigants taking turns at inviting each other." [Lowie, '25, p. 413]

The second invention is the law or rule whereby a man who murders another must marry his wife. This is shocking to our conventions but we must admire the simple perfection of its solution of the fundamental wants of a woman whose husband and supporter has been taken away, and of the community whose life and work must go on!

The importance of business, economic, and social discoveries and inventions can hardly be overemphasized. It is unlikely that the majority vote, party-system, elected representatives, and dictators are the last word in government; that our present cooperatives, department stores, mail-order houses, chain stores, and "independents" are the best possible ways of retail selling; that a "teacher" with a "class" should monopolize school education; or that the competing religions of the world are unimprovable.

If as many able men devote as much time to the sciences of man during the next century as has been the case with the physical and biological centuries during the century past, substantial progress should be made.

It is perhaps too much to expect that the disputes of employers and employees will ever be ended by some series of brilliant inventions which will give both parties what they really want; or that wars between nations will be ended by some inventions which will take care of all the ambitions, rivalries, loyalties, etc., which cause wars or are gratified by them, leaving no excuse for war save governmental or popular insanity. But I, for one, have hopes that when man understands men as well as he understands the chemical elements he may control the explosions of the former as well as those of the latter.

THE COMPLEXITY OF PROBLEMS OF WELFARE

Human nature, though built on the simple plan of a system of connections, motivated by certain inborn wants, and modified by the satisfyingness of the after-effects of each operation of each connection, becomes enormously complicated under the conditions of modern life. Under one skin and inside one skull there are millions of connections, facilitating and interfering one with another, and a dozen or more selves (as lover, parent, neighbor, voter, employer, musician, Baptist) with diverse purposes. Within even a small city, there are thousands of social forces produced by various groupings and regroupings of its persons and by various features of its institutions.

The worker for welfare must labor on a broad front. As Walter Lippmann has said, "Either he must offer a pattern for every phase of life, however distasteful some of its phases may be, or he must guarantee that his pupils will never be confronted by the situations he disapproves. Either he must abolish war, or teach people how to wage it with the greatest psychic economy; either he must abolish the economic life of man and feed him with stardust and dew, or he must investigate all the perplexities of economic life and offer patterns of conduct which are applicable in a world where no man is self-supporting." ['22, p. 179 f.]

Sometimes the forces one is using or opposing act together additively, but sometimes the strength of one multiplies the effect of others. Skill is a multiplier of time spent in the case of much productive labor. Good will may be a multiplier of intelligence and knowledge in the case of much welfare work. Southard and Jarrett ['22, cases 1 and 8] have presented case histories showing these two sorts of action in evils against which we fight, and comment as follows: "In one case the elements of disorder may be loosely combined, heaped, while in another case they are tightly combined, coiled. It is important to know whether we are dealing with *summands* or *factors*. Evils multiply into one another. The effect of hypersexuality and lack of information about sex lead to more difficulty combined than the sum of the two evils alone." ['22, p. 542]

We can be sure beforehand that no simple panacea will ever be found to put the world right. We may be suspicious of broad sweeping statements about welfare and its causes, unless they are reached by a careful consideration of many facts about man's nature and institutions, and fortified by special observations, experiments, and analyses. For example, in the case of improvements in housing over what the interplay of the wants of owners, renters, fire insurance companies and the public as represented by boards of health, city planning, etc. provides, there is need for expert special work like that of Markelius who considered the needs and desires of families in which both husband and wife work. His famous Kollektivhus [described in Childs, '36, p. 57 f.] was the result.

Soddy berates working people, to whose interests he is sincerely devoted, for their belief that so simple a procedure as expropriation of the incomes of the well-to-do will benefit them. "It is enslaving and demoralising rather than liberating them, and at most, shifts the ownership of capital from one individual to a number of often less-desirable masters. Practical Socialism, as the national ownership of the means of production, distribution and exchange, requires national or government saving or thrift rather than government expenditure on the maintenance of individuals. All that is being spent on the alleviation of poverty and distress is taking them further from rather than nearer to their goal. So far, Labour in power has but followed the path of least resistance leading nowhere. By expropriatory taxation, it obtains and spends as revenue what in a Socialistic Commonwealth it would have to spend on capital." ['33, p. 115]

When the complexities of human affairs are aggravated by national ambitions and party politics the outcomes for welfare make strange reading. The passion of Rome for dominion gave Europe a peace and security greater in space and time than it ever had before or since. But not the passion of the Goths, Vandals, and Huns for dominion. If the American colonies had been treated more wisely, or if they had resisted less successfully, the United States might have been spared the Civil War. Most moralists would say that the British rule in India was conceived by private greed, born of injustice, and nurtured by mis-

guided patriotism, but it presumably has avoided destructive internecine strife and in general done much better for the inhabitants of India than they would have done for themselves.

The division, specialization and cooperation of labor in producing material goods is only one fraction of the division, specialization and cooperation now required to produce welfare. It will be profitable to illustrate this at length, because each illustration is instructive in and of itself. The first concerns the cooperation of good will, funds, and expert specialized knowledge, in the case of the prevention of destitution.

"Paradoxical as it may appear to the majority of our readers, the most formidable obstacle to the adoption of the Policy of Prevention and Treatment is, not resistance to the necessary public expenditure, still less inability to raise the money, but the lack of administrative science and the shortcomings of our administrative machinery. Merely to relieve destitution has been nearly as easy as doing nothing. But successfully to intervene in order to prevent—whether to prevent sickness, to prevent the neglect of children, to prevent the multiplication of the mentally unfit, or to prevent Unemployment—involves the discovery of causes, the formulation of large schemes of policy, the purposeful planning of collective action in modifying the environment of the poorer classes, together with scientifically diversified treatment of those individuals who fall below the recognised standard of civilised life. Unless we have a very determined effort to clear up all these problems by continuous observation and verification, we may still see large sums of public money spent on what is virtually a slovenly relief of destitution and not its prevention. In some of the legislation that has been passed during the last two decades, and in a good many of the projects put forward by each political party in turn, we see the fatal attraction of the easy policy of "relief," in contrast with the arduous mental labour involved in mastering the technique of prevention. Great Britain, in fact, finds it difficult to break out of a vicious circle. Our governing class—Ministers, Members of Parliament, Judges, civil servants—do not seem yet to have realised that social reconstructions require as much specialised training and sustained study as the building of bridges

and railways, the interpretation of the law, or technical improvements in machinery and mechanical processes. The result is that the amount of knowledge available, even of knowledge of facts, when a Minister is faced by a problem, is always ludicrously insufficient, whilst adequately trained expert students of the subject are seldom to be found. Meanwhile, the bulk of the electorate, the organised working-class, can hardly be expected to have time to think out for themselves the necessary changes in environment or to develop any new social *technique;* and in default of intellectual leadership, they are apt to alternate between a somewhat cynical apathy and an impartial acceptance of the first easy-looking device for improving their condition that is presented to them." [Sidney and Beatrice Webb, '11, p. 330 f.]

The second concerns the well-known, but ever neglected, need for the entrepreneur to manage natural resources, capital and labor for useful ends.

"The reason business does not expand is not because there is no room for it but because some essential factor is missing. The missing factor in Great Britain is obviously not labor, because instead of being too little there is too much. It is not land, because it does not take much land for factory sites, and there are unoccupied sites besides those already occupied by idle factories. It is not capital, because British capital is seeking investment in the outside world, besides there are many idle factories that are already equipped. What, then, is the limiting factor?

The missing ingredient.

"The fact that the reader finds this question so baffling, if he does, should give him the clue to the answer. It may be baffling to all but a very few. If there are people wanting goods, and if there is plenty of idle labor, land and capital available for producing these goods, why don't they produce them? If we ourselves don't know how to answer that question it may indicate that there are not many others who do. That is the very difficulty; there aren't enough men who can answer it in a practical way. That is, there are not enough men who know how to employ labor, land and capital in such a way as to turn out a

product that people can buy at a price that will cover the cost or that will enable the employer to pay for the labor, land and capital that have to be employed. That this can be done is shown by the fact it is done. Men are continually starting new and successful enterprises where most of us did not dream that it could be done; but the men who can do it are rare. If they were somewhat less rare there would be more employment and more goods. Why are such men so rare? That is the most important question in Great Britain today and in any other country that has an unemployment problem. Until the answer is found, there will and can be no solution of the problem of unemployment short of wholesale emigration.

"*Why jobs are scarce.*

"There are several answers. One is that no business man in Great Britain today can remain long in business unless he is able to run his business so effectively as to pay not only his own laborers out of his receipts, but also a great many others besides. He must pay not only those laborers who return him a product, but others also who return him no product whatsoever. That is, he is taxed to pay unemployment doles to the unemployed. It is hard in these times to get enough out of a laborer to pay his own wages. It is much harder to get enough out of him to pay not only his own wages, but, through taxes, enough to pay unemployment doles to idle laborers besides. It takes an extremely capable man to do this, and extremely capable men are rare. Some men could keep their businesses running if they had only their own expenses to pay who cannot carry this double expense. In other words, if business were not taxed to pay doles to the unemployed, there would be fewer unemployed.

"Another answer is found in the fact that too much of the best talent of England has been trained for the so-called genteel professions and not enough for business. It seems to many Englishmen much more genteel to enter one of the talking professions, and to talk about the problem of unemployment than to actually solve it in a practical way by employing a few real laborers and paying them real wages out of real receipts. This is a real job and it takes a real man to do it.

"*The most needed man frequently the least appreciated.*

"Another reason is that men who can do a real work of this kind are not appreciated by the very men whom they benefit. Too many laborers are misled by the professional talkers into hating employers as a class. This leaves only two motives for becoming an employer, namely, philanthropy and the desire for money. There is no reward for the employer in the form of esteem even on the part of the employed. There are probably other reasons why the capacity to run an industry is so rare or so rarely active, but these three are enough to start with. Wherever they exist there will not be enough business establishments to employ all the manual workers." [Carver, '24, p. 135 f.]

The third quotation is from M. W. Childs and concerns the healthy cooperation of social strata or "classes" in an enterprise which itself requires the cooperation of thousands of individuals as both buyers and sellers.

"Cooperation developed with a curious classlessness in which the cooperators themselves took a certain pride. Well aware that the mass of industrial workers formed the core of the movement, they took it as a symbol of the universal value of cooperation that a prince of the blood royal should be a member of the Stockholm Cooperative Society and that during the war this society had as its chairman a cabinet minister, Baron Palmstjerna, a member of an old and distinguished family. It was not that the upper class condescended to encourage the movement. In part they had been responsible for starting it.

"In the early phase one of the strongest groups had been the society in Stockholm known as Swedish Homes, founded and directed to use Axel Gjores' phrase, "by middle and upper class ladies." This society opened its first store in 1905, to be met with a boycott prepared in advance by apprehensive merchants of the capital. But Swedish Homes, having a considerable reserve to draw upon, was able to finance the purchase of supplies from cooperative wholesales in Holland and England and thereby defeat the boycott. Later Swedish Homes merged with K. F. S., the Stockholm Cooperative Society, which has not only the largest but also the most aggressive membership of any of the local societies.

"Among small land owners and farmers the movement was very slow to take root. After the war, however, the largest rate of increase was in rural areas, a development which was extremely gratifying to the leaders of the movement; between 1913 and 1925 the number of farm members grew from 11,000 to 43,000. In the latter year the membership of societies affiliated to K. F. was divided as follows:

	Per Cent of Total
Farmers and small land owners	15.2
Farm workers	4.7
Small workshop masters	3.1
Small workshop workers	5.2
Professional, civil service	2.4
Clerks, public employees	8.2
Industrial and factory workers	29.3
Other workers	20.5
Corporations	1.0
Others	10.4

"In general this is said to approximate the proportions to be found in the population. 'This development,' one of the co-operative leaders adds, 'is the more gratifying in that there has not been the slightest sign of any ill-will between the various groups, but all have put aside their class or political interests and have united in common labor on the problems cooperation aims to solve.'" [Childs, M. W., '36, p. 7 f.]

The fourth concerns the countless tools used by persons and two consequences of the fact that many of them are used by more than one person.

"The most singular feature of the artificial extensions of our natural body is that they are shared in common by a number of individuals. When the sick man consults the physician, who, we will say, makes a microscopic examination, for example, the patient is virtually hiring a pair of high-power eyes. When you drop a nickel into the telephone box, you are hiring the use of an ear to listen to your friend's voice five or ten miles distant. When the workingman accepts a wage of forty dollars for his weekly labor, he is in fact paying to his employers an unde-

termined amount for the privilege of using his machines as artificial members to manufacture marketable wares.*

"The modern development of artificial aids to our organs and faculties has exerted two opposing influences.

"On the one hand it has in a most real way bound men together into one body: so very real and material is the bond that modern society might aptly be described as one huge multiple Siamese Twin.

"On the other hand, since the control over certain portions of this common body is unevenly distributed among the separate individuals, certain of them may be said in a measure to own parts of the bodies of others, holding them in a species of refined slavery; and though neither of the two parties concerned may be clearly conscious of the fact, it is often resented in a more or less vague way by the one less favored. Herein lies one source of much of the social unrest that has accompanied the development of modern industrialism. The more optimistic among us may entertain a hope that in time the unifying influence of our ever-growing common body may outweigh the disruptive forces that ever and again manifest themselves too plainly for our comfort. That a species of 'slavery,' that is to say of ownership of one person's body by another or by others, should prevail, is in the last analysis an absolutely unavoidable situation, once we recognize that no sharp lines are drawn to separate the individual from his fellow; willy-nilly we must accept the fact. We may, however, seek to control the distribution of this ownership in the way most advantageous to the general welfare. That is the purpose of our property laws, such as they are and such as they will be." [Lotka, '25, p. 369 f.]

We might continue with the case of the uselessness of our drugs and chemicals, railroads, and ships, dynamos, telephones, radios, etc. if the intelligence of all mankind should drop to that of its present lowest third; or with the danger of leisure without sanity and refinement; or with the need for force to protect even so good a thing as the truth; or with the combina-

* In certain branches of industry (e.g. shoemaking) a rental is actually paid by the worker for the use of machines.

tions of forces which determine who shall govern, who shall teach, who shall care for our bodies and souls.

In so complex and specialized a task as increasing welfare, we should not expect too much. (1) Any man whose life and work satisfies some decent human wants and does violence to none may continue to mind his own business and leisure with a good conscience. He is probably a benefactor, perhaps more so than he would be if he tried to serve all good causes. (2) Conflicts may well arise and persist between agents each of which is on the whole beneficent. The church opposed science; there are quarrels within sociology and philanthropy. (3) Power will shift, as from warrior to medicine man to landlord to business man to party leaders. (4) Institutions will change. Material production has left the household; entertainment and education are leaving it. Manufacturing is now largely of luxuries.

Guarantees that what seems best for welfare is best are not as safe as the comparable guarantees that what seems best in mechanics, or electrical engineering, or medical practice is best. The older moralists, each of whom could be naïvely sure that his voice was the voice of God or of Nature, had a certain advantage over us, the courage of conviction being usually greater than that of critical knowledge. We should take courage from the fact that welfare work based on science is adapted to reality and anchored to the truth.

Chapter 20

ECONOMICS, BUSINESS, AND REALISTIC ETHICS

In the following chapters on the psychology of economics and business, the terms "economics" and "business" will be interpreted somewhat more widely than has been customary. (1) We shall study men as they are rather than abstract entities each seeking to maximize pecuniary advantage and minimize labor with complete rationality and devotion. (2) We shall pay more attention than has been customary to what they do to change wants rather than to gratify them. (3) We shall at times introduce ethical considerations such as have usually been rigorously excluded from the sciences of economics and business.

The first extension will be welcomed in principle by economists, who are themselves making it in one way or another. They admit that the "buyer" or "demander," "seller" or "supplier," "laborer," "owner of capital" and "entrepreneur" of economic theory have often been treated as too simple economic forces, in particular as too rational and too wise, too insulated from habits and prejudices, too whole-hearted and consistent. The second extension will also be acceptable, especially to realistic students of business and of the economics of consumption. The third, however, will be criticized on the ground that it violates the established custom in science of separating sharply studies of what is from studies of what ought to be. "The economics of the production, distribution and consumption of morphine or pornographic books should be essentially like the economics of sugar or shoes," the critics may assert, "and will only be confused by ethical considerations." When ethics was a transcendental science allied to theology so that the criticism meant in part that one should keep facts and dogmas apart, the criticism had more force than it has in reference to ethics as a natural science of values

of all sorts, studying the consequences of actions to the wants of all sentient creatures, each being given a reasonable weight. It still has force, but on the whole any possible confusions caused by discussing some of the consequences of economic facts to general welfare along with their narrower consequences seem likely to be more than counterbalanced by the advantages of seeing these wider relations of economic facts.

Too rigorous a limitation to the analysis and causation of the production, distribution and consumption of purchasable commodities would in fact hardly suffice to answer the questions put by Veblen or support the recommendations made by Marshall in the following quotations:

". . . The questions are rather such realistic ones as these: Why do we, now and again, have hard times and unemployment in the midst of excellent resources, high efficiency and plenty of unmet wants? Why is one-half our consumable product contrived for consumption that yields no material benefit? Why are large coordinations of industry, which greatly reduce cost of production, a cause of perplexity and alarm? Why is the family disintegrating among the industrial classes, at the same time that the wherewithal to maintain it is easier to compass? Why are large and increasing portions of the community penniless in spite of a scale of remuneration which is very appreciably above the subsistence minimum? Why is there a widespread disaffection among the intelligent workmen who ought to know better?" ['19, p. 312 f.]

"Leaving wars out of account, we may perhaps reasonably hope for a gradual extension to nearly the whole population of those resources and opportunities, which are needed for comfort and for the full and harmonious development of the higher human faculties, on the following conditions: (i) that mankind set themselves greatly to increase the supply of mechanical appliances, which are to raise the condition even of the humbler classes of mankind by acting as slaves for them: (ii) that they make these slaves so numerous and powerful; and manage to keep them at work for so long hours by alternating shifts of attendants, that even the lowliest of human operatives need work only during short hours; though with energy while at

work: (iii) that they raise the level of general education till there are scarcely any adults, who can only do such simple work as is within the capacity of a properly guided mechanical slave: (iv) that they develop assiduously the channels by which those who are endowed with high faculties of thought and invention, of enterprise and administration, may rise rapidly to posts of responsibility commensurate with their qualities: (v) that they keep constantly in view the broad distinction between tasks of orderly business management, which conscientious officials perform adequately; and tasks of constructive enterprise, on the bold and enlightened discharge of which economic progress mainly depends, though they are often beyond the power of the official, and even uncongenial to his temperament: (vi) that they recognize (a) that the most progressive business men value the freedom to take risks on their own account, and to earn a reputation for able leadership, by success in leadership which cannot always easily be proved otherwise than by its pecuniary results: but (b) that an adverse tide which retards all rowers does not materially diminish the zest of emulation in a race; and therefore (c) that enterprise may be maintained, even though those who are rich are required to make large contributions for national purposes; (vii) that they remember that all taxes on resources, which might probably have been used for the increase of the material slaves of man, are prejudicial to the whole people; and in some respects especially prejudicial to the poorer members of it: and that therefore the produce of exceptionally heavy taxes on capital, or on income derived from it, ought not to be used to defray *current* expenditure: (viii) that at junctures such as the present, when the national burden of debt is an enormous heritage of evil for coming generations, they insist that the produce of all taxes, which tend considerably to check the accumulation of private capital, be devoted to the reduction of that debt: (ix) that they take account of the tendency of capital to emigrate from a place in which it is unjustly handled; though a country, which nourishes and stimulates capable business enterprise, will continue to attract capital, in spite of its being subject to somewhat heavy taxes there: (x) last, but not least, that employers, as well as other

capitalists; employees; and in short all classes and groups, eschew all practices which tend to raise the market values of their services or products by making them relatively scarce." ['20, p. 663 f.]

Moreover, business men freely mix values of all sorts with strictly economic values in their thinking and practice, as is illustrated in the Code adopted a few years ago by the United Brewers Industrial Foundation:

"We pledge ourselves, as citizens and as business men, to conduct our business in conformity with established laws in cooperation with the authorities.

We pledge ourselves as scientific brewers to maintain exacting high standards in the brewing and packaging of beer and ale.

We pledge ourselves with all thoughtful citizens, to the promotion of practical moderation and sobriety.

We pledge our support to the duly constituted authorities for the elimination of anti-social conditions wherever they may surround the sale of beer to the consumer.

We pledge ourselves morally to support and encourage the great body of retailers who sell beer as law-abiding citizens and who operate legal, respectable premises.

We pledge ourselves to cooperate with the duly constituted authorities to prevent beer sales to minors, or to persons who have drunk to excess.

We pledge ourselves to truth in the advertising of beer.

We pledge ourselves faithfully to observe the provisions of this Code of Practice, convinced that beer is the nation's bulwark of moderation and sobriety."

The naïve propaganda of the last item of the code did not seem to these brewers discordant or out of place.

Very few persons are influenced in their use of their capital and labor by purely economic considerations. Nor do many of them separate clearly their self-interest from the dictates of conscience or benevolence.

At all events, I shall take the liberty of considering the conse-

quences of the use of morphine to character as well as to productivity, the influence of a sale to others than the buyer and the seller, the general desirability of an industry as well as the additions it makes to a nation's pecuniary income, and similar matters. It is relatively unimportant whether the psychology of a brigand who leaves us our life at the cost of our money or returns our child for a ransom is treated under crime or under business. Similarly with the psychology of the man who, we think, misuses a newspaper, to which he has acquired title. As Graham Wallas says:

"It is therefore rightly felt that a capitalist who buys a paper for the sake of using its old influence to strengthen a new movement is doing something to be judged by other moral standards than those which apply to the purchase of so much printing-machinery and paper. He may be destroying something which has been a stable and intelligible entity for thousands of plain people living in an otherwise unintelligible world, and which has collected round it affection and trust as real as was ever inspired by an orator or a monarch." ['08, sec. edit. '14, p. 97]

The important requirement is that the psychology be true. Moreover the total consequences of an activity are often so much more important than its purely economic consequences that the gain from considering them all may atone for the failure to allot them in conventional ways.

Finally, the economic consequences themselves may sometimes be dependent upon facts of political and ethical psychology, as in Sir Josiah Stamp's cases, where "It can be said truly at one and the same time . . . that confidence will be best secured by balancing the budget, and by not balancing it, according to public mentality." ['36, p. 288]

Chapter 21

UTILITY AND DISUTILITY: SUPPLY AND DEMAND

Any state of affairs, whether it is a free good, is obtainable or avoidable by exchange of money or other goods, or is not so obtainable or avoidable, has attached to it a certain amount of satisfaction, indifference, or annoyance. These amounts of utility and disutility may be much out of proportion to the money prices paid to obtain or avoid them. All of them can be made the subject of scientific study, but economics has been limited to purchasable goods and has been especially concerned with their supply and demand prices, which to some extent reveal and to some extent conceal their actual potencies as satisfiers.

Utilities and disutilities,* desirables and undesirables, satisfiers and annoyers are fundamentally facts of the effects of things on persons, and so measurable by such means as were described in Chapter 7. But in certain cases the utility or disutility of a thing can be equated into a simpler or wider or more instructive utility or disutility, in respect of which individual preferences and caprices are unimportant. So the utility of a ton of coal can be measured as chiefly the utility of the calories it will furnish (plus certain utilities relating to the size of its lumps, etc.). So the utility of sugar as a source of bodily energy is measurable in calories; its utility as a sweetener could be measured along a suitable psychometric scale. When, as in diabetes, much sweetening with little carbohydrate bulk is required, sugar has disutility in comparison with saccharine. Cod-liver oil and halibut oil possess their chief utility by their vitamin contents. Many of the chemical elements have their chief utilities by virtue of their chemical properties. The common cereals in a raw state

* Irving Fisher has suggested that "wantability" be used in place of utility, and Pigou has suggested that "desiredness" be used.

have utilities much easier to estimate than those of the proprietary breakfast foods which certain persons have been taught to want.

In certain other cases the utility of a thing is determined chiefly or exclusively by qualities by virtue of which it can contribute to the making of some other things or the performing of some service. Its utility is then measured by the degree to which it possesses these qualities. So rubber, Portland cement, iron ore, cotton, wool, freight cars and electric motors, are valued with little direct regard to the personal desires of individuals.

At the other extreme are such things as women's hats, men's neckties, and certain novelties in jewelry or children's toys, whose utilities are determined almost entirely by capricious personal wants.

By and large, producers' goods have utilities of the former sort, being desired by and satisfying to producers because they are useful to them in obvious ways. So have such consumers' goods as coal, gas, bread and margarine, electricity, and gasoline.

By defining utility as desiredness or as satisfying potency, economics subtracts somewhat from the meaning which the word had in the minds of the early economists, who paid little heed to the eccentric, foolish or perverse desires of ultimate consumers.

Many human wants are little amenable to reason even amongst modern educated communities. France will not eat maize; America will not eat snails; a systematic campaign to teach us to eat "grayfish" was largely futile. Many of us retain a strong feeling that solid food is more strengthening than liquid. If a wise guardian should consider the commodities which ultimate consumers buy and the prices which they pay he would be appalled again and again by their folly.

DISUTILITIES

In the main, disutilities are of two sorts: pains, including any unpleasant feelings as of soreness, fatigue, nausea, fear, shame, disgust, or degradation; and deprivations, including any annoying lacks, as of customary eatables or drinkables, sex activity, entertainment, sociability, friendship, security or ease of mind.

Some of the deprivations, especially of water, proteids, carbohydrates or fats, certain minerals and vitamins, and sleep, are notably injurious to health and efficiency. There is a third sort of quasi-disutilities in the form of the katabolic expenditure of chemicals in the body tissues, wasting and death, which need not be unpleasant, but would result in inability to do work or enjoy life, if not counterbalanced by food and sleep.

Some disutilities are necessary, or at least regular, features of certain forms of life and labor, but some are only greater or smaller probabilities of certain pains, diseases, mutilations, and deprivations. A person's attitude of blissful ignorance or optimism may reduce greatly the pains of fear and worry about the latter. Systems of insurance are reasonable, psychologically as well as morally, especially where the probability is slight so that the cost of insurance is low and any evil effect in reducing the person's carefulness is small.

The obvious pain or deprivation caused by an event may occasionally be a very poor measure of its total disutility. A short illness may cause a permanent heart defect. A slight insult or injustice may rankle for years. A single shock may cause a permanent phobia.

The price paid to avoid a certain disutility is as inadequate a measure of the pain and deprivation as the price paid for a utility is of the enjoyment. Estimates by persons of the payments they would require to suffer certain disutilities will be useful if they have had sufficient experience of them or conditions like them, but caution will be required in interpreting them. Experiments in which persons were hired to suffer a deprivation (for example, of vision) for a certain time and then permitted to buy release from it would be instructive. The natural tendency of a human mind is, as was stated in Chapter 7, to regard emphatic utilities and disutilities as utterly desirable and abhorrent, with categorical imperatives pro and con, and to refuse to bargain about them. In particular, learning to give up one of the former in order to avoid one of the latter, or to suffer one of the latter in order to obtain one of the former so as to maximize the positive balance, is a hard lesson which many persons never fully learn.

An inventory of the world's wants, positive and negative, would bristle with illogicalities. Many persons honestly think that they want to read good books and that only the pressure of duties prevents them, who would not read good books an hour a day if every duty was provided for. Even more honestly they think that they would not suffer certain mutilations of the body or infringements upon their prejudices for anything that money can buy. The estimates made by penniless young adults in receipt of government relief of what they would require as payment for chewing up or swallowing two beetles an inch long and two earthworms five inches long (one alive and one dead in each pair) vary from $4 to infinity, with a median at $12,500 for males and $62,500 for females. The estimates for the loss of a little toe vary from $500 to infinity with a median at $10,000. [Thorndike, '37] Yet if somebody made a bona fide offer and used skilful persuasion so as to get a first beetle and worm swallowed, he could probably get a second beetle and worm swallowed for half the sum. If the person lost his toe in an accident, he might hardly miss it.

The correlation between a person's talents, possessions, and other logical causes for satisfaction in life and his actual satisfaction is proverbially low; happiness is said by the poets and proverb-makers to reside within man as a gift from God or nature. Observations by psychologists confirm this in some measure. I estimate that if the tendency to enjoy things in general of the whole population could be raised to the level which it has in the top one percent of mankind, the total enjoyment of the world would thereby be nearly doubled, though the average health, wealth, leisure, affection, entertainment, etc., was not increased an iota.

A man's satisfactions and discomforts are determined too little by his absolute well-being and too much by his condition relative to that of the minute or hour or day just passed. He rarely gets full value from security unless he has recently suffered anxiety. They are determined too little by what he possesses and too much by whether other persons possess something better.

Differences in the utility-disutility quality of the same thing or event with age, sex, training, and personal idiosyncracies are

very great. An omniscient allocation of work and recreation to fit these would consequently be very much better than a uniformly prorated allocation. How good or bad the fit is under present conditions can only be surmised. Certain modifications of consumption to fit human nature can increase utility without increasing disutility, and certain changes in the conditions of production and distribution can decrease disutility without decreasing utility.

Scientific work in economics commonly makes a respectful bow to utilities and disutilities, values positive and negative, in the broad sense of satisfiers and annoyers, or desired and avoided states of affairs, and then shifts to the prices paid to obtain certain things and avoid others.* Its definite and detailed statements about utilities concern what people pay to have them.** It acknowledges that certain persons on certain occasions would pay more than they do pay rather than go without the thing in question, the utility to one of them being measured by the price plus an indefinite amount more, the so-called consumer's surplus. It acknowledges that certain utilities, such as health, friends, or a good conscience have no quoted prices in the market, and that a large measure of man's activities are intended to get these utilities, but it leaves them as a vague lump of "psychic income." It excludes from study "free goods" like the air or the soul's salvation.

It may be wise to study only prices, or at least to regard the direct study of utilities and disutilities as outside of economics,

* The Economics of Utilities as the title of a book or a course of lectures in a university or a topic of discussion among economists would in ninety-nine cases out of a hundred mean, not the economics of wants and satisfactions, but the economics of railroads, electric power plants and gas companies!

** Joan Robinson believes in omitting even the respectful bow and defining utility from the start so as to get a definition of marginal utility in terms of what buyers pay. "*Utility* is the quality which makes commodities desirable to buyers. The marginal utility of a given commodity is the addition to the total utility obtained by a single buyer, when a unit addition is made to the amount of this commodity which he buys. . . . It is sensible for the individual to balance marginal cost against marginal gain. It follows that when a given marginal cost is being incurred by a buyer in purchasing a commodity the marginal utility of the commodity to him is equal to its marginal cost." ['33, p. 212]

but it is not necessary. And the reason commonly given for doing so, that the only way to measure utilities and disutilities is by prices paid, is true in only a rather narrow and superficial sense. The fundamental truth of the matter is (1) that money is a very convenient means of measuring indirectly on a very fine scale what can be measured more directly but also much less finely without it, and (2) that the price a person does pay for X has certain obvious advantages over his estimate of what he would pay for X rather than go without it. The following paragraphs, together with the general treatment of Chapter 7, present the facts supporting these two statements.

There is nothing more essentially cryptic, inscrutable, or subjective about men's wants than about the color of their eyes or the digestion of their food or their susceptibility to gout. Moreover, wants and dislikes, desires and aversions can be measured as they are, not as they are represented or misrepresented by inferences from prices.

The satisfyingness or annoyingness of a state of affairs as defined here is an objective fact in nature. We can and do know that to dogs in a certain condition lying down is satisfying whereas being suspended by one hind leg is not. We know that to dogs in a certain state, lying down and eating is more satisfying than lying down without eating. Satisfying and annoying being defined as here, all competent observers would agree concerning their "wants" quite as readily as they would agree that the dogs had four legs, or were mammals, or were alive. The same is true for men. There is an inner subjective, hidden stream of being in a man to which he has individual access and a special relation, which the world of scientific observers lack. Since we lack it, we must do as best we can without it; and we can do very well indeed.

The real difficulty in attaining knowledge about what is satisfying and what is annoying to any one man in one specified condition, or to the average of adult females in England, in their average conditions, is not that the man's soul is hidden from all men, or that the minds of the women are insulated each from all the rest. That is on the par with the difficulty for physicists due to the fact that two bodies cannot occupy the same space. It

being so, the wise physicist never even thinks of it. The real difficulty in studying human wants is that they vary so much with individuals, and with the same individual in different conditions; are so susceptible to change; and operate via a mechanism that comprises thousands of millions of neurones, each a very complex affair, and all shut up within a case of bone. The difficulties are thus of variability, modifiability, complexity, and inconvenience of access. To refuse to try to describe and inventory satisfiers and annoyers seems then craven for either psychology or economics. Eye color and finger prints are extraordinarily variable, but we study them. Language is extremely modifiable, invertebrate zoology is extremely complex, and the structure within the atom is difficult of access. But we study all these. It may be desirable for economists to neglect the examination of human wants so far as they are not represented by money payments, but it is not necessary.

The satisfyingness or annoyingness of a given state of affairs to a given animal in a given condition, or to the total of a thousand animals all in the same condition, or to the total of a thousand animals in different but known conditions, is a quantity and is measurable. It may not be measurable with great ease or exactitude, or be readily put into quantitative comparison with other quantities of satisfyingness. But it is a fact of nature, existing in a certain amount, K, which a dozen competent observers would all agree was smaller than certain other amounts of satisfyingness, M, N, and O, and larger than certain other amounts, X, Y, and Z.

Thus to a thousand babies, three months old, in varying conditions of health, sleepiness, hunger, averaging at the average condition of a 90-day baby in New York City, ten drops of H_2O+ at 30° C in the mouth is for the time being more satisfying than the same + .1 g. quinine sulphate and at 0° C., and less satisfying than the same at 30° C + .1 g. of cane sugar. The three amounts of satisfyingness are measured roughly somewhat as primitive men measured the amount of light given by the stars without the sun and moon, by the moon and stars without the sun, and by the sun. Early astronomers measured the bright-

ness of stars as of the first magnitude, second magnitude, etc., in much the same way.

Certain impressions received from the babies' behavior produce in competent observers estimates of the amount of satisfyingness of a state of affairs, just as certain impressions received from a star produce estimates of the amount of its brightness.

We go further and equate different states of affairs in respect to satisfyingness, agreeing conceivably that the water at 20° + K grams sugar was just as satisfying as the water at 30° + (K − A) grams sugar. We might go still further and more or less accurately scale various states of affairs as of 0, 1, 2, 3, 4, 5, units of satisfyingness to some one animal or to the average of a group of animals. Thus, rightly or wrongly, we do all think that for the average man to have a dentist's drill pushed into the nerve of a tooth to a depth of 1 mm. is at least ten times as annoying as to have a pin pushed into the skin over the triceps to a depth of 1 mm. If the readers of this article should agree to call the unit of satisfyingness that is produced in the average American male 25 years old by an average pleasant smile from an average male stranger 1 unit, and should estimate the number of units to represent the satisfyingness to an average member of the American Economic Association at seeing Aristotle and Adam Smith in the flesh, their estimates would, of course, vary widely, but they would be in general numbers of the same order of magnitude. We would be equating the satisfyingness of a certain gratification of curiosity and complex sentiments in one group of men in terms of a unit of a different satisfaction in a different group of men. Nor would we have any essential logical difficulty in doing so.

States of affairs are thus incessantly rated and equated in terms of their amounts of satisfyingness and annoyingness by children, by primitive men in whose lives systematized barter plays a small role, and by all of us to some extent. Just as we can have even very precise estimates of volume without any units of cubic measure, so we can, though much less precisely, sense the amount of satisfyingness or annoyingness which a certain afternoon of golf, or the bath and dinner following it, or a certain

insult, will have for certain men. We advise our friends to do this, that, and the other partly on the basis of such estimates of the resulting satisfaction and discomfort. In all this there is nothing subjective; nor is there necessarily any reference to, or influence of, money price.

The description of wants and their quantitative treatment given above may be contrasted with the orthodox view of treatises on economics. They seem to regard the real wants and satisfiers as facts secluded in the inner life of man, and so to be abandoned entirely in favor of the money payments which with certain limitations are proportional to them. For example, Marshall writes:—"No one can compare and measure accurately against one another even his own mental states at different times; and no one can measure the mental states of another at all except indirectly and conjecturally by their effects." ['07, p. 15] Elsewhere he or another has written that "It cannot be too much insisted that to measure directly, or *per se*, either desires or the satisfaction which results from their fulfillment is impossible."

These statements are defensible if "directly, or *per se*" is given the meaning which the psychology of twenty years ago probably would have attached to it. But it is certainly not defensible if "directly, or *per se*" means "other than by money payment." Moreover the desires and the satisfactions can be measured as directly and as much *per se* as we measure the literary merit of a poem, the beauty of a picture, or the moral worth of an act of courage. Literary criticism does not "fall back on" measurement by what the marginal lovers of Milton would pay. Aesthetics does not measure the consumer's surplus of those who pay two *sous* to visit the Louvre as so many dollars' worth which they get for nothing.

Taussig says that "Utility can be measured for the purposes of economic study in one way only: by the amount which a person will give to procure an article or service. Enjoyment or satisfaction is subjective. The objective test of it is willingness to pay." ['11, p. 124]. This is true only if "economic study" is interpreted so narrowly as to beg the question.

The attractiveness of money price as an indirect measure of satisfyingness is not that it is the only available measure, but that it is so extremely convenient, and consists of interchangeable units, related to a true zero point which means just not any purchasing power. These merits seem adequate to justify the use of money price in economics without recourse to claims that it is the only or the best conceivable measure of wants and satisfyingness.

It is not the only measure and for certain purposes it does not seem to be the best.

Men engaged in advertising and selling seem often to think out their problems with wants and satisfactions measured in the same crude but straightforward way that children use. Few of them think "A man wants the use of an ordinary razor 1 cent a day, but he could be got to want a razor that would not cut him and could produce its result in less time with much less skill two cents a day." They think "Many men, especially young men who have not learned to shave, will want razors that won't cut them. They will pay five dollars for our outfit rather than two for a regular razor." They think "How we can get the people who want Ivory soap to want our soap instead?" "Can we get people to feel twice the satisfaction in wearing a Lowenberg hat that they feel in wearing a Stetson hat?" "What does this man want most in an automobile?" "Shall I make speed or style or durability my talking point?" Suppose that the trade names proposed for a certain brand of bacon were Burnup and Beechnut. Any competent advertising man would judge that the second name was worth at least ten times as much to the firm as the first, but he would probably arrive at this ratio without computing two values in dollars and dividing one by the other.

Teachers, reformers, religious workers and physicians habitually measure wants and satisfactions in non-pecuniary ratios. Thus they desire to double A's thirst for knowledge, or make the next generation crave peace among nations three times as much as the last, or reduce the craving for sweets by twenty per-cent. They, and men of affairs generally, also often measure wants and satisfactions by living scales. They seek to make

A, B, C, and D want cleanliness as much as X does, or want truth as much as Y does, or want justice as much as Z does.

The sciences of government, sociology, and psychology are constantly considering wants and satisfactions and need to measure them as much as economics does, but they have not found money units adequate for their needs. There is consequently an incomparability between wants as the economist measures them and wants as the other sciences usually measure them. It would promote the advancement of science and consequently the welfare of man, if comparability could be obtained by some of the methods suggested in Chapter 7.

It is not necessary for the sciences of economics and business to neglect all utilities except in so far as they are reflected or indicated in prices, but it certainly is convenient, and it may be wise. I think it is unwise. Somebody should study all utilities; and it seems wiser to have economists share in the work than to leave it all to psychologists, sociologists, and moralists. Among the reasons supporting this recommendation are the following:—

(1) Purchasable and non-purchasable utilities intermingle and change one into the other. Persons who contribute money for the support of a church are giving to the Lord, providing insurance against hell, paying for the right to sit in a certain pew, pleasing their wives, gaining good repute among their neighbors, and obtaining various other utilities. Their prayers may have much the same utilities in view. And prayers were once as purchasable as shoes or sugar. Beautiful complexions are probably rarely purchasable, but millions are spent in the hope of buying them.

(2) Income in money and goods is significant ultimately as a producer of satisfactions and preventive of annoyers which are essentially mental. In the last analysis a person does not exchange his labor or property for bread and meat, but for the enjoyment of tastes, the maintenance of health, relief from hunger, etc.

(3) Prices do not parallel utilities very closely.

(3a) Consumers' surpluses may be enormous as in the case of

a match, a needle and thread, an electric-light bulb, or a radio set. For some problems (e. g., the progress of industry) the magnitude of consumers' surpluses may be more important than prices.

(3b) The world abounds in productive activities which have high utility as measured by prices and very low or even zero utility in fact because one part of them nearly or quite cancels the other. So, when A buys weapons to attack B, and B buys defenses so that A does not dare to use his weapons. So, when A pays for dainties which tempt him to overeat, and then for a doctor to counteract the consequences. Thoughtful students of family budgets observe that the expenditures for living and the value of the life are by no means in accord. The same is true of communities and nations.

(3c) An insidious and important form of economic waste occurs when a person buys excitements which do not make him happy, cosmetics which do not make him beautiful, drugs which do not cure his ills.

The economist by knowledge, interest, and training seems specially qualified to deal with these and other cases of utilities, though the cooperation of psychologists, students of values in general, and others is doubtless desirable.

Estimates by persons of what they would pay for various goods in money or some other unit in specified circumstances have been used by at least one economist, Mrs. Gilboy ['32], and may be useful in various ways, provided one does not interpret them too naïvely.

Observations of how people spend their leisure time should theoretically be as informative about utilities as observations of how they spend the money received for their working time. An hour is an even better unit of measure than a dollar for the study of utilities, since it cannot be inflated or deflated, does not vary with the centuries, is being spent as fast as received, is comprehensible to all save infants and the extremely dull, and is divisible to any required fineness. Time is available in equal amounts day by day for use by young and old, male and female, rich and poor, and leisure time is available day by day for almost everybody in

appreciable amounts, and for the majority of persons in large amounts. The expectation of future time differs relatively little for individuals of the same chronological age.

Economics as a rule eschews observations of utility and disutility to persons in favor of observations of prices paid by them, but in two noteworthy cases it returns to them. The first concerns the common fact that, as a person receives unit after unit of an article or service, he receives smaller and smaller increments of utility, that is, satisfaction. This fact may be exalted into a law of "diminishing utility." There is no such law as a necessary or universal feature of the addition of units of articles and services. The curve of utility may run parallel to its base for a long distance as when a vendor of, say, newspapers, has a hundred steady customers, and feels just as much satisfaction in supplying any one of them as any other. If the papers were delivered to him one at a time he might feel no more satisfaction at receiving the first than the last, and might feel twice as much annoyance at being short two as at being short one. He might be willing to pay just as much for the hundredth paper as for the first, but for an additional ten he might lower his bids very rapidly. The curve may rise suddenly, as when increments in the voltage of a current give the receiver little satisfaction until the voltage is high enough to make the filament incandesce or the motor turn. But the fact is common and important.

Less attention has been paid to the converse case of variations in the disutility of successive increments of confinement, labor, insult, and pains and deprivations in general. Indeed it would be hazardous to say whether four hoots, sneers, mosquito-bites, days shut up in a room, days without food, and hours of labor were less than four times as annoying as one, or more than four times as annoying as one. It is certain that there is no one law.

The second return to utilities concerns the fact that persons who have everything that they want cannot be satisfied further, that persons who have little or nothing that they want can be given satisfaction very easily and cheaply, and that in between these is a continuous range of variation in the amount of utility or satisfaction that can be provided for the person in question by a given amount of purchasing power or power of other sorts. It

is consequently argued that to maximize utility for the world, or for a nation, its power should be used first where it causes most utility. Care should be taken, of course, to avoid bad consequences for the future. No prudent economist would jeopardize the advancement of science or the maintenance and improvement of civilized customs in order to make a temporary gain of ten percent in the sum of human satisfactions for five years.

The fact that a given added increment of power (let us say purchasing power to keep the issue clearer) can provide more utility to certain persons than to others, in some positive relation to the amount of power that the person has already, has been elevated into the law that the increment of utility (i. e., satisfaction) is proportional to $\frac{\text{power added}}{\text{power possessed}}$. A million dollars to him who has a hundred million is then as one dollar to him who has a hundred, or one cent to him who has a dollar, or as ten thousand dollars to him who has a million. Whether there is any one such law with wide applicability to persons is not known, much less what that law is. No one relation can be applicable to all individuals because some satisfactions come from free goods and some from goods not purchasable with money, and because individuals differ so much in the amounts of satisfaction they derive from things of identical money price. The measurement of the increments in satisfaction caused by increments of purchasing power in even a single individual requires direct measurements of the former and either expensive experiments or specially fortunate observations. It is therefore probably a matter of the very remote future.

DESIRES AND SATISFACTIONS

There is a substantial correspondence between the strengths of a person's desires to have A, B, C, D, etc. and the amounts of satisfaction which he gets from having A, B, C, D, etc. But nobody knows how close the correspondence is. There certainly is no pre-established harmony whereby the ratio of any two desires equals the ratio of the corresponding satisfactions. Pigou argues that except for cases of long-delayed satisfactions, "most commodities, especially those of wide consumption that are required,

as articles of food and clothing are, for direct personal use, will be wanted as a means to satisfaction, and will, consequently, be desired with intensities proportioned to the satisfactions they are expected to yield. For the most general purposes of economic analysis, therefore, not much harm is likely to be done by the current practice of regarding money demand-price indifferently as the measure of a desire and as the measure of the satisfaction felt when the desired thing is obtained." ['29, p. 24]

He is probably not far wrong. The original nature of man links many desires to the corresponding satisfactions; and the experience of a thing's satisfaction-giving power is a suitable cause of desire for it in a reasonable person. But he is not entirely right. Many people on many occasions are not reasonable; and even reasonable people require experimentation to adjust their desires to correspondence with satisfactions.

DESIRABILITY FOR POSSESSION AND USE AND DESIRABILITY FOR EXCHANGE

A general feeling of well-being, inner peace of mind and self-approval are highly desirable to possess and use, but of no value to sell. They may be of use in increasing a person's productiveness of marketable goods, but they themselves are unmarketable. Ten thousand tons of dynamite or a collection of a thousand rare wild animals is highly undesirable for an ordinary person to possess and use, but is of great value for exchange.

Most people are more insensitive to the exchange-value of most things than the discussions of writers on economics and business lead one to think. If the reader should take a ton of dynamite or a healthy tiger or boa constrictor in a stout cage from house to house, offering it for sale at ten dollars, he would probably be refused by nineteen women out of twenty and by four men out of five, even of those who would know that the value in exchange was well over ten times that if they considered the matter at all.

Even business men are often insensitive to exchange values outside their own special fields. It would not be very far from the truth to say that they desire only what they can use, including in their uses use in trade along the lines of their customary ways of life.

The absolute trader who will buy anything which is sufficiently cheap is probably a myth.

SUPPLY AND DEMAND

The supply of a commodity or a service, at a certain time and place may mean the amount of it which is then and there existent. By this definition the supply of ability to send and receive telegraphic messages at the standard rate on January 1 in Boston is the number of persons there who could do so, each being weighted by the fraction of the day that his ability could operate, making a total of N hours. To determine the supply in this sense requires an inventory, physical, psychological, or both. Much more narrowly, the supply of a commodity, service, etc., at a certain time and place may mean the amount of it which can be purchased at certain prices. By this definition the N hours of action of the ability as a telegrapher would be distributed into:—

$\frac{a}{N}$ available at, say, 30¢ per hour

$\frac{b}{N}$ available at, say, 31¢ per hour

$\frac{c}{N}$ available at, say, 32¢ per hour

and so on up to some former telegrapher (Andrew Carnegie, for instance) who might put his ability to work for $500 an hour. To determine the supply in this sense at all prices would require special experiments in an extraordinary set of circumstances, but various facts about it can be learned from market prices, including wage scales.

The demand for a commodity, service, etc., at a certain time among a certain group of persons may have the very wide meaning of all their wants for it, either for personal consumption, or to give away, or to exchange for something else. It may have the very narrow meaning of the amounts of it which those persons would then buy at certain prices.

In the broader sense of the two words, demand is determined by a study of human wants, has no important relation to supply,

usually far exceeds it, and may often be considered indefinitely large. In the narrower sense, the demand is related to the supply in so far as both are related to prices, one directly, the other inversely. Elaborate experiments or observations are required to determine the demand for a certain commodity in this sense; for it depends upon the wants of the group in question, their total purchasing power, how this will be used for other goods, including substitutes for the commodity in question, at each specified price for it and them, and probably also upon a vast and complex set of forces of habit and prejudice. Economics consequently falls back upon the purchases actually made at such and such prices, as indications that there are effective demands for such amounts at these prices.

Economics at times argues from the fact that K units of A were sold by Alpha to Beta for D dollars, that Alpha's supply of A at D dollars per unit was K, and that Beta's demand for A at D dollars was K. This can be criticized on the ground that the transaction might as well be elaborated into the statement that Beta's supply of dollars available to purchase A was KD, and that Alpha's demand for dollars for K units of A was KD. But the analysis of a sale from the supply and the demand points of view is not so sterile psychologically as the criticism suggests. In the customary usage of economics, the supplier has a particular commodity or service to exchange, whereas the demander has money, or general purchasing power. The latter is in general the preferred status. Until the sale, Beta can buy D's worth of anything. After the sale to Beta, Alpha can buy D's worth of anything, including some or all of the A he sold.* This reasonable advantage is, in the present conditions of agriculture, industry and trade, accentuated by certain psychological forces. The supplier tends to feel a certain insecurity and fear as the residuum from experiences where he had things to sell, which varies inversely with the degree of his past success in selling, but which is very rarely fully counterbalanced by the brief triumphs of making the sales. The demander feels a certain confidence and elation as the residuum of experiences of having power to get whatever he wanted that his money could buy, and of doing so.

* The two exchangers differ much less in a moneyless state of barter.

Many business men enjoy changing their position from supplier to demander by making a sale, even though there is little or no net profit; they dislike the reverse change of spending money to replenish their stock, even though this is almost sure to be profitable. Furthermore, the customary attitude of the supplier is one of request and submission (sometimes even of servility) whereas the customary attitude of the demander is allied to doing a favor and mastery. Suppliers also much more often pay brokers' commissions and advertising costs.

So the suppliers, who have specific goods to offer, and the demanders, who have general purchasing power to offer, are not psychologically equal in the exchange.

Turning back to the broader meanings of supply and demand in connection with services, especially such as only human beings can perform, it is obvious that the supply of many is limited chiefly by the genes, and of others chiefly by training. No stimulation or reward could produce in the next decade ten thousand tenors equal to the ten best of the decade past, but this could be done rather easily in the case of electric welders, taxidermists, Tagalog interpreters, and practitioners of many other rare trades. Contrariwise, the number of women willing to work as nurses in time of war, and able to do so after an adequate amount of training, is far above any possible needs, the difficulty being to provide in short order training adequate to prevent them from doing more harm than good.

Nothing like an inventory of the capacities of the genes to be trained to do the world's work is available. History is our best teacher, but it is imperfect, and conditions have changed so fast in the last hundred and fifty years, especially in the last fifty, that its recent lessons have not been put in order and analyzed.

It is clear that the genes are very adaptable, maintaining life in jungle and desert, from the equator almost to the poles, in tiny villages and great cities, free and slave, antagonistic and cooperative, with a few rough stone tools or as now. One is tempted to believe that they are almost infinitely and indiscriminately adaptable to economic and social arrangements; that, for example, they would live happily as hermits if some power would pay them well for doing so, or as perfectly cooperative altruists if

some power would pay them well for doing that. One is tempted to think that whatever modes of life and work the social order and the condition of the industrial arts may prescribe, human nature will find tolerable and will supply any services demanded and properly rewarded.

But this is not justifiable. The supply of great intelligence is scanty; the supply of great ability to rule is scanty; so is the supply of ability to understand, appreciate, and harmonize conflicting wants; so are many special capacities where no great improvement from wiser training can be expected. It may be better to be optimistic and to try to train men to fit all useful demands than to be afraid to ask man to do more and differently from what he has ever done. But it is best to take account of essential limitations.

A perfect inventory of human capacities would include all individual differences and, as each person grew and was trained, would more and more accurately specify what he had to offer. Educational and vocational guidance could be given in accord with the facts; the supply of every sort of ability could be located, and described in a great card catalog revised year by year. The gene supply will vary very slightly from decade to decade, even from century to century, but the training supply will vary greatly with changes in schools and lines of work. In the United States as large a percentage of boys and girls finish high school now as finished the common school or grammar school about 1900. The percentage of those living to age twenty finishing high school was five times as great in 1936 as in 1900. Many more farmers, probably, can drive a car than can milk a cow. Dressmakers and shoemakers are now much rarer than stenographers and radio repairers. A housewife who can make bread may soon be as rare as one who can spin wool. These trite facts and their main cause, the assumption by machines of services hitherto performed by persons, are important in many ways, one of which is that the training which results in a supply of certain skills results also in a supply of certain habits and qualities of intellect and character.

Both the general demands of individuals, and of communities from village to nation, for various services by persons, and their

demands as expressed in bids of money, applause, fame, and other goods deserve psychological study.

SCARCITY

Scarcity of supply may mean a small number of units relatively to the number which are desired, needed, demanded by possible buyers, usable, etc. It may mean an absolutely small number of units. As a matter of strict reason, absolute scarcity is unimportant for economics in and of itself, but psychologically it acquires importance by its affiliations. The greater an ability is the rarer it is: scarce articles are often those which are very hard to produce; rare experiences have the interest and excitement of novelty: rare events are often celebrated; rare specimens often have a monopoly value. Consequently mere rarity, in and of itself, comes to be thought of as more of an asset than a liability. If there were only five specimens of A and five thousand of B, A and B being equally and utterly devoid of any intrinsic utility to anybody (being, say, bits of skin from the right and left sides respectively of an unknown woman who died in the poorhouse January 1, 1850) the bids per piece for A would probably be higher than those for B, if there were any bids at all. Such influence of scarcity of supply in and of itself is however very slight and operates probably from some faint hope that a demand may arise. A decrease in the supply of ragweed, crab grass, used razor blades, and amateur poetry, would not raise their prices until it reached the degree of scarcity which brought in a new demand from collectors of curios.

Chapter 22

NATURAL RESOURCES AND CAPITAL

NATURAL RESOURCES

Economics finds it convenient to distinguish between resources given by nature and additions made by man. Thus a river is in the main a natural resource, and a canal is in the main a part of capital goods. But the dams, levees, and sewage in the river are capital goods (or harms). The fish that invade the canal from streams or lakes which it crosses may be a natural resource. The natural resources in man's nature are the genes and what they grow into irrespective of human aid or interference. The modifications due to human institutions and training are mental capital.

The great triumphs of man in discovering and utilizing physical natural resources suggest the questions of how much he may expect in the way of discovery and utilization of resources in the genes.

Discovery

It is conceivable that the genes have hidden powers to make men more intelligent, cheerful, just and kindly, powers so buried by other components of man's genetic constitution that all the sages and psychologists from Solomon and Aristotle have failed to discover them; and that the psychology, biochemistry, and genetics of the future may bring them to light. But it is highly improbable. The more we learn about the human mind and genes, the less probable it becomes.

Utilization

It is certain that we can utilize the good elements in human nature better both by breeding selectively for them, and by di-

recting and rewarding their activities. How much can be done by breeding was related in chapters 11 and 12. The possibilities are very encouraging.

How much can be done by better institutions and ways of life was suggested in these same chapters. The curiosity of little children now largely runs to waste like an untamed colt or river or electric charge. The passion to exercise power often rages in destructive storms. The maternal tendency runs into vagaries of coddling or idolatry and even becomes confused with sex feeling. Love and hate make unworthy and injurious attachments. All this can doubtless be improved, but only by much study and labor and ingenuity. In the strictly economic field of the production of salable goods it is even doubtful whether employers and employees utilize their natures as persons better now than two hundred years ago. Improvements in material equipment, methods of work, accounting systems, laws regulating industry and trade, the rates of real wages, and the general conditions of city and country life may be enough to account for the improved production without assuming that employers and employees have improved as such.

The utilization of a physical natural resource often uses it up, as notably in the case of coal, oil and plant foods, and almost never increases it; but a living resource, such as the "good" gene combinations of man, may be used over and over like a water power and multiplied in its descendants. We have only to be careful that the gene-combinations are not spoiled by some disastrous exclusion, as if by breeding for sanity we should lose intelligence.

The genes of plants and animals are easily transportable so that many improved biological resources can quickly become the property of all nations. Theoretically the genes of a few males could thus be responsible for half the inborn qualities of the next generation, all nations gaining at the loss of none. Actually the sphere of operation of a man's genes is usually very limited and localities have gained and lost greatly by the import and export of this natural resource. The migration of the Huguenots is a standard illustration.

A certain place at a certain time may utilize resources in the

genes of its immigrants which were not utilized in the place whence they come, to the advantage of world production.

The general theory for the economic utilization of human natural resources is much the same as for the utilization of sunshine, water powers or other resources which are nowise depleted by use, namely to have them work as much as possible. But there are three notable exceptions: First, the abilities in which the gene resources actually operate usually weaken temporarily and may deteriorate permanently if they work too long without rest.* Second, it is almost never possible to use all of a person's abilities at the same time, so that choice must be made, somewhat as we might choose to use a waterfall's beauty or to use its power or to use its beauty during the day and its power during the night. The problems of selecting which of each person's various abilities to use so as to maximize welfare, or utility, or production, or anything else, are not solved for the world or for any fraction of it. Neither employers nor governments know perfectly what each person's abilities are, nor how to use them, nor what incentives will get them into action best. Third, in the case of women the production of children endowed with the genes in question is a special alternative ability the use of which may in the long run be more advantageous for welfare, utility, or production than any of the others possessed by the person. But no employer will pay to encourage this except in slaves whose children are his property. And few communities do.

THE PSYCHOLOGY OF CAPITAL

The creation of capital by labor and abstention from consumption is one of the most potent activities molding human nature; and the problem of inducing human beings to work and save for the future gain of themselves or others is essentially a problem of human nature. Further, the effect of possession of capital upon men goes far beyond their physical uses of it, modifying them in profound ways the exact nature of which is of importance not only in understanding the probable effects of various socialistic and communistic schemes, but also for the conduct of affairs under present customs as to individual property. The

* They may also deteriorate from not working enough.

psychology of the holder of capital in renting it out to others to use is of some, though much less, importance. Finally the intellectual and emotional attitudes of non-owners toward owners of capital are matters of public concern to everybody.

A complete and accurate psychology of the creation of capital, its possession, and its use by workers must wait for many investigations and experiments and great talents to interpret them. These sections can only present some of the facts and principles which appear when we examine man's economic activities in the light of the laws of the mind's working, so far as these are known.

THE CREATION OF CAPITAL

Almost everybody who is above the level at which his maximum work just keeps him provided with what is necessary to keep him alive and able to work and support those for whom he is responsible has the choice between more or less productivity. By more work he attains a margin of purchasing power. This he may use to buy anything from theater tickets that have no value after three hours to a diamond ring or a farm or a bond or share in a railroad which, except for accidents, represent an investment in perpetuity. Among the more or less lasting investments possible some are presumably non-productive, like the diamond ring, while some are presumably productive like the farm or the bond or share in the railroad. When he uses his margin of purchasing power for the latter he creates capital. Occasionally he creates it still more directly as in farm improvements with his own labor.

In choosing to create capital rather than work less or buy something non-productive, men are moved by many motives. Among these desires are:—to do less work at a later date; to protect oneself from various discomforts at a later date; to secure similar protection for one's wife and children or those in whose welfare one takes interest; to secure positive comforts for oneself or others at a later date; to have tools to make one's labor more effective; to have power in general to make men and things do one's will; to win the approval of one's world and of oneself as a person of property and income, as a success, one who has gone up in the world; to satisfy one's conscience if it has been taught

to esteem thrift for thrift's sake; to avoid the discomfort of not saving, if one has formed the habit so strongly that he feels a sheer unreasoned misery at not saving.

Saving and investing to ensure future leisure, protection and enjoyment for self or others are appreciated in all discussions of thrift and capital. But the desire for ownership of tools to make one's work more effective is not. Yet this is very potent. The musician saves for a violin, the scientist saves for books, the farmer saves to increase his holdings or build a barn or silo, the manufacturer saves to extend his factory, the great magnate saves to buy a railroad—in each case largely because the thing in question is needed to give fuller scope to the ability the man feels himself to possess. Other matters, of profit, protection, mastery, pride, and what not, enter in, of course, and we shall give due attention to these later. But the primary fact in much saving and capital investment is that the person in question needs the capital in question to exercise his talents with. Without it he feels incomplete or crippled. The last thing a real carpenter will give up is his set of tools. They are psychologically a part of him. The farmer doubtless is moved by the welfare of his children and admiration from his neighbors when he suffers toil and privation to add the 40-acre piece, but primarily he wants to farm that piece as his.

As suggested, a whole factory plant or railroad or trust company or chain of stores may be as necessary to fill out the life and give scope to the nature of a big business man as a violin is to the musician or an added farm lot to the farmer, or a bat and ball to the schoolboy. If the captain of industry or finance is of such nature as to manage the factory or railroad or bank to public advantage, his saving to acquire it seems also no less meritorious than the saving of the artistic genius to buy paints and canvas or the saving of the artisan to buy the tools of his trade.

The next motives that require comment are the craving for power and for the approval of one's world and one's self.

According to their inborn natures and training different men value power differently as a whole and in its various forms. Power by physical presence, by intellect and special talents, by popularity and friendships, by political connections, by owner-

ship of property, by control of property, by official status giving control over men—each of these is variously valued and sought. A man's success in attaining power along these lines also depends upon his talents and training. These different forms of power are in part interchangeable, as when a man sells his political influence for a money price or spends his money so as to increase his popularity, but there is a rather strong tendency for a man to keep his power in the form in which he gained it. So many men create capital without caring much for it as a means of general power to influence men or things. A politician may thus accumulate a large fortune without using it to gain his ends, his habit being to do that through politics alone. An inventor may just let his savings pile up except in so far as he needs a fraction of them to further his life as an inventor. A great actor may use his personal influence to help his friends and to annoy his enemies, but never think of using money so.

To some men and women, however, capital is a chief means of power to help or oppress. There are thousands of noble women, for example, whose saving is focused always on some charity whose beneficence they cherish. On the other hand, the village usurer gloats, or is reputed in traditional fiction to gloat, over the men whom he can push under if he wills. Capital is very clearly power to trade and to manufacture, especially to trade, so the business man not only craves some special capital on which to exercise his talents but also has almost inevitably a general craving for capital to turn into general industrial or commercial power. He works and abstains to get power to use when a good chance offers. So, of course, do many others than business men to a greater or less extent. But the wonder is that after all so many people neglect so much as they do the plain fact that the possession of capital is a form of power available for almost everybody upon payment of extra work or abstinence from certain pleasures. It is a wonder at least to the successful business man who preaches thrift to his Sunday School class with tears in his eyes at the blind folly of youth. The psychologist, however, realizes that power through a bank-book or stock-certificate is a pale, abstract, remote and lifeless thing compared with power through physical strength, or beautiful clothes, or

popularity, or skill, or a "hold" on so and so. It may also be that many people, lacking business talent, have unfortunate early associations with money as power. For them it was power to buy worthless mining stock, or to lend to a glib cheat, or to start a business enterprise that failed. Even if it was really useful, the usefulness may have been swamped by disagreeable associations, as in the frequent case when savings go for doctor's bills.

We should, of course, consider capital in body and mind as well as capital in things and tokens of ownership; for the creation of increased health, strength, skill, knowledge, reliability and other productive features of persons is creation of capital in every respect except permanence after the individual's death or senility. No theory of capital is adequate which does not consider such mental capital. What has been said here about saving to obtain tools on which to exercise one's ability, and saving for power, applies in a general way to saving to gain in health, or to get schooling, or to learn a trade.

The satisfyingness of approval by one's world is especially potent as a motive for the creation of bodily and mental capital, but it attaches also to the possession of capital in any form. The more obvious forms, such as land and its improvements, animals, buildings, or ships have the advantage, but in a certain world Bradstreet's rating may be as clear and impressive a mark of dignity as a king's crown. We all hanker for admiration. The same general motive which makes one man throw dollars to the crowd makes another hoard them to invest. The difference is partly in the strength of the craving but chiefly in the different weights that we attach to the admiration of different sorts of people, and in the sagacity with which we seek it. The waster spends his time and substance for the admiration of his boon companions, servants, and the duller elements in the crowd; the scholar spends his for the admiration of scholars and an intellectual following; the creator of material capital spends or saves his to gain the admiration of the "solid" men of the community.

It is a matter of frequent surprised comment that men should continue saving long after they have provided for any possible future comforts for themselves and their children. This is usually explained as a notable case of the force of habit. Habit does so

operate, as stated earlier, but it is probably a rather minor cause. Men of the ability in question have the intelligence to establish new habits to a large extent. We have seen that the craving for tools with which to employ one's abilities and the craving for power both operate to maintain saving long past the point of full protection and comfort. Even when they become satiated the approval motive may hold, or even increase, its strength. It is more attractive to progress from ninety thousand to a hundred thousand than from eighty thousand to ninety; to be rated at a million is a distinct gain over nine hundred thousand; to be the richest man in the city means far more admiration by others and especially by oneself than to be next to the richest.

So far I have tacitly assumed that individuals who create capital then possess it, but a fraction of it often accrues to the public. A man who improves his own health is less likely to transmit disease, and his added cheerfulness is a general gain. A man who drains a swamp to make a field may reduce malaria for all; weeding his own patch of corn reduces to some slight extent the weed burden for his neighbors. Building factories and railroads often implies some general gift to the affected communities, though this may be retracted in the course of their later operation. The case of new discoveries in science, technology, and business are of special importance in this regard. The man who uses time saved from self-indulgence to discover a means of doubling the power got from a ton of coal, or the cure for cancer, or more economical methods of bookkeeping, or even a better way to open mail, surely creates capital, in the broad sense of anything caused by man whereby labor and management can produce more. If he patents his discovery, it reverts to the public after a few years. If he does not, from beneficence, custom, or inability to patent it under existing laws, it almost always becomes public capital at once. Men of the ability to make such discoveries almost never hide them. They are usually men of much good will toward the world; they also want the satisfaction of seeing their ideas bear fruit, and of approval and power. Finally, all capital that is transferable as property is taxable, and the tax may be used to a large extent for the public welfare in general, rather than for the protection of capital alone.

The effect of taxation upon the creation of capital may be referred to here parenthetically. If half a man's savings are to be taken away from him it might appear that half of his motive to save was destroyed. Someone will, however, at once retort that if half his savings are to be taken away, his motive to save is doubled since he needs to create twice as much capital to obtain the results he craves. Of course, human nature does not work by either of these simple arithmetical rules. Nor are different men affected in the same way. The whole matter is extremely complicated, and I shall say no more about it here. Certain facts about it will be presented in the chapters on the psychology of government.

On the whole, man's activity in creating capital is better for him than the activities which it replaces. It is true that cases can be found where men sacrifice themselves and their families to pile up capital whose possession later only debauches their heirs. But many of the valid arguments against the creation of capital are really arguments against the creation of material capital at the cost of capital in the form of health, skill and knowledge. Thus we criticize the devotion to making and saving money which prevents a man from developing capital of body and mind which will be sources of satisfaction to him and his associates and efficient engines in public and private affairs, including his later creation and use of material capital itself.

Others of the arguments are against the creation of alleged capital that turns out not to be capital, because not productive. Thus we criticize the mere miser who hoards gold only to finger it, or the parents who suffer to give their son a college education which he cannot do any good with, or the girl who toils to acquire a singing voice to which nobody will listen, or the farmer who penalizes his wife's comfort to buy machinery which is of no advantage on his farm. The error here is obviously not in creating capital, but in creating non-capital.

In some cases the capital created is productive but only for a short time and so may not justify the sacrifice, as when a man accumulates a property but fails to educate his heirs in its use or to guard it against their misuse, so that their follies promptly destroy the good will of the business and let the plant become

useless. But in general, I repeat, the creating of capital is usually a good thing to do for those who do it, and better than what they would otherwise have done.

The sympathy often expressed in literature for the wife and children of the too thrifty man is probably largely wide of the mark. It is usually not his thrift that is at fault, that being on the contrary one of the best things about him, but his callousness and selfishness. If his thrift were replaced by prodigality, leaving all the rest of his nature the same, his family would in most cases suffer much more. A barn or a bank account is a better rival in affection than wine, or women, or even the milder dissipations denotable by song.

The soundest criticism of the creation of capital would seem to be that it tends to some extent to decrease the innocent pleasures of childhood, which are very cheap and very beneficial, in favor of the sophisticated comforts and luxuries of adult life, which are costly, rather weak and often deleterious. Human nature being what it is, the best time to invest in sheer non-productive play and pleasure is childhood. A pile of sand then may be worth a palace at sixty. A doll then may give more value than a fur coat later. Time is then worth little for production, but much for pleasure.

It is also sound to protest against a too one-sided devotion to productive labor which may prevent men from developing capacities for noble enjoyment of leisure. This, however, can easily be overdone. The artist or man of letters thinks what a mean creature he would be if all he did in the evening was to tinker with an automobile, go to the movies, play with the children, and plan how to make more money next week. Doubtless it would be a mean life for him—a prostitution of his nature. But that does not imply that it is mean or degrading to the manufacturer or salesman. There might in fact be a greater average prostitution of talents if all business men spent their evenings playing the piano and writing essays. It would be a deplorable and grimy world if all men fitted by nature to be artists and scholars should be misled into the race for material wealth. But I for one would rather live there than in a world where all men fitted by nature to make material goods and manage commercial affairs had been

misled into writing poetry and holding *conversaziones* about their products!

In any case the cure for any excesses in productivity and thrift will not be found in negative treatment of men to reduce their appetites for the creation of capital, but in positive treatment to arouse and encourage love of and capacity for the noble impersonal pleasures of life.

One more moral reflection may suffice. If thrift in a small way as by the buyer of a cottage, or the creator of a savings bank account, or the maintainer of a modest insurance policy, is desirable, the creation of capital in a large way as by the man who builds a railroad or a steel plant is all the more so. The inconsistency which praises the man for creating his first thousand and blames him for creating his hundredth million is explainable, but it is illogical and in many ways mischievous.

THE POSSESSION OF CAPITAL

The psychology of the possession of capital is very much simpler than that of its creation and need not detain us long. The main facts are three: First, the possession of capital, a form of power, both directly by the mere knowledge that one has the power and the habit of using it, and indirectly by the treatment accorded to one who has such power by other men, gives man a sense of worth, dignity, self-confidence, independence and right to command. Second, this sense of one's importance is felt largely irrespective of how one came to possess the power in question. Man is usually ready to avoid rational thought, especially when it is to the advantage of his self-respect to avoid it; and men having power are ready to assume that they deserve it whether it came by ability, effort, popularity, or accident. Indeed, after three or four generations of hereditary transmission of power, in the shape of capital or otherwise, the final possessor tends to assume his feeling of consequence as a part of the order of nature, like his ability to breathe, or walk, or familiarity with the streets he has traversed since babyhood. For nothing is said or done to remind him of the specific activities by which others than he created that power. If he feels any responsibility in the matter it

is not toward the human work and thought spent in the original creation, but rather toward God in the fashion of the Kaisers. Third, this sense of importance tends to become generalized and apply itself to any matter whatsoever. The man who finds that he can work his will and that his opinions are reverenced by those who wish to get jobs or sell him something, tends to think that he can and should direct government, or control the local church, and that his opinions are authoritative in art, morals and education.

All this is often very irritating to men of keen intellect or to those less keen if their attention is called to the matter. They feel like tearing down the superstructure of pride and assumed dignity and wisdom which is thus built on wealth rather than ability as a foundation. They wish to put the merely rich in their proper place, and delight in insisting on the unfitness of the rich to be a real aristocracy. But it is more suitably a subject for humorous reflection than for invidious comment. We are all tarred with the same brush. The successful general does not refuse the presidency or crown, nor greatly distrust his judgment in matters of economics and politics. The schoolmaster, from being given power to teach his pupils, notoriously comes to feel that he has the right to teach the world (as I may be now illustrating!). Psychologically power justifies itself to all its possessors. Stalin may quite sincerely think that it is his peculiar duty to tell the proletariat how to dictate, and to spank the proletariat vigorously if they do not dictate as he dictates. The members of the United States senate, movie actresses, and college presidents may all have been humble and modest in youth!

It has become somewhat fashionable to blame the institution of capital itself for the irritating or amusing pretensions of those who possess it. But this seems clearly wrong. Human nature itself plus a world in which power of any sort may be obtained otherwise than by pure merit and exercised otherwise than by pure reason is primarily to blame. Our customs of transmission of capital by inheritance also deserve careful study in respect to their psychological as well as their economic and political results.

THE ATTITUDES OF LABORERS TOWARD CAPITAL

What is ordinarily spoken of as the conflict between labor and capital is, of course, rather the conflict between laborers and management, or between labor and profits. In fact capital and labor are in fundamentally the same relation to management, both seeking management that will pay a high wage, in the one case a high wage for the use of buildings, machines, money, etc., in the other a high wage for the use of strength, skill and time.

The attitude of labor toward capital itself is fundamentally a mixture of a certain mild affectionate interest such as one feels toward his chair, street, and town, and an unthinking acceptance such as one feels toward the sun, moon, and stars, the progress of the seasons, or the facts of birth and death.

The former varies of course greatly in strength. One engineer may love his locomotive No. 268 almost as a child, whereas another may feel nothing whatever in relation to his. In general, however, quite apart from ownership, the capital on which or with which one works—the farm, the cows, the machine, the desk or counter that one works with—receives a certain amount of regard and loyalty.* Sagacious employers know how to en-

* Ordway Tead has given some striking instances:

"The writer in a visit through a garment shop came across a young girl who was sitting at a sewing machine crying and sobbing violently. Inquiry revealed the cause of her sorrow to be that "her own" machine had broken down and she was being required in the hour's interval to use another machine in perfect repair and of identical make and capacity. A book bindery in which the work was seasonal undertook to distribute jobs by transferring the girls among the departments. The effort was met at the outset by a strong feeling that the particular process which the girl already knew was "her job," and she neither wanted anybody else's nor wanted any one to learn hers. When a spinner in a yarn mill was asked to change from some "frames" which she had worked for several years she abruptly left with no explanation. In another factory I had occasion to settle a dispute between the management and the truck drivers. The management had decided to employ a stableman to tend the horses and care for the harness. The intention was to cut off at least an hour from the working day of each driver. But objection soon developed because the men wanted to tend "their own" horses, and would trust them to no indifferent "lumper" in the barn. In a large foundry when the management found itself with a strike on its hands, it discovered that the men had all the forges numbered among themselves and each man was definitely assigned by the group as a whole to one which he had grown accustomed to by years of use. The attempt of

courage this; and many a dingy factory is the recipient of a love and loyalty no less sincere because unhonored and unsung. Some poet economist may yet feel and express this attitude generalized to reach all productive instruments, and make men feel the goodness of the forges and presses, the roads and rails and wires, the wheels and looms that help make life safe and decent, as they feel the goodness of sunshine and flowers. As yet, however, this affection for capital is very narrowly restricted to a few objects with which the worker is in close association.

The more usual attitude is the second—one of taking the existence of streets and houses, railroads and ships, mines and factories and machines, shops and storehouses, for granted, accepting them like sunlight or rain as facts that have been and will be. Just as the very little child accepts his meals or the lack of them as given facts of nature without tracing them back to the industry of his parents, so the ordinary workman does not trace back the pavement he treads or the shop he enters to the savings of generations present or past. If a new railroad or factory is built, the event appeals to him much as if a meteor fell from space. He treats the fact when it is accomplished in accordance with its effect upon him but without consideration of how it was accomplished, much as a six-year-old treats his new baby brother without any consideration of the history of love and sacrifice of which its birth is the culmination. The world produces suns, meteors, factories, railroads, and tools, and has within the worker's memory always done so, and to his expectation always will. All are a part of a general order of nature which in the main he simply assumes. Fundamentally, if left to his own thought, the ordinary workman then neglects any inquiry into the origin of capital. In this fallow soil of neglect, however, myths may easily be sown and nourished. Two have reached a rank growth, the myth of manual labor as the creator of all capital, and the myth of capital as a pertinacious oppressor of labor.

a new foreman to transfer the man at "number one forge" to a different workplace brought the whole department about his ears and created a perfect storm of resentment. Instances of this sort could be multiplied without number to show the strength of the feeling of "mine and thine," and the part it plays in the detailed running of industry." ['18, p. 68 f.] See also Kipling's "McAndrew's Hymn."

The myth of manual labor as the creator of all capital is on a level with the story told to children of the beneficence of the cow as the sole cause of his daily ration of milk. It is true that manual labor built the railroads, bridges, and homes, just as it is true that a cow did give the milk; but it is also true that except for the direction of that manual labor by non-manual planning,—by the intellect of the laborer or of someone else—the railroads and bridges and homes would never have been built, any more than a world of cows alone would organize themselves and provide the necessary arrangements to feed human babies. Manual labor undirected by science, invention, and management would have hardly built huts to keep out the weather, and would today make playthings out of the factories and bonfires out of the schools. Manual labor has been as ready to waste itself for years in building a pyramid as to dam the Nile. It is direction from the mind that has built granaries rather than graves. The mere manual part of labor would as soon build a bridge in the wrong place as in the right, or four-track the railroad from Peter's Corners to Podunk as that from New York to Philadelphia. It is the brains of men, whether laborers, capitalists, or managers, that create capital. It is to those early botanists who selected seed, those early zoologists who domesticated animals, those early engineers who invented the wheel and the lever, those early entrepreneurs who started manufacture and trade in arrow-heads, and to their successors in intellectual and managerial leadership through hundreds of centuries, that we owe the capital of today. In a world of mere manual labor with only moron intelligence capital would not have been and would have been quickly wasted had it been sent down like manna from Heaven. This is as sure as that a billion cows would not of themselves feed a single human child.

The myth of capital as the oppressor rests upon a verbal confusion of capital with capitalists, a factual confusion of capitalists with managers, and a misconception of the powers and desires of managers. Material capital does of course temporarily oppress certain forms of laborers (or more truly of mental capitalists) when a new invention replaces their skill by a machine and requires them to fall back on mere unskilled labor as their offering

to purchase the world's goods, but in the long run it is the great aid and weapon of labor. The myth that says that capital is an angel with a flaming sword who keeps labor out of its Eden, really means that employers, whether capitalists or managers, are a sharp and greedy lot who fool the laborer into filling their pockets out of his own. Many working men honestly think that they believe that employes are doing this, and use it as a reason or excuse for various lines of conduct.

Such measurements as have been made of individual differences in moral qualities do not indicate that those who own much material wealth are inferior in sympathy or benevolence to those who own little or none. And common observation seems to indicate that capitalists and business men are less sharp and greedy in their dealings with their workmen than with other capitalists and business men and with the purchasing public. The purchasing and sales departments probably drive harder bargains than the personnel department or the factory management.

OWNERS AND NON-OWNERS

The attractiveness of these myths is caused by the motive which they serve. That concerns the inequalities in the ownership of capital. Certain men have not in a world where others have. They react to this, in many different ways, according to their different natures and trainings, from an unthinking and unfeeling acceptance of the fact as a part of the way things are to a thoroughgoing scientific inquiry as to whys and wherefores. A very common reaction is a feeling of inferiority at being the one who obeys orders that others give, lacks possessions that others have, and endures discomforts that others avoid. Anything that mitigates this feeling of inferiority tends to be welcomed and cherished. It is inspiring to think that you and your like really created all the wealth in the world. It is comforting to be told that your lack of worldly success is due to being held under the iron heel of the monster capital. Even though one has been beaten in life's race because other men ran better, one likes to save his own face to himself by half believing that it was luck. And not one man in a hundred is honest with himself about himself. Life devoid of the approval of one's world is dull and empty,

but life devoid also of the approval of one's own self is almost unendurable. A man will catch at any straw, and accept any fantasy, and fabricate any delusion to retain inner satisfaction with himself.

There is a more sinister side to the acceptance of such myths. The myths of the creation of capital by labor and the oppression of labor by capital are a standing excuse, almost an invitation, for any worker who wishes to commit robbery without self-reproach. Deep down in their nature most men are robbers. If any good excuse offers, they will act as pirates with no shock to their self-respect. So tradesmen will cheat a foreigner, armies will loot, and college boys will burn fences to celebrate a victory. To save his stock of shoes from a fire, a merchant threw them all out into the street, where the inhabitants of the town were gathered to see the fire. He salvaged less than half and reports that he saw those shoes later on the feet of many of the town's most respected citizens! Non-owners are probably as honest as men in general, but any myths which make robbery respectable for anybody are dangerous; and to the psychologist there is always the suspicion that their acceptance may be facilitated by their services to a deep-seated passion.

Not only non-owners but all men can easily see defects in the present distribution of capital. Any one of us could improve matters in certain cases by taking from Peter and giving to Paul. The difficulty is, of course, not in locating specific improvements, but in making any general rules that would on the whole work better than our present rules. Planning such rules is a favorite occupation of reformers, and the world is making rather rapid progress in a series of experiments both in diffusing ownership and in concentrating it in trusteeships to be used for diffuse benefits. The distribution of capital is important; it is desirable that the world's material and mental capital should be in good hands, that is, in the hands of men who will use it for the world's advantage. It is extremely unlikely that the present rules and customs by which ownership is attained and perpetuated—rules and customs which were made with little or no scientific knowledge of human nature or industry—are unimprovable. We may expect that the sciences of man will enable any nation or group of co-

operating nations to arrange conditions of education, industry, taxation, and inheritance so that power through ownership of material capital will be held by those who will increase its quantity and quality, and use it to serve the common good.

But all such matters of distribution are of minor importance compared with the increase by the advancement of science and education and the waste by war and folly. Largely as a result of the progress of science in the past, for example, each family in this country now owns a substantial property, namely, his share in the roads, waterworks, parks, school-buildings, hospitals and the like, and shares in the fruits of property held in trust for his welfare by foundations great and small. In the World War everybody received his share of powder, shot, ships, etc., which are all used up. Each family could, instead, have had an automobile and a garage, or an excellent private library, or free admission to the movies for life, or a camp in the country. Or American families as a whole could have been endowed with ownership of a substantial share in the nation's factories. If we keep the peace and if science is allowed to do what it can do, enough material capital can probably be created from nature within a single lifetime to give each of the fifty percent who now have least, much more than he would at the end of his life transmit to his children if he now received an equal share of all the capital owned by men.

A world that encourages wars between nations and lets the discovery of truth depend on the unaided enterprise of a few curious devotees of science seems to a psychologist to be afflicted with infantilism or insanity, or both.

In so far as the trouble lies in our institutions, laws, and customs, science should improve them as it has improved our material instruments. If it also lies deeper, in human nature itself, science should improve human nature.

MISLEADING ATTITUDES TOWARD CAPITAL

A part of the trouble lies in ignorant and prejudiced notions about capital and attitudes toward it (other than those already noted) which we can cure ourselves of by a moderate amount of honest study in school or out.

(1) There is far too much interest relatively in who owns it and too little in what it is and what is done with it. For production, utility or welfare it may make a great difference whether savings are in the form of fruit trees, library books and steel mills or in the form of Indian hemp (hashish or marijuana), roulette wheels, and battleships. It may make a great difference whether a steel mill makes rails and girders, or cannon; or whether a battleship is used for justice or for greed, or even for prudent greed rather than foolish greed. But who owns it is of little or no consequence save as an indication of how it will be used. It is important for the common good that the steel mill be owned by persons who will have it so managed that it produces good rails, girders, etc., as cheaply as other mills and employs persons who would otherwise receive lower real wages. It is relatively unimportant whether it is owned by ten thousand widows or by one, by Americans or by Hollanders, by you and me or by others. We are misled, partly by greed and envy and partly by the dramatic and personal interest, into great excitement over how much capital certain people have, in deplorable contrast to our apathy about how it is used.

(2) When we, the public, aspire to increase public ownership of certain power-plants, railroads and the like which produce material benefits, or of certain school buildings, parks, libraries, and the like which produce chiefly mental benefits, we often indulge in fantasies to the effect that these are created by waving some magic social wand of government or community action. The plain fact is that the public can acquire capital only by luck as in discovering a gold mine, or by working to produce it and saving it, or by taking it from somebody else.

If we, the public, took it from somebody, we did not create it. He did; or somebody else did from whom he got it. This somebody may occasionally be the public, from whom he extorted it by force or deceit; but now and in the future we should not give up our property to robbers and con-men, so that from now on we should count on the public either discovering or producing what it acquires, or taking it from somebody.

The public as public has hitherto produced very little. We may hope that in the future a community spirit may hearten all

its members to more productive living, and that community action may promote health, beneficial rather than detrimental recreation, and desirable education, so that the doctors, dentists, clerks, factory workers, managers and all others may produce a plus over what they would have produced otherwise. This plus could be taken as a tax which properly belonged to the public. We may hope that it would be substantial. That would be the nearest approach to public production in a modern state or city. In a smaller community the public might set up some sort of cooperative enterprise at which it would work out of regular hours, and entice or coerce its recalcitrant members into doing their share. Even so, if individuals have freedom to earn and save, the bulk of public capital will probably be taken from private capital. It may be desirable for us to take it, but it is highly undesirable for us to think that we made it.

(3) Allied to the fantasy that the public made the roads, sewers, water works, schools and parks is the fallacy of supposing that the public will treat its property as a private owner treats his. A large percentage of the public will treat the public's property like that of the railroad or the Standard Oil Company or any other vague corporate entity. Another large percentage will distinguish it from the private property of some vague impersonal corporation, and regard it as the government's or as the people's, but will feel little or no personal share in it or responsibility for it. Indeed by the limitations of human nature no million persons owning each one millionth of a property can all have the attitude toward it which each has toward a property of which he owns the whole. Nor can any thousand persons who each own a thousandth. There are other human characteristics which differentiate ownership as an individual from ownership as one of the public.

(4) Many persons have no realizing sense of the importance for welfare of capital goods public or private. They understand after a fashion that railroads take people where they want to go and things where they are needed, that sugar and shoes and soap come out of refineries and factories, and that almost everything they eat, drink, or wear is made by machinery. But the books they read in school tell much about people, dogs, horses, birds

and flowers and little about factories. The movies they see are full of society, love, adventure and gorgeous display, but almost devoid of human activities in production. Even if their own daily work is in a producing plant it may give them only partial knowledge of a very small sample. Books, newspapers, sermons, and political speeches are made by persons most of whom know little about machines and are much more sensitive to the smoke, dirt, noise, and fatigue associated with production than with what capital does for it.

I have not the ability or the space here to make clear and emphatic the increase in power which capital gives man, who with it can harvest a hundred times as much grain, can clothe or kill a hundred times as many people, can entertain a million times as many. Nor can I picture vividly the changes in living which the multiplication of productive instruments and labor substitutes brings. Slaves of wood and metal displace slaves of flesh and blood. Serfs and peasants have the alternative of factory labor.

The division and specialization of capital outdoes the division and specialization of labor. For example, a seller of chemicals lists over ten thousand different items, and a maker of farm machinery over sixteen hundred.

The power of capital to increase itself if it is not disturbed and is given reasonable treatment is understood by intelligent people, but even they are rarely moved to action by knowledge of the stupendous consequences of this over a long time. Benjamin Franklin was moved by it and we profit from his action. These consequences have been noted earlier, but are worth noting again.

If some family had died in the year 1 A.D. leaving an estate of the value of 10 present dollars and if this had been saved, invested and reinvested with average prudence, by the heirs of that family, and none of it had ever been stolen or confiscated, whereas the property of all the rest of the world had been subject to the vicissitudes of war, theft and folly, that family would, other things being equal, now own all the capital goods in the world, and the world would be incomparably richer in capital goods than ours. Its soils would be more fertile, its water powers

would be better developed, canals and roads would be found wherever they were needed, man's labor would be supplemented everywhere by nearly the best tools, machines, power-plants, etc., which science and technology could contrive. The other things in the shape of science, technology, the fine arts, government, morals, wages, unproductive wealth, etc. would not be equal, but they would probably be much better.

If the $10 had been a humanity trust instead of being the property of personal heirs, the capital goods of an almost incredibly wealthy world would now be in the hands of its trustees. The trust's annual income from them would tend downward toward an amount which would supervise the capital, keep it insured and in repair, and enable the trustees to provide for the needs of desirable new enterprises. There would be all the capital goods needed to give full scope to human enterprise and labor. Capital would be almost a free good.

Perhaps in some eugenic world capital will be allowed thus to make and hold its increase undestroyed by war and unretarded by waste and folly, but the present outlook is not hopeful.

(5) Many persons of humanitarian temper, observing that a hundred thousand dollars worth of mortgages on farm or factory produces as much for its owner as the labor of a farm hand, coal miner, washwoman, and country school teacher produces for all four of them, lament that the capital receives more than its due and the laborers less than theirs. Such persons are probably in error. The Soviet government has no affection for owners of capital but it pays them far more than the above in comparison with laborers. Regardless of the truth or falsity of their doctrine, such humanitarians seem very perverse in their ideas of how to change the ratio of the rewards to capital and labor. There are two sound methods, both consistent with general welfare—to encourage the laborers to greater proficiency in their work, and to encourage people to save more from their incomes and invest more of their savings in capital goods, so that the supply of the latter will increase much faster than the population. If the new capital goods so created are selected with reasonable prudence for economic reasons, their creation will tend to cause a drop in the rate paid for the use of capital, and probably also a rise in real

wages. But those who lament the high ratio of the wages of capital to the wages of labor do little to further either of these changes. They seem unwilling to heed the fact that the cure for the evil they attribute to capital is to have more of it.

(6) It is often desirable to contrast care for property with care for persons. Thus a city's fire department serves mainly the former; its schools and health department serve mainly the latter. But this contrast may be unduly exaggerated and distorted. Property in the form of capital goods works for persons as truly as do doctors or schools. It is as truly in the public interest to keep shoe factories from being burned as to keep water or milk from being polluted. Action which weakens or maims capital goods in the hope of benefiting the health and happiness of persons has elements of danger. At its worst it may be like the action of a village which tears up and burns its railroad ties to keep its houses warm.

MENTAL CAPITAL

Economists and people in general should give more thought to bodily resources and capital in the form of health and strength, and to mental resources and capital in the form of knowledge, habits, skills, attitudes and ideals.

Certain sorts of mental capital, particularly knowledge and ideals, are almost or quite free goods. What were once trade secrets of shamans and priests are now public property. Anybody who has certain intellectual abilities may possess them at a moderate cost in time and effort. He may thus make better use of his other capital and labor. Sheer knowledge enables a farmer to grow more, a fisherman to catch more, a prospector to find more than he would have produced a hundred years ago with the same land and tools without that knowledge. It enables us all to waste less (which is as good as to produce more) on foods, clothes, drugs, cosmetics, etc.

A large part of the improved means and methods of production of the century past are consequences of the advancement of science, which has served as a sort of free goods to inventors and entrepreneurs. The bulk of modern science has been discovered with little or no intent to use it to economize labor and produce

more and better vendible goods. The applications of physics and chemistry to engineering and manufacturing, and even the applications of biology and botany to agriculture and medicine, have been largely by-products of scientific curiosity and the love of intellectual achievement for its own sake. In the case of some of the most original and fundamental discoveries, the authors have not even been aware that they would cause any change in the production of anything.

This is now changing; men of science are aware that their work is changing production; the bars are lowered between "pure" and "applied" science; governments spend money for scientific work to improve the production of farms, fisheries, mines, etc.; industrial concerns maintain research laboratories to hunt for truths which will improve their production. The genes of a Darwin born again would not live as a country gentleman, but as a worker in some institute of biology or eugenics. A Joseph Henry of today would very probably be working for the General Electric Company.

It should be noted, however, that some of the shrewdest industrial leaders and men of affairs responsible for applied science believe that the great gains for production will continue to come as by-products of scientific thinking that is undirected by utilitarian aims and unfettered by feelings of responsibility for so-called practical results.

It is of interest that the creators of this capital of truths about nature do not often themselves use it in production, even when patent laws permit them to do so easily. They commonly are interested especially in pressing on to discover more truth, and are intolerant of the kind of thought and work required to use the new knowledge profitably in industry and trade. They would be glad to have more money, but they will not go far out of their chosen way to get it. It is related that when samples of the Pennsylvania oil and oil-bearing shales were submitted to Professor Silliman for examination he said, after reporting the essential facts, "Somebody will make millions out of this," and then dismissed the matter entirely from his mind. This is, of course, an extreme case, but something like it is true of many scientific workers. The abilities and interests of man of science, inventor,

and business man are not antagonistic or necessarily exclusive; some great corporations have been largely owned and managed by men of science who invented the process which the corporation utilizes. But specialization of the three functions is the rule.

THE UTILIZATION OF CAPITAL

Much material capital is usable continuously except for periods of inspection, repair, cleaning, oiling and the like. Its misuse and idleness are caused by human factors. We, not they, are obviously to blame if ships and trains are motionless, if houses are tenantless, if factories make nothing two-thirds of the time, if churches are empty fifteen-sixteenths of the time, and the like.

Our custom is to work in daylight and to rest or play after the sun has set. If people did not object to working at night, factories could run two shifts instead of being enlarged. Some do so now. The grounds for the objection seem to be more social than physiological. People are apparently willing to play during the night and sleep till play begins again. If the population of a city were divided into two groups, with customary active periods, say from 3 A.M. to noon and from 1 P.M. to 10, and with all else adjusted thereto, the objection might be greatly reduced.

I conjecture that after experience of both systems most humans would rather live in either of such squads with wages of K dollars than work by the present customary schedule of hours with wages of .8K dollars. Indeed the change to life in two squads each with its hours for schools, entertainments, marketing, housework, etc. as well as of wage earning would probably be less of a physiological and social shock than the change from life as peasants to life in an industrial community.

Pride, prejudice, and the enjoyment of ownership will eliminate the proposal that the Baptists, Congregationalists, Methodists, and Presbyterians should use the same church building from 9 to 10:30, 11 to 12:30, 2 to 3:30 and 4 to 5:30, but what could be more Christian as well as reasonable?

A nation-wide rental service of harvesting machinery which would be moved north with the season would meet strong op-

position from the pride of possession and in a sense the "conspicuous waste" of farmers, as well as from the human irritation at dependence upon anybody for anything—unless one is used to it.

Whatever causes the idleness of capital during the low swings of the so-called business cycle (which may be in fact much more irregular than cyclical) is surely psychological in the sense that it is not a necessary characteristic of material capital.

THE UTILIZATION OF MENTAL RESOURCES AND CAPITAL

To maximize the production either of welfare or of vendible goods, mental resources and capital must obviously be neither misused nor left idle longer than is desirable for health and recreation. There is a gradient from almost perfect usefulness as in art or science to almost perfect harmfulness as in sadistic bullying or debauchery. The last is rare in most cultures, but the employment of abilities in unproductive dissipation, teasing, quarreling, futile argument and speculation, mere excitements, invidious competition and the like is common. Much ability is also devoted to the search for unobtainables, the avoidance of imaginary evils and other adaptations to non-existents.

The waste from idleness of mental resources and capital is deplorably great. The world is full of antiquated follies which the acquirement of knowledge by backward groups and individuals could cure. It is full of abilities inactive or thwarted by taboos and other superstitions, religious, political and economic. The placement of the world's n persons in the world's N jobs is far from perfect, though not so indiscriminate as some critics think. By a perverse social inheritance men are taught that destructive sport is more reputable than productive labor. They laboriously acquire skill at and a taste for games and ceremonials some of which are inferior substitutes for productive activities. They are prevented from their customary productive activities by business depressions, technological changes, strikes and lock-outs. By political or other mismanagement they are put at work which should be done by machines.

The present waste of mental resources and capital is deplorable, but it is probably considerably less than it was fifty years

ago, or a hundred, or two hundred, or five hundred. It is certainly far less than it was a thousand years ago when the great ones so often wasted their talents in killing animals and one another; the wise ones, in pedantry and sorcery; the kindly ones, in prayer and penance; the great majority, in dull and servile routines.

Chapter 23

LABOR AND MANAGEMENT

THE PSYCHOLOGY OF LABOR *

Most of us have been taught to think of labor as a necessary evil which men are bribed to carry on with wages or profits, much as we have been taught to think of east as where the sun rises and west as where it sets, or of two and two as making four. Man is cursed with labor since Adam; the less he has of it the better. Freedom from productive occupations is the Eden we all crave. Shorter hours and higher wages are the two rails on which the world's workers move toward welfare.

We may perhaps concede that labor has a value for health and morality, and that we shall enjoy heaven better for having toiled on earth. But intrinsically, from the simple selfish point of view of the laborer, labor is a cloud whose only silver lining is wages. To keep the world going so many tons of coal must be mined, so many bushels of wheat raised, so many yards of cloth woven; and the world labors to produce these rather than go without them. Labor is a suffering endured only because it prevents the greater suffering of lacking what the wages or profits would have bought. Labor laws, labor disputes (at least on the surface), and welfare schemes for laborers reflect and in the main confirm this view. It is, however, an unsound and dangerously incomplete view of the psychology of labor. A sound and adequate view of human nature in its relation to labor, must take into account all the important facts about productive labor, not merely the fact that much of it to many persons is objectionable. It must consider all the conditions and results of labor as well as the contents of the pay envelope.

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First of all, activity of body or mind is not intrinsically objectionable to human beings. On the contrary, if the activity is within the individual's capacity in quality, quantity, and duration, so as to be done without strain, it is intrinsically desirable. We avoid labor nearly or quite as often because we wish to do something else as because we wish to do nothing. Boys and men leave their farm chores to do more violent activity in hunting. The lawyer stops thinking of his brief in order to think harder in a chess game. The housewife abandons the family mending to do fancy embroidery.

Nor is productive labor intrinsically more objectionable than the same activity undertaken for sport. Human nature has no predilection for the useless as such. On the contrary, the child would prefer to have his mud-pies edible, the hunter would prefer to secure a useful trophy, the lawyer would enjoy his game of chess no less if by some magic it made two blades of grass grow where one grew before. Indeed it adds somewhat to his enjoyment if he thinks of it as valuable mental training or a healthful mental relief.

In fact there is hardly a gainful occupation that is not used as a cherished pastime by some men or women. Rowing a boat, driving a team, maintaining a garden, driving, overhauling and repairing an automobile, managing a farm, and breeding livestock, are cases easily observable. Sawing logs has been the sport of famous and infamous men. Digging ditches and bookkeeping are the recreations of some known to the writer if not to fame.

Many men and women would, if they sought happiness with wisdom, continue their productive labor even if they were given ample wealth. This is admittedly true of the eager inventor, the zealous musician, the captain of industry, the man of science and many others whose productive labor is what they would wish to do in any case. We admit it because the facts show that they work regardless of wage or after the need of profit ceases. It is to some extent true of almost all men. Probably three out of four chauffeurs would really much rather drive a car than live as, say, the King of England does. The locomotive engineer may bewail his hardships and ostensibly yearn to sit on his porch

smoking a pipe, but his real longing may be for the work he is paid to do.

The economist will here object that our illustrations are from highly skilled labor and do not justify the generalizations. Most labor, he may assert, is out-and-out objectionable to the laborer. Farm work, mining, factory work, routine clerical work, selling and domestic service are fair specimens of the great bulk of labor; and these, he will claim, are essentially unpleasant, not to say intolerable. Who would for month after month milk cows or dig holes or hammer a drill or operate a punch press, or wheel boxes, or copy names, or wash dishes or scrub floors, except for a money reward?

Doubtless the economist would not. Doubtless it would be a great sacrifice to him to milk cows and clean stalls for a year. If by a miracle he were to be doing it, and if I insisted that he was being paid for what he would fairly well like to do in any case, he would rightly scorn my sense of fact and logic. But he is not the one who is doing it. If the one who is doing it is a person strong in body, dull in mind, who hates being forced to think, decide, or step outside his beaten track of routine, who enjoys the company of animals, and feels a certain sense of mastery and pride in being a good milker, the economist may well be wrong. To such a one milking cows and cleaning stalls may be no more objectionable than talking and writing is to the college professor. The work of chambermaid in an institution would doubtless be one hundred percent objectionable to the economist, but it is very nearly one hundred percent satisfactory to certain feeble-minded girls and women, though they get no wages of any sort for it. They would mourn having their bed-making taken away from them as a prima donna mourns her retirement from the stage or a president of this country his failure of nomination for a second term!

A woman of limited intelligence may feel the same satisfaction in emptying a slop jar without spilling the slops on the floor that the economist would feel in making or refuting arguments in favor of the gold standard.

If the labor of the man sailing an airship is not all bad—a necessary evil to him, endured for wages, neither is the labor of

the chauffeur driving his chosen car; nor that of the taxicab driver; nor need be that of the motorman; nor that of the man on the truck; nor that of the man on the tip cart; nor even that of the day-laborer pushing his wheelbarrow load of bricks! There is no necessary gap. Doubtless more men would drive a motorcar for enjoyment than a wheelbarrow, but some men get some genuine satisfaction from pushing the wheelbarrow. Labor is not all bad, a nasty pill sugar-coated by wages.

Wages and profits are rarely the only reward for labor. Many workers work to some extent for love of the work. Still more are paid in part by the approval their skill and achievements receive. Some are paid in part by the sociability of the workers or the friendliness of the boss. In fact almost every fundamental human appetite may be gratified to some extent by productive labor.

We should not think of the laborer as leaving most of his human nature behind him when he goes to work, and becoming then a single-hearted devotee of money. We should consider all the instincts and habits, some of them deep hidden, that move him as truly when he works as when he rests with his family or plays with his friends or fights or votes or marries.

There are five fundamental trends in human nature which specially deserve our consideration. The first is the satisfyingness of activity physical or mental at which one can succeed. Man tends to do something when he is wakeful as truly as to cease action when sleepy,—to be busy after rest as truly as to rest when fatigued. Continued idleness is seductive when accompanied by sociability, or stimulation by novel sights and sounds, or a sense of superiority to those who cannot afford to be idle, or opportunity to display one's power or wealth, but mere idleness *per se,* as in a sanitarium or a jail, is attractive only to exhausted bodies or minds. The labor problem is not so much to bribe men from idleness to activity, as to induce them to be active in ways that are advantageous to the community.

The second is the satisfyingness of mastery. To have other human beings step out of the way, bend the knee, lower the glance and obey the command, is worth more than fine gold to most men and to many women. It would be an interesting study to ascertain whether a plumber has a helper, a farmer a hired

man, a waiter a bus-boy, and so on, simply because these helpers really increase efficiency, or partly because the plumber, the farmer, the waiter thus has someone on whom to gratify his craving for mastery.

The third is the satisfyingness of submission—*to the right kind of man.* Contradictory as it may seem, it is as natural for human beings to submit to the person whose size, looks, voice, prowess, and status make him an acceptable master, as to exercise mastery themselves where they can. The same man who enjoys mastery almost to the point of tyranny over his employees may enjoy submission almost to the point of servility, to some business giant, or to some hero of baseball, or even to his wife. The strength of this tendency to submissive loyalty varies, being much greater in some men than in others, and greater in general in women than in men. The same man who excites ready loyal submission in some may thus excite rebellion and attempted contra-mastery in others; and some men may never as workers find a foreman whose power over them is not a constant irritation.

Probably the present work of the world cannot under present conditions be done without a balance of dissatisfaction because there is too much need for submission and too little chance for mastery for the great majority. Roughly speaking, labor has to be too submissive to suit human nature. But not all of the submissiveness is annoying; and the two trends, though often opposed, need not always be. If Jones appeals to Smith as a thing to be mastered, and Smith appeals to Jones in the same way, both cannot be satisfied. They are not necessarily and inevitably opposed, however. If Smith appeals to Jones as a great man whose smile produces thrills of delight, whose nod is a benediction, whose commands are unquestionable, both may be happy.

Next to be considered is the satisfyingness of company and cheerfulness. Man is by nature gregarious and fond of human happiness about him. He likes to have human beings around him, and to have them smiling and laughing, rather than peevish and sad. The department store and factory are actual reliefs to many girls whose home life is essentially a complaining mother and crying children. Many a young man gets enjoyment from the bustle of the office very similar to that for

which he pays at the amusement park or on the excursion steamer.

Last and most important is the satisfyingness of the feeling that one is somebody of consequence, who is or should be treated respectfully by his community, which we may call the love of approval.

Besides these outer signs of approbation, man reacts to his own inner image of himself. If men neglect or scorn him, he may derive some satisfaction from concluding that they do not appreciate him properly. Religion often is a comfort by its assurance that in the sight of God and in a future life he will have a station above those rich and successful in this.

Now this hunger for consideration, approval and eminence is one of the great moving forces in human life. Under present conditions in America it deserves to be ranked along with the primary motives of physical hunger, sex, the craving for physical safety, and the intolerance of bodily pain.

The New England housewife did not sand her floors, and polish her kettles, and relentlessly pursue dust beneath beds and in far corners for wages. Her husband would in most cases have paid her more to be less tidy! She cleaned her house so that it might force glances of admiration, ready or unwilling, from her friends and foes. Women devote an enormous amount of labor to dress and other personal adornment; and a large percentage of this is not a matter of sex attraction but simply to win a general diffuse approval, chiefly from other women. We have the testimony of Carlton Parker that a miner will, not exceptionally but almost as a rule, sacrifice wages for the sake of setting up his blasts in such a way that other miners passing by will admire his skill in using so few drill-holes, or the like.

It may be accepted as axiomatic that labor which adds to the laborer's sense of worth and consideration by those whose opinion he lives for has a plus over its money wages, and that labor which detracts therefrom has a lack which wages or some other considerations must supply.

In general the reward for labor is not only the power to buy food, shelter, clothes and whatever else money will buy which

comes as a money wage, but the degree of gratification given to each and every human craving by the job itself. The evil of work to the worker is not only that he has to work so long for so little, but that he may have to strain his powers at work for which he is not fit, submit to rule that is humiliating, lose caste in his world, and in general be thwarted in the fundamental impulses of his nature.

He comes to a job not simply as an operator of the X.Y.Z. machine, but as a man. The job brings to him each week not only a pay envelope, but forty or more hours of life, whose desirability may vary almost from heaven to hell. We must consider both him and the job in an adequate way.

More than this, we must, if we wish to understand a labor problem, consider the total situation of which the job is a part. Human nature tends to attribute to any obvious external fact, such as a locality, or a person, or a job, whatever feelings have been associated with it, regardless of whether it is really their cause. Thus a workman, really upset by the illness and peevishness of his wife, may think that his work is too hard, his machine not properly adjusted, or his foreman unfair. It makes a difference to the laborer, just as it does to his boss, whether his home is comfortable to him, whether he can digest his food easily, whether the community in general is peevish and miserable.

A factory does not and cannot live to itself alone. Its jobs acquire merit or demerit from total community conditions. Sagacious employers realize this. It is a main reason why they so abominate the presence of the mere agitator, professional or amateur. The mere agitator, they claim, does nothing of any value to the workers, and does much harm to both the employers and the employees by replacing a general peacefulness and content and good feeling, by irritability and suspicion.

The behavior of the owner's family or the manager's family, though it has no causal relation to any condition of the job itself, may soothe or irritate the workers. Transportation conditions very often come to be felt as part of the job. If a worker has to go a long distance and stand up and travel in unpleasant company, he tends consciously or unconsciously to

figure this in on the job. Even though he may be led to blame it exclusively on the greed of the traction companies, the effects of it carry on to his work.

Finally there is to some extent a different labor problem for each laborer. What is objectionable and what is attractive in each job, and in the general community conditions associated with that job, will vary enormously with individuals. Partly by inborn nature and partly by the circumstances of training, individuals vary in physical strength, in acuity of vision, in the endurance of the eye muscles, in love of order and system, in neatness, in memory, in whatever trait may be in question. The postman's walk and burden would be physically a pastime to one and a daily fatigue to another. The work of a clerk in a bank or an insurance company is as easy as knitting to certain young women of sturdy visual apparatus and a passion for arranging items, but it would be a form of torture to others. To hear a signal over the 'phone and report a number of a letter and six figures like N 314297 would, after training at it, be objectionable to some men only by its monotonous ease, but it would require an almost intolerable strain of attention from others.

Dirt, monotony, noise and solitude vary in their annoyance to individuals from zero or near zero to an almost insupportable agony. The conflict of personalities in trading varies from an agony to the joy of living. Politeness, attentive consideration, and winning persuasiveness as required of the salesman would be as ashes in the mouth to most miners, engineers and cowboys.

There is also large variation in the public opinion whose approval is so large a factor in man's tolerance of his work. The opinion of Cedar Street that John Smith the barber has done very well counts more to John Smith than the opinion of all polite literature that the barber's is a rather servile trade. There is, of course, a general sensitiveness to the diffuse approval of the world as it filters through to all communities. And this is of great importance. But each locality and social group has its special public opinion. The man whose abilities qualify him to be an unskilled laborer or machine hand usually has been born and bred in a group who do not in the least scorn him because

he is an unskilled laborer. By them he is never made to feel a failure because he is not a professional man or expert tradesman. He is esteemed within his group as the tradesman is within his. Similarly a successful plumber usually feels no more degradation at not being a sanitary engineer than the average doctor feels at not being a Pasteur or a Lister. A plumber lives in a plumber's world. The prize-fighter cares as little for the economist's scorn of his intellect or the moralist's scorn of his trade as they care for the prize-fighter's scorn of their puny blows—probably less. The prize-fighter lives in a prize-fighter's world.

It seems certain that the acceptance of the facts reviewed here will help to improve the management of labor by employers and by workers themselves. By reducing what is really objectionable in labor—rather than by reducing labor indiscriminately, by attending to its immaterial as well as its material rewards, by considering the total situation as it influences the worker rather than the job just as it appears in the company's scheme for production, and by studying men as complex individualities, we may hope to get more and better work done with more satisfaction to all concerned.

This seems certain, because we find actual improvement now in cases where men base their action on these facts, and because we find difficulty where they are neglected. A brief mention of such cases may prove instructive.

Some of the objectionable features of labor may be mitigated, and in some cases, eliminated, at no cost. Work that is either too far above or too far below the worker's ability involves in the one case painful strain, and in the other irritating boredom. A shop manager would not use a wood-saw to cut steel or on the other hand run it at half-speed. Wise employers who spend time in studying their personnel as well as their machines, uniformly report that the study is profitable.

Needless personal indignities inflicted on workers by foremen, works policemen, and others who have an official status of mastery make work a misery to the sufferers and debauch the inflictors of the affront. From the day that a boss, small or great, sacrifices the welfare of the concern to gratify his craving for

personal power, he begins to lose in value to the concern, and probably will lose more and more rapidly. Carlton Parker related as typical of industrial disputes a case where some women employees in a garment factory were sent away from the passenger elevator to the freight elevator because it was being used by some woman buyer. This led to one of the most bitter strikes of the season. Yet all that was required was to ask the operatives to wait, or request them in a decent way to waive their privilege for the time.

Sex affronts to women employees, common as they are, seem worse than needless. Men will in the long run keep their minds on their jobs much better if they understand that any annoyance of women employees means summary dismissal. Any high executive who has not the self-control to set a proper example should consult a psychiatrist.

It should be understood that it is not the actual infringement of personal rights and dignity that is the main trouble. It is the rankling memory of them for weeks afterward and the daily bitterness of expected tyranny. It should be understood further that the elimination of needless personal tyranny does not imply any foolish idealization of workers or treatment of them with refinements of courtesy which they would interpret as signs of weakness or fear. The distinction indeed is not between a harsh and a gentle treatment, but between bossing them in the interest of the concern and bossing them out of sheer thoughtlessness to gratify the craving for personal mastery. The welfare of the business should be the master of the shop.

The immaterial wages which the whole man receives in addition to the pay envelope which the "economic man" receives can be increased at little or no cost. A large concern operated a workmen's clubhouse itself at considerable expense. It was rather a failure, little use being made of it. The policy was changed to one of payment by the workers for the club privileges, and it became a success. The men were glad to pay for self-respect. A factory superintendent who went through the war and post-war periods without labor troubles attributes his success in large measure to a number of simple rules about treating workers as men and women. For example, the door-

man is chosen partly for his cheerful voice and smile. He greets each worker, by name if he can. The foremen take pains to learn the name of each new worker and exactly how to pronounce it on his or her first day. They are instructed to call workers by their names always, inquiring in case they forget. Soon everyone who has contacts with the worker calls him or her by name. The "Here You" and "You over there" and "You on Number 12" are never heard.

Contrast this procedure with that of a company which kept men waiting in the rain without cover long past the time announced before hiring any of them; and left a score of them so waiting long after the jobs advertised were filled, before informing them that they were filled.

How far business and manufacturing concerns should go in providing gratification for the fundamental trends of human nature is a matter for study and experiment. Other things being equal the worker will enjoy his work better in proportion as this is done, but the other things may not be equal. Here are a few sample problems: Should each job be given dignity by a title, so that the youth can say I am "Second assistant operator on No. 43" instead of "I am a machine hand"? Should each driver drive the same team or truck not only to place responsibility better and reduce accidents, but also to enlist whatever loyalty and affection he may feel toward something he lives with as his, and give room for his instincts of ownership and mastery? How far should the craving to "belong to" something be gratified by social and athletic clubs connected with the concern? How much of an argument for turning over a share in the management of the shop to its workers is found in the satisfaction of the craving for personal dignity and importance which accrues thereby? Would it be silly to put the name and title of each clerk in a bank or office on his desk, so that he could be addressed by name by whoever cared to do so? Would it be utterly silly to do this in a department store? What is the proper use of rivalry between individuals, and between departments? What is the golden mean between a sullen gloom which depresses all workers, and such cheerful sociability that work is neglected?

From an impartial consideration of the total setting of labor in the community and nation, every worthy interest should gain. Labor is part of a total life which it affects, and by which it is affected. Other things being equal, good schools and churches and hospitals and parks and a friendly community life are good for labor. General peace, decency and happiness help us to work and to like our work. On the other hand, vice, disease, and quarrels of all sorts cut both our productivity and our enjoyment. Every crook who leads an easy life, every loafer, rich or poor, who has public esteem, degrades labor. Every false economic prophet who hides essential facts misleads labor.

Other things being equal, the American worker will be efficient and happy in proportion as the general life for him, his parents, his wife and his children is desirable.

This desirability should however be such as fits their actual natures, not necessarily such as a philanthropist or social philosopher might choose. Model cottages designed to suit the subtle refinements of highly cultivated tastes may be less desirable to me than the crude home which I choose for myself, and help to build. We should beware of the library full of admirable books which nobody reads; and of the high school which only the rich can afford to attend.

Perhaps the greatest gains of all are to be expected from the adjustment of labor to individual differences in abilities and tastes, and from such education of individuals as will fit them for the world's work. A perfect fit of work to workers cannot of course be guaranteed. There may be more dirty work than men who do not mind dirt can do easily, more monotonous work than men to whom monotony is inoffensive, and the like. It does not appear, however, that this will happen frequently unless we set up fantastic ideals for the young. The excess seems more likely to be of difficult intellectual and executive jobs over men with the ability to handle them.

At least we can do much better than now, when vocational guidance is a mixture of casual reports of some friends about their jobs, irrational prejudices and fantastic expectations derived from story-books, all operating on ignorance both of the world's work and of one's own powers and temperament. At least em-

ployers can realize that a job is never really filled until the employee is found who fits that job in the sense of being able to do it reasonably well and get reasonable satisfaction from it. Anything short of that is a makeshift.

So far the gains illustrated have been such as required action by employers and the public rather than by the laborers as such. It seemed more convenient to present the facts in this way, but there is no implication that these psychological studies of labor as a total fact, including all its evils and all its rewards for all sorts of individuals, should be made chiefly by employers and by the public. On the contrary, it seems highly desirable that workers should provide for the scientific study of work, and for hopeful enterprises to improve efficiency and enjoyment in work as well as to attain and maintain fair hours and wages. Many of the best friends of organized labor are hoping that it may increasingly become the source of impartial knowledge of labor in all its aspects.

THE CONDITIONS OF WORK

In certain cases a person in control of labor may not only use it up, but use up the laborer who, as a natural resource and item of bodily and mental capital, provides the labor. He may do this at no cost to himself or to the particular productive enterprise for which he is responsible. He may murder, maim, poison, stunt, or debauch workers who permit him to do so, leaving the world to suffer the consequences, and taking on a new lot of victims to replace them. From the point of view of the general good, a reasonable rule is that a person should, after a period of labor and its wages, be at least no worse off in mind and body than he would have been without both. Something like this rule is enforced by law in most civilized countries, except for government workers employed in killing other government workers. An employer cannot be expected to offer a person a life more than a little better than the person is offered by the world other than the said employer, or than the person could have if the said employer did not exist. The choice has sometimes been a cruel one for the worker. He has had to choose between death by exhaustion and death by starvation, or between the brutal

customs of a factory and the brutality and degradation of an almshouse.

A hundred years of advancement in science and utilization of physical resources has enabled western civilization to improve the alternatives greatly. Moreover, investigations are being made both to discover improvements in the conditions of work which will benefit employees at no cost to employers and to prevent employers from causing injuries to laborers (wittingly or unwittingly) from which the community will suffer.

Besides improvement in machinery, lighting, etc. to lighten labor and reduce accidents; improvements in processes, ventilation, etc., to reduce poisonings, respiratory diseases, over-heating, dehydration of the body, and other physiological damage; and improvements by prompt medical and surgical care, psychological and social improvements are now being studied. Since, by custom, improvements of the sort last mentioned are given by employers rather than required by workers or by law, they are commonly studied in their relations to production. They might be studied also in their relations to the satisfyingness of the work to the workers. However, other things being equal, increased production is good for the worker and the world at large, as well as for the employers.

The famous experiments of Ernst Abbe in the Zeiss company showed that in the case of its workmen (paid by the day) a gradual reduction to nine hours did not decrease production.* Vernon's studies in England and Wales showed that reducing hours from a 12-hour day to a 10-hour day did not decrease production, but that a reduction from an 8-hour to a 6-hour day did do so though. The hourly rate increased, but only by 8 percent. Of the results of the widespread decreases in the first quarter of the 20th century Florence says:—

"In recent years the hours of work have been reduced in all English and many American industries, but the opportunity has been missed of studying on a large scale, and yet scientifically, the effect on output. Results can be quoted only in few isolated cases. It is true that the American National Industrial Conference Board have issued 'research' reports on the effect of hours

* In 1900 he proposed a further reduction to eight hours.

on output in several industries and have summarized the various results obtained. But the data tabulated in these reports are at worst only opinions, and at best statistics provided by the management, and likely to be biased by the hopes and desires of the informant.

"As far as the evidence goes the effects of reducing hours of work can be summed up somewhat as follows:

"Reduction from a 12-hour to a 10-hour basis results in increased daily output; further reduction to an 8-hour basis results in at least maintaining this increased daily output; but further reduction, while increasing the hourly rate of output, seemed to decrease the total daily output." ['24, p. 228 f.]

It is possible that practice with methods of work adapted to a seven-hour day might in certain sorts of work enable workers to produce as much in it as they now produce in an eight-hour day. But this would be likely to involve undesirable strain or excitement.

The optimum length of day to secure the maximum production per person will, of course, vary with the nature of the work. A bridge-tender or gate-keeper or keeper of a small shop may suffer no harm from being on duty 12 hours a day or even more, since in fact he may spend half of it in reading, seeing the sights, or conversing pleasurably. The disutility of the longer hours to him may consist entirely in the other activities of which it deprives him. For a worker on an assembly line, or keeping pace with a machine, or attending to an incessant flow of telephone calls or customers, who has also to spend an hour or more (often uncomfortably) in getting from his home to his work, even seven hours may mean much discomfort during the work and a loss in enjoyment of the leisure following it. This may injure production by imperfect work, errors, discourtesies, and the like.

TIME OF DAY AND TIME OF WEEK

Table 28, quoted from Florence ['24, p. 351], shows the relation between productivity and time within the working day.

I quote the same author's statement concerning the relation of absences to time within the working week. It may be assumed that the work of those who can come to work will suffer,

TABLE 28

HOUR BY HOUR CURVES OF ACCIDENTS, OUTPUT AND SPOILED WORK, AMERICAN TEN-HOUR PLANT

Hours	Relative Hourly Ratio of Accidents (First Hour = 100) on Different Types of Work: Muscular	Dextrous	Machine-work
7–8	100.6	100.0	100.0
8–9	147.7	119.5	121.1
9–10	179.9	132.6	131.5
10–11	206.7	151.9	138.2
11–12	174.6	126.8	128.9
1–2	134.7	108.9	108.5
2–3	175.4	153.3	136.6
3–4	197.5	138.6	137.7
4–5	224.5	134.0	145.1
5–6	273.3	180.6	161.5

Hours	Relative Hourly Output Limit of Efficiency = 100: Muscular	Dextrous	Machine-work	Restricted
7–8	91.0	88.5	75.0	87.0
8–9	95.0	97.5	92.0	92.0
9–10	93.0	98.5	95.0	90.5
10–11	93.0	97.0	99.5	92.0
11–12	84.0	91.5	93.5	97.5
1–2	93.5	91.0	88.0	91.0
2–3	89.5	93.0	92.5	88.5
3–4	85.0	91.0	94.5	91.0
4–5	82.5	91.5	95.0	97.0
5–6	60.0	77.0	89.5	75.0

Hours	Relative Hourly Output, Ratio of Accidents and Spoiled Work Average Rate = 100: Output	Accidents	Spoiled Work
7–8	98.5	77.6	124.0
8–9	106.1	93.3	104.0
9–10	106.6	105.9	80.0
10–11	106.6	108.9	105.0
11–12	99.3	87.1	94.0
1–2	102.9	89.3	98.0
2–3	102.2	103.6	91.0
3–4	99.3	108.2	71.0
4–5	98.0	108.5	111.0
5–6	80.3	122.0	122.0

in a lesser degree, the decrement which attendance suffers. The week-end holiday is apparently less successful in recreating ability to work than in permitting indulgences, which may be desirable or undesirable on purely economic grounds. The differences are, however, very small, the percentages of attendance on work for Monday, Tuesday, etc., averaging respectively 94.05, 94.76, 94.69, 94.70, 94.65, and 94.27.

"Where the schedule of hours of work is not changed, and observation is confined to the effect of consecutive days of work, a remarkable similarity in the week's curve of absence has shown in the most widely different places of work. Records were kept for 1919 and 1920 at the Hood Rubber Company, an American factory employing men and women (11, October 1921), and for June and August 1918 in coal mines in South Wales (25). In both places, and in each investigation in each place, the curve starts very high on Monday, forms a trough in the middle of the week, and turns upwards again on Saturday. The lost time on Saturdays, however, is never as high as that on Mondays. In the case of the coal mines, the absence on Mondays is almost double that on Fridays. At the rubber factory the differences are not so great; the percentages of time lost for the consecutive days of the week were:—in 1919—6.34, 5.83, 5.33, 5.30, 5.51, 6.03; in 1920—5.77, 5.65, 5.29, 5.30, 5.18, 5.43." ['24, p. 208]

If a workman goes to his job at all, the actual quantity and quality of the work he can do, shown by what he does do if working at piece-work wages, is very little influenced by lack of sleep, excitement, worry and other emotional disturbances.

Hersey ['32 and '35] has studied this and other matters by direct observation and frank personal talks daily with individual workmen. He finds that the achievement in the half of their working time when they felt above par was about 7 percent above that in the seventh of their working time when they felt worst.* This small difference is probably somewhat above the truth, since the men would tend after a work-period of notably inferior

* His records of men working in bodily pain, grief over family troubles, anxiety about love affairs, and the like are harrowing. It is a hard world where men must work in such conditions but work is in some such cases probably a useful anodyne.

achievement to be unduly pessimistic in reporting their feeling-tone. His facts are summarized in Table 29.

TABLE 29

THE RELATION BETWEEN ACHIEVEMENT AND FEELING, ACHIEVEMENT BEING MEASURED BY THE PERCENTAGE WHICH THE HOURLY EARNINGS FOR THE PERIOD WERE OF THE AVERAGE HOURLY EARNINGS OF THE WORKER, AND FEELING BEING ESTIMATED BY DR. HERSEY FROM THE WORKER'S STATEMENTS AND BEHAVIOR.*

	Positive Feeling		Neutral Feeling		Negative Feeling	
	No. of Work Periods	Achievement Score	No. of Work Periods	Achievement Score	No. of Work Periods	Achievement Score
12 American workmen	3976	101.7	1986	100.3	1179	93.2
14 Berlin workmen	1861	102.0	1800	99.8	827	95.7
20 Mulkeim workmen	2441	101.9	944	99.6	538	96.4
11 Munich workmen and clerks	1585	103.1	565	99.2	220	96.6
	9863		5295		2764	

* Details for each workman will be found in Hersey, '35, pp. 9 to 11.

MOTIVATION

It was demonstrated in Chapter 8 that the positive effect of rewards upon learning is far greater than the negative effect of punishments; and there is much evidence to show that the same holds true for human affairs in general. All good observers will agree with Pareto's statement that "The best and most intense work is that of the man who works for his own profit; the worst is that of the man who is compelled by the fear of punishment." ['97, p. 189] Slave labor is notoriously inefficient.

The more closely the rewards are associated with, and belong to, the work for which they are given, the better. In piecework and bonus systems it has been found that the arrangements should be made comprehensible by the worker and that care should be taken to make sure that he does comprehend them, so that while he is doing anything he can be aware of what he is receiving for doing it.

THE PSYCHOLOGICAL SPECIALIZATION AND DIVISION OF LABOR

Besides the specialization and division of labor in the ordinary sense of the organization of productive processes in more and smaller units and the use of each person for fewer and smaller

units, there is a specialization in the bodily and mental qualities desirable for work on these units and a division of the labor amongst persons in relation to their possession of these qualities. Jobs differ in their requirements of bodily strength, in its location in legs, back, arms, etc., in the frequency of occurrence of the exertion and the consequent demands upon the heart, in requirements of the eye muscles, in requirements of the eyes, ears and other sense-organs, in intelligence with things and their mechanisms, in intelligence with persons and their feelings, in intelligence with abstract ideas and symbols, in various forms of regularity, precision, and orderliness, in honesty with property and with facts, and in scores of other abilities and propensities. Jobs differ in their appeals to the likings for things, plants, animals, adults, children, ideas, words, numbers, land, sea, movement, rest, peace, conflict, security, excitement, danger, mastery, submission, display, order, system, beauty, and scores of other features of personal condition and surroundings.

The combinations of requirements and appeals are very varied. A man may fail at one or another particular job as truck driver because he (1) cannot handle heavy barrels, or (2) cannot read, or (3) cannot be polite to customers, or (4) cannot get on with a helper, or (5) cannot keep an exact schedule of appointments, or (6) indulges in petty cheating, or (7) is allergic to the substance he has to carry, or for any of a dozen other qualities irrelevant to the general requirements for a truck driver, such as ability as a driver, obedience to traffic regulations, adequate eyesight and color-vision, and temperance. Each of such terms as truck driver, chauffeur, salesman, foreman, farmhand, stenographer, shop girl, or cook covers a multitude of jobs, differing in the conditions for giving and getting satisfaction.

Even in one of the more definite fields of labor, as a railway engineer, telegrapher, operator of a certain machine, or performer of a certain function on the assembly line, there is not perfect uniformity. Even there certain qualities of decency and cooperativeness may count more or less toward the satisfactions the workers give, and certain conditions other than those essential to the job may count more or less toward the satisfactions they get. It is well known that the social status of one's fellow-

employees counts heavily, especially among women. Identical factory jobs may be considered "nice" in one town, a bit degrading in another.

There is, however, a strong tendency to define labor exactly, and pay wages for services specified in detail, as in the railway engineers, conductors, and brakemen with their specified runs, or the man who tightens bolts as the car goes by him on the assembly line. This has the advantages which predictability always has; the employer knows just what to expect, except for a very small margin of emergencies, and so does the employee.

Such specification is easiest in tasks requiring no discretion and reaches its limit in the work of an automatic machine; but it is consistent with a requirement of high intelligence and much discretion, as when a man is employed to teach four sections (averaging thirty pupils) of freshman mathematics, or to inspect and report on thirty retail stores monthly.

At the other extreme are the jobs of the "hired girl" of old who was to do what she was told to do, for so many hours as her employer thought fit, or of the late Frank Vanderlip, who was given a large salary with instructions to make himself useful in the bank as he saw fit.

Knowledge of the natures of individuals could be used to direct their training for the work; knowledge of their natures and training could be used to divide the work among them. Even with only our present imperfect knowledge of jobs and persons, and in spite of the rapid changes in the former, such educational and vocational information and guidance should improve production and increase happiness.

EDUCATIONAL AND VOCATIONAL INFORMATION AND GUIDANCE

By systematic courses and by personal counsel many schools and colleges try to inform pupils about various lines of study in advance so as to maximize the student's profit, both economic and of other sorts, from what he studies. By tests and records they inform him concerning his academic achievements, and to some extent concerning his other abilities. They are beginning to supply, at least to extreme deviates, information about certain

traits of personality, that is, character and temperament, which may be of importance in his career as a worker. Schools are also providing information about trades and professions.

All such information, if true, is likely to be useful. It may prevent fantastic notions about work and egregious mistakes about oneself. The only cases where its truths are at all likely to do harm are those where the revelation of personal excellencies or defects may be given exaggerated importance by the person in question. Such cases are trivial in comparison with the misleadings from misinformation by parents, neighbors, and advertisements.

Educational and vocational guidance are not so surely beneficial as educational and vocational information, there being often a possibility that the free play of interest and ambition will guide a boy or girl better than the prescriptions of counselors. There have not been, to my knowledge, any extensive checks on the value of educational guidance. In the case of vocational guidance there have been three:

a study in London by F. M. Earle and others ['31],
a study in Birmingham by Allen and Smith ['32], and
a study in New York by Thorndike, Bregman, Lorge and others ['34].

The first and third agree in finding that the correlations between the recommendations made by the vocational counselor and the success of the worker were positive but low.

In London the tests were made in 1925 and 1926 of children from 13 years 9 months to 14 years, and their industrial histories ran from 2 years 7 months to 4 years thereafter. The examination of the school record, the testing, and the personal interviews were elaborate, painstaking, and representative of the very best that the world had to offer at that date. A careful medical examination was also made, and the implications for vocational life were recorded. Expert and sagacious counselors studied the facts for each child and gave him the best advice they could as to general and special lines of work to seek and avoid. They recorded the advice they gave to each, and later compared the

success of those whose work was most congruous with the recommended work with the success of those whose work was less so.

The correlations between the recommendations and satisfactoriness to the employers and to the young workers were:

Congruity of recommendations and employers' estimate of satisfactoriness,

Boys: All posts held	.19
Boys: Present posts only	.16
Girls: All posts held	.31
Girls: Present posts only	.35

Congruity of recommendations and employees' estimate of satisfactoriness,

Boys: All posts held	.06
Boys: Present posts only	.07
Girls: All posts held	.10
Girls: Present posts only	.13

In the New York study no actual advice was given to any worker or employer, but the correlations are computed between the advice which would have been given on the basis of (1) the worker's entire school history, and on tests of (2) abstract intelligence, (3) ability at tasks resembling clerical work, and (4) mechanical adroitness, and success as measured by the worker's earnings and by his interest in the work. Consider first those who engaged in mechanical work, meaning thereby work with tools or machines. The correlations of various features of 1 and 4 with earnings are .10 or less, and with interest even lower. The best prediction or advice using all the items of school career and tests would not have given correlations above .14 and .12. For clerical workers the corresponding best predictions would have correlations with earnings of .23 for boys and .33 for girls. With interest or liking they would be little if any above .12 for either boys or girls.

In the check on the results of vocational guidance made in Birmingham, the reported results were much more favorable than in the London and New York investigations, but they

depend upon the validity of the reports of employers and employees to the advisers, after a short length of employment, and thus permit the alternative explanation that the reports were influenced by the recommendations and whatever discussions accompanied them. Moreover the reports from employers and employees were obtained for only a third of the cases.

Vocational guidance should, until it has demonstrated greater success, be modest in its claims. It can prevent certain obvious follies, such as a parental mistake of an ordinary interest in construction for a special bent toward engineering, or an employer's confusion of verbal facility with intelligence, or the hoaxing of young people by fraudulent advertisements. It can measure certain features of capacity for music so as to discourage the waste of time and money which ignorant or unscrupulous teachers of music have tolerated. It can measure so-called general intelligence (which, though not strictly general, is a *sine qua non* for graduation from certain professional schools) with a very small margin of error. It can benefit both employers and applicants for jobs by inducing the former to relax educational requirements, such as graduation from high school, when an applicant's intelligence score is sufficiently high. To some extent, it can prevent employers from paying for talents which the jobs do not at all need, and employees from favoring jobs where their talents will not be used or appreciated.* It should give better advice on most matters than parents can unless they are specially intelligent and impartial, and than friends unless they have intimate knowledge as well as intelligence and impartiality.

The adjustment of work to workers by the competition of employers to obtain the best services for their money and of workers to obtain the best rewards (pecuniary and other) for their services is faulty, especially for beginners, mainly because of the inadequate knowledge of both parties. But it is not so faulty as some of the early advocates of vocational guidance represented it to be. They were over-impressed by certain extreme misfits, plausible assumptions, and inadequate researches. Extreme

* Errors of the former sort have been proved to operate. Businessmen demonstrably pay substantially for height and weight in clerical workers where neither can be of much use. They are impressed irrationally by a fine, stalwart physique.

misfits are rare. I estimate that not three persons in a hundred could do a radically different job twice as well and twice as happily as what they actually are doing.

Certain plausible assumptions are dubious. Thus it may seem a waste that gifted men should do brilliant work in law school only to become business executives. But it has not been proved that it is a waste, either for them or for the world. It seems a waste that men should take degrees in electrical engineering only to spend their lives in selling electrical apparatus, as so many do. But many of them may be happier and more useful so. The long roll of persons who use savings or inheritances to start businesses in which they quickly fail seems tragic, but the tragedy may be that they would have lost the money in some imprudent speculation in any case.

Statistics concerning the turn-over of employees gave the impression that it was rather the rule for young people to try one job after another in a somewhat long series before finding the jobs which they fitted. The better way to discover the truth of this matter is to record the careers of a representative sample of young people and count the actual number of shifts they make in the concerns for which they work and in the sort of work which they do.*

In the case of 1116 young people for whom complete work records from age 18.0 to 22.0 were available, 33 percent made no change of employer at all in the four years, 22½ percent made one change, 16 percent made two changes, 10 percent made three changes, 7 percent made four changes, and only 11 percent made more than one change per year. The average number of changes per person in four years was less than two (1.94). This number would be somewhat larger for a random sample of young

* The samples which come to the attention of employment offices, bureaus of vocational guidance, and other welfare agencies are not representative. For example, the figures compiled by the Chicago Bureau of Vocational Guidance report that in the first three months' industrial experience after leaving school, children 14 to 16 years old change jobs at the rate of 4.8 changes per year; in the next three months, at the rate of about 2.85 changes per year; and in the next six months, at the rate of 2.0 changes per year. These figures are much too high, probably because many boys and girls who stayed with the same employer for years escaped the notice of the bureau.

people 18.0 to 22.0, because the persons whose records were incomplete because we lost track of them probably changed jobs oftener than the 1116 of our sample. But it is extremely unlikely that the average for a random sample would be over one change per year. [Thorndike, Bregman, Lorge and others, '34, pp. 97–100]

Gambrill found that, 10 to 17 years after graduation, four out of five male college graduates (80.7%) were still engaged in their initial occupation. Omitting teaching, the percentage was much higher. Of those beginning with law, medicine, the ministry and business the percentages were respectively 96.8, 96.9, 91.4, and 87.3. Another group 12½ years after graduation showed 84.4 percent. College women 10 to 13 years after graduation had changed often to marriage but their changes from one occupation to another were very rare (about 8 percent). ['22, pp. 61–71]

The experiences of vocational adjustment bureaus and the like abound in cases of dissatisfaction with jobs, but obviously these officers will be frequented especially by persons who are dissatisfied. The only sound procedure in measuring the amount of dissatisfaction is to use a fair sample of all workers. This Hoppock ['35] did, beginning with forty men in his home town. He was amazed to find from informal interviews with them that all but a few of the forty were well satisfied with their jobs. Formal interviewing of every adult male resident of New Hope obtained replies to various questions about their liking for their jobs from 309 of the 351 employed adults. These replies showed 15 percent of dislikes, 9 percent indifferent, and 77 percent of likes. Forty-eight percent reported that if they could have their choice of all the jobs in the world they would remain in the jobs they had. Sixty-six percent said they got more satisfaction from their jobs than from what they did in their leisure time. Hoppock also found thirty-two investigations which presented facts of more or less value concerning the percentage of workers dissatisfied with their jobs. The median percentage was 19. But in many of these investigations the selection of persons for study favored the dissatisfied. The writer ['35 A] found a little under

10 percent of dislike in 1140 young workers 18 years 0 months to 22 years 0 months representing the general population minus such as stayed in school after age 18 years 0 months.

The percentage of dislike may then be set as near to 12½, the percentage of liking as near to 80, and the percentage of indifference or doubt as near to 10.

THE PSYCHOLOGY OF MANAGEMENT

Above or beside those workers who do what they are told, or who have jobs in which they manage only themselves and their tools, there are foremen, shop managers, supervisors, inspectors, superintendents, time-study men, efficiency engineers, chief clerks, office managers, and many others in hierarchical organization, culminating in a president or other high executive, or in "functional" organizations coordinated by a president or high executive. A board of directors representing the owners originates, selects, or at least approves policies, appoints the high executives, and aids them more or less by advice.

The quantity, quality, and utility of the products produced by the concern obviously depend largely upon what sort of persons these minor and major managers are and upon how they use their powers. They select, train, and supervise the "labor"; they choose and buy the raw materials so far as there is any choice; they operate the natural resources and "capital" owned or rented by the business, and change the plant, machines, fixtures, etc., in which this capital exists. They take care of emergencies ranging from the absence of one worker or the breakdown of a certain machine to the failure of a large customer, a strike of the workmen, or even a debasement of the nation's currency. Unless they happen to be owners of the business, as well as managers of it, they do not take the risks of what they do or pay the costs, or absorb the profits. But the higher up they are in the management, the more their economic future depends upon these costs and profits.

The sciences of economics, business, and psychology have not yet discovered what abilities in what proportions and relations determine managerial ability of any sort used in industry and

business, much less what, if any, are the common components of the very varied sorts of it (e.g. to manage the dull, to manage the intellectually gifted, to manage technicians, to manage salesmen, to manage accounts and accountants, to manage buildings and supplies, to manage managers).

There are some grounds for distinguishing three varieties of intelligence, with ideas, with things, and with persons, and presumably the last is one important component in successful business or industrial management. But the school of "scientific management" may produce facts and principles which will decrease the relative importance of personal contacts and direct impressions and increase the relative importance of mastery of ideational material in the form of tables, charts, curves and equations. All would agree that popularity, sociability, persuasiveness and mastery are qualities useful in a manager, and more needed by him than by an inventor, literary man, scientist, surgeon, or farmer, to say the least. Appreciation and tolerance of opponents, patience in getting one's own way, and realism in one's hopes and fears seem desirable. Other conjectural analyses could be made, but they would only be cloaks to hide ignorance.

Economic theory has been more concerned with the entrepreneur, i. e., owner-manager, than with the management of our present highly developed joint-stock companies. The entrepreneur makes use of natural resources, capital, and labor in some enterprise which he undertakes and for which he is responsible, paying its bills and taking its profit or loss. "The peculiar functions of the entrepreneur may be roughly distinguished from those of the capitalist and the laborer by adhering strictly to our prescribed rule—that the entrepreneur calls into activity ideas, productive forces, or services; that he becomes alone responsible for their compensation; and that he assumes all risks in so far as they relate solely to the productive process and the market. The test of risk-taking and cost-bearing as applied here makes the distinction very exact." [Foreman, '30, p. 37]

The same individual can, of course, be capitalist in so far as he uses his own property in the enterprise, and laborer in so

far as he does what he might hire labor to do, and manager in so far as he does what he might hire a manager to do, but what he does over and above all this he does *qua* entrepreneur.

In economic theory the entrepreneur often appears somewhat like a man with three bottles, of land, labor, and capital, who compounds a mixture in proportions which he thinks will work to maximize his profit, and varies it from time to time by adding more of one or the other as occasion demands. This is, of course, only a very small part of what he does. He does decide how much capital his enterprise needs, but also, and chiefly, in what machines, raw materials, etc. it is to take shape. He does decide how many employees are needed, but also, and chiefly, what they are to do, what sort they are to be, how they are to be treated, etc. I may quote Hobson, who surely has no prejudice toward glorifying the entrepreneur:

"Most industries today are subjected to rapid changes in regard to instruments and methods of work, markets for materials and for finished products, wages and conditions of employment. A keen eye for novelties, a rapid judgment, long-sighted calculation, commanding character, courage in undertaking risks—these are leading notes in the modern business life.

"The business man who constructs, enlarges, and conducts a modern competitive business, performs a good many functions which call for various mental and moral qualities. He must plan the structure of his business—determine its size, the sizes and sorts of premises and plant he will require, the place which he can best occupy; he must get reliable managers and assistants, and a good supply of skilled labour of various kinds. He must watch markets and be a master of the arts of buying and selling: he must have tact in managing employees and a quick eye for improvements in methods of production and of marketing: he must be a practical financier, and must follow the course of current history so far as it affects trade prospects." ['33, p. 55 f.]

I regret that the psychology of the entrepreneur has been investigated no more than that of the factory foreman or office manager or company president. What any specified entrepreneurial ability (for example, to succeed with a grocery-store, or

with a filling station, or with a bank, or with a line of steamships, or with making and selling soap, books, watches, or automobiles) consists of is not known, much less what common factors there may be in all of these, and, if so, how much of the variation in each the common factors determine. At least one economist has used the word "entrepreneurship" as if there were a real and fairly unitary behavior in business and quality, or complex of qualities, in human nature corresponding to it, but no evidence to that effect is given. To a psychologist it seems extremely unlikely, in fact incredible. One can, of course, conceive of a greatly simplified entrepreneur who says to himself, "I discern a potential demand for this electric toe-nail cutter which John A. Chirop has invented and wants me to push. I will spend the $1000 and royalty he asks for the patent rights, $4000 for a plant and machinery, $5000 for labor, management, sales force, bookkeeping, etc. and $500,000 for advertising and other promotion costs the first year," and acts accordingly, leaving all further details to an engineer, a shop manager, a sales manager and an advertising expert, all of whom he hired somebody to select for him. Such entrepreneurs would be like fairy godmothers or manna from heaven to engineers, shop-managers, salesmen and advertising agencies! They are exceedingly rare. Most entrepreneurs keep rather careful watch and control over their enterprises, at least until they are well established.

Two things can safely be asserted about entrepreneurial abilities; namely, that men differ widely in the amount possessed and that the great majority of men do not possess enough to make a decent living (say the average salary of a chain-store employee) as entrepreneurs even if provided with a substantial amount of capital as a gift. Choose a thousand men of any age, say 30, at random, give each of them $20,000, and persuade them to use it in industry or business for themselves (most of them will need no persuasion). One or more of them will probably have made over $200,000 in business in ten years.* A considerable number will lose the entire $20,000 and be back in the factory or office or on the farm long before ten years. Over three-

* Those making $200,000 or more are likely to be men who were already doing well in business before the experiment.

quarters of them will have failed in the sense that they did not make as much per year in business as their earnings at age 30 plus what the $20,000 would have yielded if invested conservatively.

Such an experiment has never been made. These are dogmatic assertions, but probably no competent students of business will think them extravagant. Most of the persons who start in business with $20,000 of their own have saved it out of earnings as employees in business and are among the highest twentieth of the population in general business ability. Even among these the percentage of failure is high. Many of them can do well in a business run by others, but fail as entrepreneurs. About one out of eight retail-trade enterprises go out of business every year.

It would be instructive to study the psychology of hired managers, such as Mr. Knudsen, President of General Motors, owner-managers, and originator-owner-managers such as Henry Ford. A common opinion among economists is that the first group will be less economically successful than the second and third, especially the third. So Bullock asked in 1901, "Will successive generations of bureau chiefs or heads of departments in long-established corporations be able to continue the race of masterful leaders, which freedom in originating and organizing independent industries has given us in the present age?" ['01, quoted on p. 448 of Hamilton '19] So Hobson prefaced the passage quoted above by the following description of the general run of hired managers:

"If we take the ordinary activities of the manager of a well-established business in a staple trade, they do not seem to involve much in the way of high intellectual skill, imagination, or exploit —but merely a limited amount of special trade knowledge, ordinary intelligence, and common sense. He has to perform a number of little acts of calculation and decision. What we call his character, viz. honesty, reliability, sense of responsibility, really counts for more than intellect: there is little demand for constructive or creative imagination, or for high enterprise. The conduct of such a business, even on the part of its manager, though not destitute of interesting incident, involves a good

deal of dull routine and even drudgery which carries a distinct 'cost' in mental wear and tear.

"The subordinate officials in such business are, of course, subjected to a closer routine, though never to a merely mechanical repetition, and their working life is less affected by hopes and fears relating to the profits or loss on the half-year's working." ['33, p. 55]

Assuming that one of two identical persons is a hired manager and the other an owner-manager, the essential psychological differences due to their status are: (1) The pecuniary rewards for success and punishments for failure are much larger for the owner-manager. This is true to some extent even when the wage of the hired manager includes a share of the profits. (2) These pecuniary rewards and punishments are inevitable and immediate for the owner-manager; but the rewards to the hired manager are more or less dependent on the whims of the owner, and punishment in the shape of dismissal or reduction in salary or status may be avoided or delayed, especially if his mistakes are not obvious. (3) The owner-manager is concerned about the total result of his behavior, one shrewd stroke balancing one bad blunder. The hired manager, unless he is an exceptional man, is more concerned to avoid blunders than to make hits. (4) The owner-manager has only himself to convince. The hired manager, unless the owner is absolutely inactive, has to convince the owner or board of directors representing the ownership about certain matters. (5) The owner-manager more often dictates and competes with others. The hired manager must often adapt himself and cooperate. (The two being identical in abilities, etc., the former will oftener be at the head of a relatively small concern, and the latter near the head of a larger concern.)

The first three of these should make leadership by an owner-manager superior. The fourth should make it more variable, ranging up to greater successes and down to worse failures, but should not much alter the average difference between the two sorts of leadership. The fifth should in the future be about as much pro hired management as con, in spite of Marshall's dictum

that "small businesses are on the whole the best educators of the initiative and versatility which are the chief sources of industrial progress." ['20, p. 249]

The two groups will probably not be identical in abilities, attitudes, etc. The hired manager group will probably be somewhat less daring, speculating, masterful and devoted to money-making, and somewhat more studious, dependable, cooperative, sensitive and eager for approval than the owner-manager group. But these differences will probably be small. The men who work their way up as employees in an established industry with large units and the men who work their way up by ownership of small units which their ability expands will be much alike in fundamentals.

It can be argued that industrial management of the future will profit from the sacrifice of courage and dominance to reliability and cooperativeness.

All these matters are more suitable for research than for discussion.

Chapter 24

BUYING AND SELLING: CONSUMPTION

THE PSYCHOLOGY OF TRADE

A trade or exchange may vary from an almost automatic matter, as when one party stocks a machine with packages of some standard commodity and the other puts a nickel in the slot, to a battle in which each party tries to get the most possible out of the other. As a result of business experience a large part of the trade in civilized countries is freed from the injustice, chicanery, and waste of time of the latter. Many products are standardized so that the buyer knows exactly what he gets; many prices are immovable by higgling, as in the mail-order houses, great department stores, and others. The prices that anyone pays are fair in the sense that they are the same for any one as for any other at the same time and place. One is protected against his own inability to bargain by these business institutions as he is protected against his inability in physical combat by social customs and laws. This is equality of a very valuable sort, as well as profit for all concerned. Trade is made in so far forth rational or logical instead of personal or psychological.

But its rationality is nowhere complete. On the commodity exchanges a seller or buyer can always get a standard article at closely the fair price as defined above and can get his commodity or money back less a very small loss if he changes his mind an hour later. But the number of resales of the same article on these exchanges is not rational. Less good than harm is accomplished by having wheat possessed by sixty or more owners before it is used. "According to Anderson's calculations, the grain received at Chicago in 1915 was sold sixty-two times in

futures, as well as an unknown number of times in spot transactions." [Lippmann, '25, p. 176]

A druggist buying from a dealer gets standard chemicals at fixed and published prices, but the reduction he gets by buying a pound instead of an ounce, the rate for an ounce being 20 cents, varies from $1.20 to $2.45, that is, from 37½ to 77 percent. The reductions made in price per unit by successful and progressive merchants when large quantities are bought abound in such irrationalities as this, and worse. [Thorndike, '39]

The price-changes, short time and long time, for stocks, bonds, metals, oil, rubber, etc. are surely partly psychological. If they were logical they would be narrower and would vary more symmetrically around some reasonable trend. The psychology of the tulip-mania is in fact at work day in and day out as a minor force in these markets. At times it becomes a major force.

There are relics of the old warfare among otherwise reputable sellers and buyers. A druggist who keeps a large stock in a convenient location with late hours and clean and courteous clerks will probably feel justified in setting prices for prescriptions and rare drugs high while holding prices for well-known drugs low. But if a customer questions the price on some such rarity, he may lower it. A grocery store in or near an expensive residential district with decorations like those of a palace, and service to correspond, may engage in the mild deception of keeping the prices of certain staples down and marking prices up where they will not be noticed. A buyer who would go to a thousand one-man shops and offer 95 percent of the price asked for a hammer, a book, a hat, a basket of peaches, etc., etc. would obtain the article occasionally. Trading in a used automobile gives both parties a chance to dicker, with or without deceit, as in the old-time horse trades. In the trading of peddlers, pawnbrokers and other irregulars the older practices are rife.

Contrary to the trend toward rational trading is a tendency to confuse the issue by added services in the way of discounts, credit, delivery, privilege of return, trading stamps, transportation, care of babies, etc., by retailers and by favors of one sort or another by wholesalers. These, many of which are, or seem

to be, special treatment of an individual, are often emphasized more than the features, other than price, which are valuable to all, such as the adequacy of the stock and promptness of service. They are somewhat like the flattery and servility of the old-time shopkeeper. The sales force is often taught to play upon the weaknesses of human nature as effectively as any peddler of the middle ages could do. One would suppose that the purchasing agents of railroads would buy locomotives on grounds of power, cost, etc. as tested by experts, but a salesman of locomotives said in effect, "I do not bother with all that. I put this picture (of a locomotive looking like the incarnation of strength and speed) up against the wall, and I say 'Come down and ride on one of these with me some day. It will be the experience of your life. When can you do it?' "

Buyer and seller may derive other utilities from their bargaining than pecuniary gain. The pleasure in conflict, in argument, in victory (each can feel that he has won) may be considerable. Various amenities may be associated with the trading. The cooperatives of tobacco-growers found that their members contrasted the business-like methods of their own official inspectors and buyers very unfavorably with the cheerful sociability which had been provided by the commercial buyers.

The moralist as well as the economist may scorn what Marshall has called "a laborious astuteness in bargaining, on which people with small capitals, and especially agriculturists, in all countries often lay stress: priding themselves on their skill in buying a thing for less than it is worth, and selling a thing for more than it is worth. That miserable ingenuity is no doubt barren: it is the one side of trade, which is amenable to the old sweeping charge against all trade: viz. that in it no one can gain save at the expense of another; and that the more energy is diverted to it, the poorer the country will become." ['20, p. 47]

But we shall not get rid of it by scorning it. We must either cure people of the cravings to which it appeals, or satisfy those cravings in some better way. One better way, though doubtless not the best, is for the buyer to have illusory feelings of sagacity,

power, and victory by choosing from several mail-order catalogs, or from the offerings of several shops, even though he gets no economic advantage from this use of his time.

The gigantic army of producer's sales departments, wholesalers, retailers, department stores, specialty stores, peddlers, agents, factors, brokers, vending machines, etc. uses many weapons, but printed or other visual advertisements (and in this country hawking by radio) are by far the most important. These vary from poison gases of deceit to mildly propagandistic leaflets of valuable information, and from heavy bombardments designed to change our fundamental wants, to gunfire designed to make us favor one firm's product rather than another, or to make us buy, often to our own advantage, at one time rather than another. According to experts over half of the money spent on advertising does nothing in the way of increasing sales; but the balance does enough to make the total useful to the sellers. A single illustration will suffice: A hundred 5-grain tablets of aspirin can be bought for fifteen cents. But many persons pay ten or twenty or thirty or forty cents more to have certain advertised names on the bottle.*

From the point of view of the welfare of a nation or of the world, advertising causes a great waste of money by sellers and of time by buyers. Much of it is a series of attacks by sellers on buyers which neutralize one another and leave the actual exchanges much as they would have been without it. Most buyers will profit more from an hour spent in reading Consumer's Research or in consulting some impartial expert than from a hundred hours reading of advertisements. In fact their net profit from the latter is likely to be negative. Much of it plays upon the buyers' ignorance, indolence, and greed. The innocent buyers suffer more or less with the guilty, because almost no producer of certain sorts of articles dares to trust to low prices or superior quality to sell his product. Just as honest buyers pay part of the bills of defaulters, so buyers who never read advertisements pay part of the costs of printing them.

* Boldyreff even found an advertised offering of aspirin at 9 cents. This case is particularly instructive; for the same firm in the same advertisement which quoted aspirin at 9 cents under "Pure drugs" quoted it at 59 cents under "Patent medicines" a few inches away!

The paragraph above refers to advertisements by makers or sellers. Advertisements by buyers are relatively of very small consequence; and many of them, such as advertisements for bids by public and semi-public institutions, and for goods and services by non-dealers, are entirely justifiable economically or legally. Advertisements by dealer buyers are on a par with the general run of advertisements by retailers, usually asserting that they pay the highest prices, are the most reliable, etc.

It should perhaps be stated here that advertising is not a modern evil, and that the impressive nation-wide advertising of national products may be less of a nuisance proportionately to the volume of trade than the personal appeals by local sellers in the days gone by. Street criers were a great nuisance in times past.* Sellers have always played upon ignorance, indolence and greed, though not so cleverly as now.

Advertising is not all waste. Some of it is usefully informative. Some of it benefits both the producer or seller and the buyers, as when a peak load is spread out and a lower rate thereby given. Some of it is useful as entertainment. Idealists will reproach women for scanning advertisements to see what the styles are and what one might buy if one had the wherewithal, but this mild entertainment may be better than the talking or day-dreaming it replaces. Even in a Utopia people would need some source of information about what goods and services could be had, where they could be obtained, upon what conditions (of money payment or other), and what could be expected from the use of each.

The waste in advertising is only one element in the waste of buying and selling. Buying costs are rarely high, except for

* "A decree of Philip Augustus in 1280 proclaims:

" 'Whosoever is a crier in Paris may go to any tavern he likes and cry its wine, provided they sell wine from the wood and there is no other crier provided for that tavern; and the tavern keeper cannot prohibit him. If a crier finds people drinking in a tavern he may ask what they pay for the wine they drink; and he may go out and cry the wine at the price they pay, whether the tavern keeper wishes it or not, provided always that there be no other crier employed for that tavern.'

"The 'just price' for which the crier served was four dinarii a day. It was further provided that if the tavern keeper closed his door against the crier, the latter might cry wine at the price of the king's wine, and claim his fee." [Rorty, J., '34, p. 136]

ultimate consumers who spend much time in a small purchase. Many of these probably enjoy the planning, window-shopping, and closer inspection of goods, so that their time cost can be charged against entertainment. The buying costs of an ordinary retail shoe store are reported as 1 percent of the net sales.* The buying costs for wholesalers and manufacturers are presumably much less than this; those for retailers selling a great variety of articles are presumably somewhat, but not much, more. Selling costs range from near zero to over nine tenths of the price received. The desirability of reducing prices by reducing these costs is obvious in so far as the costs of selling are to deceive the buyer. Deception by instilling in him false notions of his own importance, worth, popularity, etc. should be reckoned as well as deception concerning what the commodity is or what it will do. It is hard to draw the line where outright deception becomes a confusion of the buyer by irrelevant associations of elegance, fashion and the like with the commodity or the firm, or the line where the latter gives place to an honest implication that the price the buyer pays covers the cost of a fine location, plate glass and velvet, special promptness and courtesy, and the like.

Among selling costs incurred largely in the buyers' actual economic interests are those which, as Florence points out, "remain even under cooperative trading and direct sale by integration of distribution with production; they are largely due to the great number of assistants employed, the large stocks held, the roomy and central sites required for display, and the means of transport that must be provided if the consumer insists on being served attentively at frequent intervals in small lots of wide variety neatly packed and delivered over great distances." ['33, p. 55 f.]

The service of assembling and maintaining a stock so as to provide the buyer with whatever food, or drug, or tool, or article of clothing he wants has a high utility and is necessarily expensive. Cherington reports that, "If seasonal and occasional

* Harvard University Bureau of Business Research, '18, Bulletin No. 10, *Management Problems in Retail Shoe Stores*, p. 38.

lines, and the various prices and qualities of both regular and occasional lines are counted, the same house [a western wholesale general dry goods house] is estimated to carry 250,000 different kinds of goods. In the same way, if all grades, sizes and prices are counted, the ordinary grocery or drug store carries from 3000 to 5000 separate items, and the stock of a department store with 50 to 150 departments would include many thousands." ['20, p. 62 f.]

The general purport of this is sound, but the figures are, I think, high; the 250,000 much too high. Such a wholesale house would hardly carry a more varied stock than Sears Roebuck or Montgomery Ward; my count of the entries in the catalog of one of these, including all prices and qualities, gives about 40,000. But the general order of magnitude of a dealer's stock is often in the thousands. A distributor of chemicals, for example, lists about ten thousand of them and their accessories. A maker of types lists 860 varieties.

The laws of habit make us take this service for granted because it is customarily given and complain of its imperfections instead of appreciating its benefits.

INEQUALITY OF BARGAINING POWER

A common view that certain occupational classes suffer unjustly in the process of exchange is expressed brilliantly by Walter Lippmann. "Inequality of bargaining power afflicts particular farmers dealing with middlemen, unskilled workingmen dealing with large employers, the poor in their purchases, and the investors of small savings. They cannot wait. They do not know. They transact their affairs in exceedingly imperfect markets. Quite properly they distrust the markets and remember the many occasions where they have been outwitted, out-traded, and victimized. These wretched markets are an invitation to all the fraud and sharp dealing, the usury, jerry-building, and shoddiness, the quackery and shystering, of the capitalistic underworld." ['37, p. 221]

It seems on general grounds improbable that the process of exchange should discriminate against farmers as such or unskilled

laborers as such; and that the first lines of Lippmann's passage could wisely have been amended to read "Inequality of bargaining power afflicts those who cannot wait, who do not know, who transact their business with persons who outwit, out-trade, or victimize them."

The poor, those whose promises are not good, or whose trade is for any reason not much valued, the ignorant, the greedy, the improvident, and the indolent, are, other things being equal, inferior in buying or selling. Indiscriminate pity for those who thus sell for less and buy for more than others is misplaced. Pity is appropriate if the cause is sheer poverty or unfair prejudice against the person, and permissible if the cause is ignorance. But it would be unjust to the dependable, just, and careful if prices were no lower for them than for their opposites. A greedy farmer who tries to outwit a just middleman is no better than a greedy middleman who tries to outwit a just farmer. Thomas and Znaniecki relate of the Polish peasant working in Germany that "He will break any contract of work and go to another place with higher pay, even if he loses more in the long run than he wins. This was for many years the practice of season-emigrants in Germany. The number of contracts broken was enormous." ['27, vol. 1, p. 187] If that is so, these Polish workingmen must expect lower rates than those who keep their promises. Any person in New York City who pays high prices for food need not do so if he will take the trouble to walk a few hundred feet and pay cash.

The main essential disutilities of poverty in buying and selling are the need (or at least very strong temptation) to go in debt and to buy in small quantities. The poor man's cash is as good as any, but his credit cannot be. The premium on small quantities is unavoidable except by mixing selling and charity.* In order to obtain a very small quantity without shame or annoyance

* The customs of retail trade in this respect probably mulct the large buyer in favor of the small. If equitable sliding scales of prices for flour, sugar, milk, potatoes, coal, gas, and electricity in relation to quantity were constructed, surely the person buying four quarts of milk daily would receive a lower rate than the family buying one, the person buying ten pounds of sugar at a time would receive a discount of more than the fraction of a cent he now receives, and so on.

a person may have recourse to a shyster instead of a dependable dealer.*

The best things to do for the poverty of the poor in this matter, short of enabling them to earn more, seem then to be to make emergency gifts to them and to habituate them to purchase in quantity when that is desirable. A gift of $25 costs no more than three loans of $25 each, even if these are repaid in 12 months, for the cost of small loans under the best auspices runs to about 3 percent per month. I hope to show in a later chapter that accepting obvious charity is less demoralizing than accepting charity hidden in loans at less than just interest.

A moderate amount of postponement of certain gratifications will permit a poor family always to buy milk by the quart, tea by the pound, sugar by the five pounds, soap in large cakes, etc.

The thing to do for the ignorance of the ignorant is to inform them, better still to teach them to inform themselves. Simple rules such as, "You cannot get more than 2½ percent per year on a hundred dollars with safety." "Salesmen who solicit your trade at your house or place of work are probably out to help themselves not you." "Learn what reputable dealers charge. Do not expect to buy for less." "Except for very important reasons wait till you can pay cash for it before you buy anything, except a productive property." will prevent a multitude of errors.

NON-ECONOMIC INFLUENCES UPON BUYING AND SELLING

In my childhood it would have created a scandal if a clergyman had not bought his groceries from the grocery man who was a member of his church. Even today one is expected to favor somewhat his friends, co-members of churches, clubs, lodges, neighbors, and the like. There has also been the reverse tendency in certain societies where a trade was a battle. Among the Polish peasants, for example, "There was originally no commerce between members of a community, no buying and selling at all. It was hardly necessary in the primitive conditions, and it would not have been in accordance with the idea of solidarity as we have

* This may be because of ignorance rather than poverty. The writer some fifty-odd years ago used to buy 5 cents' worth of butter or three eggs at a time at a reputable grocery shop; and such purchases might not be scorned at chain stores now.

outlined it. Therefore the attitudes in buying and selling developed exclusively under the influence of and in contact with people from outside—Jews, foreign peddlers, town merchants. Thence the necessity and importance of the fairs, where almost all the buying or selling was done. And later, by a sort of half-conscious convention, the fair became a place where everybody could be treated as an outsider, and a money transaction could be concluded, not only with somebody of a different community, but even with a neighbor. It happened and may happen still that when a farmer has a horse which his neighbor wants to buy they both go to the fair, and there, after the first has pretended to wait for a buyer and the second to search for a horse, they meet and conclude the transaction. Of course neither of them acknowledges that he intended to make the transaction beforehand. Actually the custom is almost broken down, but the peasant still does not like to buy from or sell to his neighbor, because he feels morally bound by the principle of economic equivalence and cannot hope to do a particularly good piece of business." [Thomas and Znaniecki, '27, vol. 1, p. 184 f.]

These non-economic influences should, of course, be distinguished from the enlightened self-interest which will pay a little more to a local shop in order to have the convenience of a shop near at hand, or to a railroad than to a truck-line in order to have the convenience of the railroad for certain other shipments, and get taxes from it.

Economics easily proves that freedom of trade from entangling alliances with race, religion, politics, friendship, etc. is good for trade and economic welfare; psychology could, I think, prove that it is good for people also. The evidence has not been collected and studied. It will probably show that an analytic and tolerant liberalism which rewards the good a man does and punishes the harm he does is better for mankind than a confused personalism which stamps certain men or groups as estimable and certain others as malefactors, and proceeds to favor the one and disfavor the other in all ways. Indeed, there would be no great risk in assuming this to be true on general principles.

The somewhat similar questions of national tariffs, quotas and other systems of national preference and restraint have been ar-

gued fully by economists. The psychology of such matters will be discussed in the chapters on government. But it may be noted here that the divorce of buying and selling from like or dislike for nations and from consideration of their general merits and defects seems likely to be good for mankind. It seems better to reward the good a nation does and punish the harm it does rather than reward or punish it *in toto*. For example, if we dislike a nation because it works too little and fights too much, why should we punish it for working by not buying the products of its work? There are, of course, certain reasons why we should, but they are hardly adequate, and it seems desirable to find better ways to influence a too bellicose nation.

PREDICTABILITY AND STABILITY OF COSTS OF SELLING AND OF PRICES GENERALLY

Power of prediction would have much the same advantages in the case of selling costs and prices generally that it has in the case of the seasons, the tides, the action of chemicals, the processes of growth and the course of infections, especially the last two. Knowing what will happen without certain facilitations or interferences contributed by us, we can contribute these more effectively, can save wasted efforts, and can adjust our lives in general to get the most good and least harm out of the price changes.

Stability of selling costs and prices generally, predictable in advance, has much the same advantages as stability in health, educational opportunities, and freedom from attack, taxation, or other powerful influences on welfare. Health steady near an average status is better than health varying around that same average up to glorious days without a qualm and down to weakness and pain, because one does not have to think about it, be frustrated, annoy others, and make many adjustments.

THE PSYCHOLOGY OF CONSUMPTION

There is a stream of "consumptions" or transformations of the energy of the sun's rays and the materials of the earth's crust, comprising the growth of plants and animals, the control of natural forces by man-made apparatus, the production of commodities and services, and their distribution into the hands of

persons who consume them and as a consequence can keep alive, work, improve themselves, enjoy themselves, and perpetuate their kind.

We shall be concerned in the rest of this chapter with the so-called ultimate consumer, and with ultimate consumption, which transforms vendible goods and services into states of affairs in the human body, especially the brain. Such consumption is at or near the final stage in the economic processes carried on for the gratification of human wants. It is productive of labor as when sugar is consumed to become muscular contractions; of capital as when proteids are consumed to form muscle, or teaching is consumed to cause skill; of sheer enjoyment as when perfumes are absorbed by the olfactory cells; * of natural resources, as when foods perpetuate the genes in a second generation.

Some objects are consumed very slowly, like radium or the sun itself. Some are consumed very rarely, like a diamond which, if not crushed by some accident, may give satisfaction forever. Some tend to increase when absorbed by a man. Knowledge, customs, and ideals are objects of this sort, which increase for all when absorbed or consumed by one. Whether the word consumed should be used for such is arguable.

A person can absorb only a limited amount of food, and can wear only a limited amount of clothing or jewelry at one time. He cannot attend to many entertainments or survey many possessions simultaneously. But he may derive satisfaction from the fact that things and services are reserved for his consumption, or for some other reason pay to have them thus reserved. Since he thus causes certain things and services to perish or decay without being consumed by anybody else, he does, from the points of view of economics and of welfare, consume them.

The amount of food, clothing, ornament, shelter, transportation, entertainment and other vendible or free goods which a billion persons would consume to maximize satisfaction or to maximize welfare is not infinite, but it is so far above what a billion ultimate consumers now get that it may be treated as indefinitely large. In this sense human wants are infinitely extensible and there cannot be general over-production.

* With no benefits to health, strength, knowledge, etc.

In the case of food the amounts which any given population should consume can be stated with considerable exactitude. An average adult doing light work and taking moderate exercise, for example, needs daily about 3000 calories, 70 grams of protein, 0.7 grams calcium, 1.3 grams phosphorus, and .015 grams iron. Men will suffer if they eat less than this, and not benefit if they eat more. Somewhat similar knowledge exists concerning the good and harm to be expected from a given consumption of certain drugs by given persons. Men could produce more calories of food than they should or could consume and even more food proteins, vitamins, and special food chemicals than they should or could absorb (though a balance over need of the last two is recommended as a factor of safety).

Standards for clothing to protect man from cold, insects, etc., with minimum weight, impedance of movement, loss of ultraviolet rays, etc., could be established and improved, but science has done very little along such lines.

In the case of shirts, stockings, shoes, silk hats, etc., nobody knows how many man should consume. His appetites for these, especially for particular forms of them, vary so widely with custom and fashion that it is very hard to estimate the strength and range of such cravings, as for protection of the feet from injury, cold, wet, dirt and vermin. The craving for adornment is nearly insatiable, and complicates determinations of the others. Savages may desire the shoes they see civilized men wear but use them as ornaments; the civilized men may desire the tools of the savage, but use them as ornaments!

Civilized man for thousands of years has consumed much cloth to keep the beneficent sunshine off his skin as well as to keep the cold from freezing it. Much the same is true of houses and other shelters as of clothing. Knowledge of what is desirable in any given climate is imperfect, and actual consumption is determined largely by customs and fashion.

Heating, ventilation, and in recent years, cooling, have, however, been studied with important results. In Europe and the United States vast amounts of coal, etc. have been consumed in over-heating schools and vast amounts of materials and energy in a useless pushing in outside air to hold down the amount of

CO_2 and of imaginary injurious effluvia in the air. The value of moving the air as an antidote to high temperatures is now understood. More subtle is the psychological effect of ventilators painted on the walls of churches or theaters!

When a machine is used up in direct influence upon persons, as in electric heaters, coolers, fans, and radios, the ultimate consumers consume these machines as truly as they consume blankets or ice or fireworks. When machines lessen the amount of time and energy spent in preparing food to be eaten, cleaning clothes and dwellings and the like, their use is so near ultimate consumption that the persons owning or renting electric toasters, vacuum cleaners, etc., may by a sort of economic fiction be said to consume them in consuming their products and services.

Such consumption of machines used on the body and mind, or to save labor near the stage of ultimate consumption, can be studied quantitatively in many ways, machines being by their nature specially amenable to exact description in respect of cost of purchase and upkeep and services performed. What the ultimate consumer gets for his money is consequently much easier to determine in these cases than in the case of much of the clothing and shelter that he buys. Any deleterious effects upon the males and females of a household of the exercise lost by not having to shovel coal, sweep floors, wash clothes, etc. could be computed or estimated.

Within the last generation or two such machines have transformed the life of a household in civilized lands. A husband is awakened by a machine and shaves with a machine, while his wife prepares toast and coffee on two others. She may clean clothes, furniture and floors with a machine while being entertained by waves picked up from the ether and transformed into sounds by a machine, and kept warm or cool by still other machines. By at least nine persons out of ten this life is preferred over that which it replaced; and consumption of this sort has increased enormously. Nystrom reports rises for electrical household machines in the five years from 1923 to 1928 of 7 to 15 million flatirons, 3 to 5 million washing machines, 4 to 7 million vacuum cleaners, and 1 to 4½ million toasters. ['29, p. 401 f.]

There is a bewildering variety of opinion concerning how

much entertainment is good for man and what sorts it should be. Neither question can be answered separately, because the optimum amount for any person depends in part on what the entertainment is, and the optimum character of the entertainment for any person to consume depends upon how much and of what sorts he is consuming already. It is perhaps more important to learn the influence of certain games, books, movies, and radio programs on intellect and character than that of certain foods and drugs on the body. Reputable doctrines are that toys for children should be simple, so as to encourage free imaginative play rather than impressive operations, that participation in games is better than watching them, that intellectual entertainment is better than sensual, sociable than solitary, refined than coarse. All these doctrines are qualified by an "other things being equal" clause. Actual consumption is influenced by these and other views expressed by leaders of thought or of fashion, just as the consumption of foods and drugs is. But in both cases consumers' own intrinsic satisfactions are dominant. More people live to eat than eat to live; and much more money is spent for sheer entertainment than for its cultural or recreational outcomes.

There seems to be less inborn protection against over-entertainment than against over-eating. One cannot be sure because of lack of knowledge of what amount of entertainment is over-entertainment. What can be asserted is that a normal person who eats 500 calories extra for lunch will commonly tend to eat about 500 calories less for dinner, but a person who reads a story or plays a game for a half-hour extra after lunch will not usually as a result reduce his reading or play after dinner by that much. Indeed, habituation to entertainment seems in some respects to act like habituation to certain drugs and require increasing amounts or stronger intensities to produce equal effects. Lewis Mumford asserts that "vital wants are all necessarily limited," but there is no necessity limiting the cravings for power, approval and distinction; and there need be none limiting the craving for entertainment. It is a question of fact whether the genes of man do supply controls preventing him from pursuing entertainment to the detriment of morals and health, and even of happiness. Apparently they do not.

Men and women do not as ultimate consumers purge themselves of their ordinary motives, habits, customs, eccentricities, and follies, nor become in the twinkling of an eye businesslike calculators and efficiency experts. There is on the whole not much sure knowledge of the objective utilities or consequences of the multitudinous acts of consumption, and most men and women do not possess what knowledge of this sort there is, or always use so much as they do possess. They are moved by the fact that at the time and in the conditions in question they have certain desires and certain expectations of satisfactions to accrue from such and such consumptions. These desires and expectations guide their use of what available purchasing power they have.

THE PRODUCER-CONSUMER RELATION

Some consumers have to take what goods the gods provide for search to discover, being without power to cause anybody to produce for them. So birds hunt for worms, tigers for their prey, and human infants for the nipple. But most human beings consume in large measure what some other humans have produced. Some producers produce because their natures impel them to do so, regardless of whether anybody will ever consume the product. Music, paintings, poems, theories, proofs, science and other things may be created so. Most men, however, long to have the work of their hands or minds appreciated and used, and most of it is produced for the satisfaction of consumers who will pay for it, with money, praise, or other valuables.

The deciding element in the production of goods by men for consumption by men is usually the consumer. A few hats would be made by lovers of millinery if nobody would buy or even wear them though not paying for them, but only a few. Few wooden houses would be built if nobody would live in one. A consumers' strike against wearing black would make an end of black-dye production; a similar strike against eating poultry and eggs would ruin the poultry industry. Consumers do not deliberately and planfully use this power except on very extraordinary occasions, but the same power put in action by widespread unpredictable whims of consumers causes frenzied production of

this or that commodity (Mah jong sets, midget golf courses, toeless shoes, and the like) and ruinous waste of the same commodity when the whim changes. Consumers' power, if fully organized, could practically abolish the production of any item of consumers' goods. Its constructive power is less and different.

Consumers obviously cannot now induce producers to make a cure for cancer, no matter how much they offer to pay, nor a pound of rubber to sell for a penny. Both must wait for science and invention to make them possible. Science and invention work partly to satisfy consumers' wants, but partly in disregard of them (except the wants of a few specialists for the truth). And some of the greatest goods to consumers were unwanted by them until they had them.

The prime mover in the production-consumption activity is the advancement of knowledge, domesticating animals, inaugurating agriculture, working metals, weaving cloth, and so on to harnessing steam and electricity. Its present leader is, as stated, consumer demand which producers mostly follow. But there is a tendency for producers to try to lead. Having some by-product, for example, they try to induce consumers to use it; being able to produce a surplus of some product over present consumption, they try to get it consumed in some different form; and in general they try to stimulate consumption, as by advertising, if and when the expense seems likely to be profitable to them. So gas companies taught people to cook with coke, and, later, to cook with gas; so almost the whole world is luring the consumer to want more of this, that, and the other.

This reversal of leadership is dangerous. Consumers may often be wrong in following their natural inclinations, but they will presumably be wrong oftener if they buy what it is convenient for producers to sell. There is some truth in the complaints of critics that the consuming public is the servant of machines and the owners of machines. "The consumer," writes Delisle Burns, "is a miserable beast, at best choosing between evils, at worst swallowing what is forced upon him, at a price named for him." ['21, p. 296 f.] "The injunction to use machines was so imperative, from the standpoint of those who owned them and whose means and place in society depended upon them," says Lewis Mum-

ford, "that it placed upon the worker a special burden, the duty to consume machine-products, while it placed upon the manufacturer and the engineer the duty of inventing products weak enough and shoddy enough—like the safety razor blade or the common run of American woolens—to lend themselves to rapid replacement." ['34, p. 281 f.]

The reader will sympathize somewhat with even so extravagant statements as these. For he probably has been deprived of the opportunity to buy some food, tobacco, soap, or the like which he liked because some producer has bought the concern making it, and has abandoned its production in order to sell something more profitable. He probably knows of some article which at a little higher cost could be made to give twice as much service.

The remedy lies in the consumers' own hands. They have the power. Even a single consumer can do something by resolutely favoring products made in the interests of intelligent consumers, and sold on merit without deception or ballyhoo. In combination, consumers could be invincible.

Producer leadership is dangerous but has often been of great advantage to all concerned. The utilization of by-products and the discovery of new uses for products is greatly to the advantage of consumers, provided they exercise intelligent choice in what they buy.

CHANGING CONSUMERS' WANTS AND PREFERENCES

It was shown in Chapter 7 of Part One that careful observation of any person in any given condition or average of specified given conditions, would show that he had roughly measurable desires and aversions, preferences for and against. Some of them would be so strong as to be reasonably called infinite; some would be logically inconsistent; some would be against the person's real interest and welfare; some would be very variable from one condition to another. But the wants would be there as determiners of his behavior, economic and otherwise, and could probably be arranged in a rough order of magnitude. The wants which are normally satisfiable by money payments could almost certainly be arranged in such a rough want-scale. As A. E. Monroe says, "This cannot be a clear-cut series of gradations.

Weaker interests compete with stronger but partly satisfied ones; the preferred object of one interest with the less preferred of a more powerful one; the nearly hopeless with the nascent. Much vagueness and overlapping are inevitable. Small wonder, then, that we are often helpless before alternatives, literally not knowing what we want. . . . Nevertheless, such a want-scale is a real and effective force in every man's economic life." ['31, p. 6 f.]

The absolute and relative values of the items in a consumer's want-scale change with knowledge, experience, and many other influences, including the advertising and other activities whereby producers and dealers try to maintain and increase their sales. These last range from broad changes such as a strengthening of the desire to be attractive to the other sex to narrow ones such as to feel favorably disposed to Dr. XYZ's toothbrush. They range from permanent changes to very transitory ones. An instructive specimen of the latter is the following: ". . . A system of what was known as suggestive selling was introduced, and the sales people were carefully instructed in methods of persuading customers to buy articles which it was not their intention to get when they came to the store. A schedule of credits and commission was set up as a reward for increased sales of this sort; these commissions ranged from 2 to 7 percent of the value of the sale." [Cherington, '20, p. 137]

Cherington adds that within a short time some of the sales force were making 60 percent more than before, "while the whole department was conducting its business with a greatly reduced amount of sales labor." We may hope that being persuaded to buy a 15 cent or 20 cent drink instead of a 10 cent drink if the fountain-man replies to your "chocolate milk-shake" by holding up an egg in each hand and inquiring "Will you have one egg or two?" is not typical of American consumers. But it is evidently common enough to influence sales substantially. The general picture of all consumers buying what they did not intend to as a result of "suggestive selling" is painful to contemplate. In the literature of advertising and selling, the ultimate consumer does often seem ignorant, dull, careless, and greedy, unable or unwilling to plan his want-list for his own welfare and to use pro-

ducers and dealers to obtain what he really wants at fair prices. His want-scale is influenced too little by reason and too much by habit and fashion.

PRICES PAID BY ULTIMATE CONSUMERS

The influence of marginal utility to the consumer and cost of production in determining prices paid by ultimate consumers are much complicated by trade customs, ignorance, habit, accident, politics and other disturbing factors. Moreover, the prices a consumer pays for a pound of coffee, a doctor's prescription, and a dozen towels will probably include parts of the cost of attention to customers who buy nothing, the bad debts of customers who buy but do not pay, other unprofitable sales, advertisements, deliveries, rest-rooms, telephones, and perhaps baby-minding, bus-rides, and entertainment.

It is very hard for a customer to find out what just prices for his pound of coffee, prescription and towels would be. Indeed the dealer does not know. He knows probably that so and so is a very good customer, a good customer, a poor customer, or one causing more trouble than his trade is worth. He knows that cost price minus selling price on coffee is X cents a pound, and that the risk, waste, cost of stocking and handling, etc. of coffee is small. He knows that he has to be or hire a certified pharmacist in order to make up prescriptions at all, and may have some rough notion of the cost of having available the materials for filling prescriptions, and allots some of these costs to the customer's prescription along with an estimate of the time and care required.

But the profit on any given sale of any given commodity by a retail grocer, druggist or department store is practically incalculable. The experiences of past retailing have established schedules of prices, especially of retail-wholesale price relations, by which fairly able and industrious retailers make a moderate living, and the past experiences of intelligent consumers have established habits of buying from reputable retailers by which in the long run the consumers in general do as well as can be expected in the existing status of trade. But to this there may

be many exceptions; and the status of trade may itself be faulty in various ways.

The following quotations show that the economics of ultimate consumers' retail purchases is very different from that of the great commodity markets.

"The most common retail prices for different kinds of cotton cloth are 5, 7½, 8⅓, 10, 12½, 15, 19, 25, 29, 35, and 50 cents a yard. These prices in turn fix the prices which the jobber can charge the retail merchant in order to bring the price of the fabric inside a given "set price" to the consumer, and these in their turn determine the prices which the jobber can afford to pay the manufacturer. The result is that under the existing system of distribution the effect of any change in cost of production or in mill price cannot be determined except in relation to the 'set price' of the retail trade. In some cases a reduction of one cent a yard in the mill price might be just enough to enable the jobber to sell at a price which would bring the goods within a lower retail class, thereby possibly saving as much as 6 cents a yard to the consumer. In another case a reduction in price of 3 or 4 cents a yard might not be sufficient to bring the cloth into the lower class, and in this case the whole reduction in mill price would go to the jobber or retailer, or both, while the consumer would pay the same price as before.

"It may be said in general that goods which are sold at the mill at from 8 to 9 cents reach the consumer commonly at 15 cents per yard.

"When the mill price is 10 cents per yard, the fabric is thrown into a different classification and will reach the consumer at 19 cents. An increase of the mill price from 10 to 11½ cents would probably not affect the price to the consumer. When, however, the mill price goes to 12 cents, the consumer will pay 25 cents. A further increase in the mill price of 2 cents in this case would not change the price to the consumer.

"With a mill price of 14 cents the consumer would still pay 25 cents retail. Where the mill price is, however, 15 cents, the cloth enters another classification and probably reaches the consumer at 29 or 35 cents. It will be seen, then, that an increase of

2 cents, from 12 cents to 14 cents, does not affect the 25-cent retail price, while an increase of 1 cent from 14½ cents to 15½ cents, may increase the price to the consumer by 10 cents.

"The same facts are brought out clearly by a study of the course of mill prices, jobber's prices, and retail prices of the same fabric over a period of years. To illustrate by a certain sample quilt: this was sold by the mill in 1908 for 61½ cents and reached the consumer at $1. In 1910 the mill price went up to 75 cents, an increase of 12½ cents, which increased the retail price paid by the consumer to $1.50." [Fetter, '13, p. 242 f.; quoted by him from the Tariff Board report on Schedule I of the 1909 tariff transmitted to Congress in 1912.]

"The consumer, however, is a difficult person to deal with for he sometimes acts in an unexpected and unaccountable way. He—or more likely she—sometimes shows a perverse disposition to buy more when the price is high and buy less when the price is low. The psychology behind this is, of course, the consumer's belief that high price is an indication of quality, or sometimes her more illogical conviction that the payment of a high price gives her a certain prestige. This failure of the consumer to act as the economist expects her to act cannot be shown to affect the demand for large classes of goods, such as food, clothing, luxuries, in the long run; but it can be shown to affect the short-time demand for many special classes of goods, particularly the demand of a limited class of consumers. The attraction of high prices will not apply when people are living close to the standard of necessaries or decencies required by their class, but it applies to that class of consumers whose money incomes are running ahead of their education in buying and consuming.

"It is unfortunate that we do not have more statistics to show the extent of the influence of a high price on increasing sales. We can, however, collect many particular instances of this from the experiences of individual dealers.

"It is said that a certain breakfast food, selling for ten cents a package, had very small sales. A 'go-getter' became sales-manager, and first of all put up the price to fifteen cents. The product began to move, and eventually the success of the food became tremendous. In this particular case an advertising cam-

paign helped things along very considerably. In other cases, there is no advertising at all. A certain shoe dealer exhibited in his window some women's shoes bought at a job-lot sale and marked them two dollars a pair. No one asked to see them. He changed the sign to six dollars a pair—approximately the normal price—and closed them out in a day or two. Books which teach commercial advertising make much of the point that a consumer has a certain price in mind as the proper price below which it is unsafe to buy. If the usual price for breakfast food in a package of a certain size is not less than fifteen cents, the housewife is afraid a ten-cent package will contain sawdust. If six dollars is the price a woman usually pays for shoes, she suspects two-dollar shoes of having paper soles.

"The converse of these cases—high prices attracting large sales—is seen most frequently in the case of style and luxury goods. The most extreme example is diamonds and other jewels, to the demand for which pecuniary emulation contributes. No one expects to get a Paris model for twenty-five dollars, but put a price of two hundred dollars on a model from Newark, New Jersey, and somebody will probably order it. An ordinary 'high-class' drug store will not be able to sell face powder at ten cents a box. The more some women pay for face powder and perfume the better they think it is. Says a druggist: 'I got a big shipment of perfume which I decided to offer as a special at thirty-nine cents an ounce. Could I sell it? Nothing doing. Then I made a big sign saying *La Romance* and marked it five dollars an ounce and got rid of it. What was in it? Well, for all I know, skunk cabbage.'

"The number of college girls who confess themselves positively attracted by high prices, for some things at any rate, runs, according to the author's experience, at about 90%. In the case of the *nouveaux riches* the percentage is probably nearer a hundred and the number of things included much larger. Yet we should not from this conclude that the perverse influence of price on consumption is very important in the long run and for consumers and commodities as a whole." [Hoyt, '28, pp. 131–133]

Illustrations of the influence of politics upon prices to the ultimate consumer are to be found at every turn. The retention of

the 5-cent fare in New York City made a present of much of the property of certain transit companies to the consumers of transportation. The bonuses to wheat farmers of Franklin Roosevelt's administration for crop restriction made cuts in the price of bread impossible. The debasement of a currency not only punishes thrift with whips and scorpions but robs consumers to enrich clever speculators. Tariffs are surely in their first effects a tax on consumers, though possibly some of it may be returned to them in some devious way. Sales taxes frankly force them to pay in proportion to their cost of living.

HABIT AND CUSTOM

Habits and customs (which are essentially the habits of groups) rule ultimate consumption as they rule all but the specially momentous acts of all but specially rational persons. We buy what we have bought in similar situations, especially if the immediate consequences of so doing have been satisfying. We expect to have what we have had. It would be no defense for a landlady showing a bedroom containing only a bed, a cupboard, a stool, a pair of andirons and a small mirror, to state with truth that Henry the Eighth, King of England and lover of magnificence, had no more in his bedroom.

The sudden changes of consumption with changes in fashion are only an apparent exception. The repetitive habits are conquered by the habit of following certain models and by the intense craving for the approval of self and others.

WASTE

One great cause of waste in consumption is the rapid shift of styles. The psychology of fashion has been treated in Chapter 20 and little more will be said about it here. It is a great cause of waste, and of misery in the persons who by poverty or bad judgment cannot keep up with it. It is not a new disease nor limited to clothes, furniture and the like. There were fashions in the middle ages even in such matters as pilgrimages. It is noted by Jusserand ['12, p. 344] that some tombs were for a time much frequented, and then lost their vogue, others taking over their popularity.

The impression of a psychologist is that the fashion changes of the last few decades have been stimulated by producers and encouraged by dealers who expected to harvest larger profits by selling more goods. But, according to Nystrom, the changes of fashion so often leave the dealers with unmarketable stock that they would on the whole be nearly as well off with much slower changes of style. He also doubts whether producers can make fashions, or often predict them, and puts more responsibility on consumers.

Another cause of waste in consumption is ostentation, purchasing an insane self-approval or the approval of the dull or misguided at too high a price by "vicarious consumption" of retinues of servants and retainers who cause you more annoyance than satisfaction, and by "conspicuous waste" in maintaining possessions and services from which you get little or no satisfaction beyond what comes from showing by them that you are a person of a certain wealth, or level of occupation, or social class. Veblen's excoriation of the leisure class and those who imitate it, though somewhat extravagant, is good medicine for most consumers. "The front section of one well-known magazine of the better group runs a 'buyers' guide' which in one issue recommends an Easter egg for $10.50, the ugliest conceivable 'mascot,' half turtle and half bird, for $20.00, and a baby's rattle for $30.00." [Hoyt, '28, p. 142]

Another cause of waste in consumption is the imitation by each social class of the class or classes above it. It is easier to mimic the vices and follies of an upper class than its virtues and wisdom. It is easier to duplicate its externals than its essentials. Customs which are intrinsically satisfying to the members of the class where they are natural may be much less so, or even annoying, to a class below or above it. Things and activities which are satisfying in certain settings may be less so or annoying in other settings. In general expenses incurred to make you appear to be other than you are in nature, birth, breeding and affiliations are likely to fail of their object. Physical deficiencies can be more easily hidden or disguised. It is psychologically and economically much wiser to spend money to be, or seem to be, at the top of the class in which one belongs.

There is careless waste by ultimate consumers of edible foods which are burned or dumped as garbage, clothing and utensils which moths and rust are permitted to corrupt, water left running, lights left turned on, magazines burned unread, and the like. Some of all of this wastes money in order to save time and trouble, but much of it wastes money and forms bad habits of stupid carelessness. "Do not imagine" says André Siegfried, "that the French workman, though he receives less than half as much money lives only half as well. This English standard of living means, to a certain extent, the right to live shiftlessly without exertion." ['31, p. 72]

To make sure that this section is not misunderstood I note certain expenditures which may not be wasteful according to its rather guarded statements, although they seem at first thought to be. One such is expenditure for a parlor or "best room" in which nobody ever sits except to receive beaux or callers with whom the family are not on familiar terms. Though not used to sit in, the best room produces not only self-respect, but a security against social disesteem and disturbance of family comfort. It stands there spotless, its chairs placed with dignity, permitting all else in the home to be disarranged and comfortable. It is a trap preventing the minister, his wife, nosey neighbors, casual callers and all others from invading the family's sanctuaries. Daughter's boy-friend passes a probationary period there before being admitted to the kitchen or other living room, and returns there for the rites of courtship. Better to eat in the kitchen or sleep in the attic than to spoil the parlor by common uses!

Another such is the grandeur of the entrances to moving-picture theaters, the outsides of savings banks, the trappings of bars and soda fountains, and other decorations apparently valueless to the users of the theater, bank, and soft-drink counter who in the end probably pay for them. Should not the consumer's money be spent on the theater itself rather than on its entrance, on the financial strength of the bank rather than its front, and on what the dispenser of drinks provides for his mouth, not his eyes? There is doubtless some waste in these apparently irrelevant magnificences. As Cherington suggests about the third case, "there

certainly is room for doubt whether the constant elaboration is a result of an actual public demand so much as it is the result of good salesmanship on the part of soda fountain builders." ['20, p. 128] But most persons have an inveterate, perhaps an inherited, love of gorgeous display. Even to see it is a delight, to participate in it is thrilling; to belong to it and have it belong to you gives a quasi-intoxication, as genuine a satisfaction as meat or drink. From dreary workshops and modest homes we enter the movie palace and become in a sense royalty, the mighty, on whom the great chandeliers shine, to whom flunkeys pay heed. We take our places before the mahogany, onyx, and plateglass or the art nouveau of the soda fountain and become monarchs of all the magnificence we survey. It is not a waste for us. The waste is rather with those ultra-rational souls who have analyzed themselves out of this naïve pleasure, and would as soon enter the theater through a second-hand store, and have their drink on a board covered with oil-cloth, saving a few cents to give to the poor.

THE ORGANIZATION OF CONSUMERS

By far the most important sort of organization of consumers to date is the establishment of cooperative associations to sell at retail goods which they buy at wholesale (or now often produce themselves) which began in Rochdale in 1844. Their main aim was to reduce consumers' costs by returning profits to the members, and they have had some success in this, though less than they expected. Their psychological and educational influence has been probably more important than their influence on prices. They have prevented their members from buying unwisely, encouraged them to buy for cash, and given training in business management to a large number of idealists devoted to the welfare of working people. They have shown that satisfactory business services can be obtained without large pecuniary rewards, much as satisfactory military, educational, and religious services are. This last is with the proviso that a parallel system of trade exists with pecuniary payment in proportion to results. It may be that the beneficent business discoveries and inventions of the two generations past have been made by the older

system and imitated by the cooperatives. If the contrary were true—if the older systems had been able to survive only by imitating procedures originating in the cooperatives, it would be a strong argument in favor of the latter. Except for the doubtful case of the chain-store, I know of no business inventions attributable to the cooperatives; but their staffs have been a very small minority of business men during this period and could not be expected to contribute many.

The failure of the workers of the United States to establish consumer's cooperatives is rather a puzzle. From time to time competent judges have prophesied that they very soon would. Twenty years ago "a high authority" said that "it is to the field of cooperative trading in the British plan, which shuns advertising in all its forms, that Americans may look for very important developments of retail trade within a comparatively few years." [Marshall, '20, p. 295] But no such development occurred. The causes, economic and psychological, for this failure can only be surmised.

A second sort of organization of consumers, in which the United States did lead, aims to put needed information conveniently at the service of consumers. By the enterprise of Stuart Chase and F. J. Schlink, Consumers' Research was organized to provide subscribers at a cost of two dollars a year with facts about the merits of various articles. The number of subscribers rose very rapidly, and the organization was able not only to abstract valuable facts from government reports and other reliable sources, but also to make their own impartial tests of each year's automobiles, radios, etc. If the impartiality and efficiency of this service is maintained, it will continue to be a great boon to consumers, and something of the sort should be set up in all countries.*

A third sort of organization of consumers may be desirable to provide more general information relevant to their interests, and especially information about political issues. The United

* There was recently disagreement within the management of Consumers' Research, and Consumers' Union was established as a second agency, providing more or less similar services. Doubtless there is room for healthy competition and variation in purpose.

States Chamber of Commerce does this among other things for a large fraction of the producers and distributors; the American Federation of Labor and the Committee on Industrial Organization protect the interests of laborers. Other organizations act for farmers, war veterans, physicians, and other groups. The ultimate consumer has no such observation post and defense.

Chapter 25

PAYMENTS FOR HUMAN FACTORS

In theory, payment to secure the services of man may be divided into payments for (1) the natural resources of his genes, (2) the bodily and mental capital of his acquired strength, skill, knowledge, honesty, etc., (3) his labor in the sense of abstention from other activities and devotion to those which he is hired to perform, and (4) his entrepreneurial responsibility and risks. But in practice the first three are almost always paid for in one lump sum, and payment for the fourth appears as a fraction of a lump sum paid for all four.

Payment, whether in money or in such transpecuniary rewards as approval, honor, distinction, and obedience, for a person's inherited capacities is in a sense unjust, like payment to the persons whose farms happen to cover coal mines. It is also unnecessary in so far as the person obtains so much intrinsic satisfaction from the development and exercise of the capacity that he will use it regardless of what society or any of its members pays him. Some poets, artists, musicians, mathematicians, scientists, philosophers, rulers, managers, preachers, reformers, teachers, nurses, and mothers would serve the world nearly or quite as well (possibly even better) if the pecuniary and transpecuniary rewards for the services were much reduced. Activities in accord with a person's inborn nature are to some extent self-impelled and self-rewarding. They are somewhat like solar radiation and gravitation. We need not offer sacrifices to the sun for shining or to rain for falling. But they are more like valuable animals and plants which will produce more with proper care.

Desirable features of a man due to training and properly called bodily and mental capital should be encouraged lest the train-

ing diminish or change to less desirable forms. Skill, knowledge, and good habits caused by the cooperation of the genes and the environment are active to some extent without reward, as human natural resources are. They are paid for very variously both as to the kind and amount of payment. Expertness in A may be rewarded by no money and the approval of a few; expertness in B, by much money and the approval of many; expertness in C by money and little else. Much mental capital is owned by the public and requires no payment beyond what will keep it in proper repair. Knowledge, customs, laws, and ideals are in this respect like roads, harbors, lighthouses, fire-engines, parks, and the like.

As was noted above, a laborer is paid for more or less of the natural capacities and capital of strength, skill, knowledge, habits, etc. which he possesses as well as for his time and devotion. The time and devotion of a strengthless, skilless, undependable person has zero or negative value to any employer, individual, corporate, or state.

Most payments to persons for their services fall into three great groups:—(1) payments of employers to employees in accordance with some actual or implied contract, (2) payments of farmers, small contractors, owners of businesses, etc. to themselves by salary, profits or both, and (3) payments of allowances, food, lodging, etc. to wives and minor children in accordance with the will of the head of the family tempered by laws and customs general or special.

Payment is never in money alone, and the payment is never exactly described in the contract. There are always features of health, physical and human surroundings, social esteem, dignity, fitness to individual idiosyncrasies and other things beyond what can be specified. Even when additional facts about the nature of the work could be known to both parties, they rarely are specified in the contract.

Consider, for example, the probability of accident in different sorts of work as shown by Tables 30 and 31. A worker on a ship has twice the chance of being killed at his work as a worker on a railway, ten times the chance of a factory worker, and fifty times the chance of a clerk.

TABLE 30 *

INDUSTRIAL ACCIDENT RATES: ENGLISH EXPERIENCE, 1912 AND 1920

Type of Industry	Frequency Rate per 1,000 Employees: Cases of fatal accidents	Cases of accidents resulting in permanent or temporary disablement of 1 week or more		Cases of accidents resulting in temporary disablement of 1 day or more (estimated)
	1912	1912	1920	1912
(1)	(2)	(3)	(4)	(5)
Manufacture				
Cotton	0.09	21.6	17.5	34.5
Wool and other textiles	0.04	12.4	11.6	19.8
Paper and printing	0.07	14.5	15.8	23.2
Metal (including extraction)	0.38	78.5	61.3	125.4
Engine and ship building	0.60	92.8	62.4	148.2
Other metal works	0.18	49.5	42.3	79.1
Three metal groups	0.33	67.0	52.4	107.0
Total manufacture	0.20	35.9	32.4	57.3
Transport				
Shipping	2.02	32.6	21.1	52.1
Docks	1.42	107.0	70.3	170.9
Railway servants **	0.95	63.0	37.5	100.5
Mines	1.15	154.6	107.8	246.9
Building				
Constructional work	0.74	53.0	41.6	84.6
Office				
Railway clerical staff	0.04	0.8	0.6	1.3

* From Florence, '24, p. 285.
** Exclusive of clerks.

Consider the matter of tenure. In the Federal Civil Service from 1903 to 1917 the number discharged per year was only about 1½ percent of the number on the rolls. [Florence, '24, p. 152 f.] In many school systems a teacher after a certain probationary period can be dismissed only for outrageous negligence or folly. Few, if any, factories could give such a guarantee. Nor would it be worth much if they did, in view of the possible changes in technology and in consumers' wants. All of them are strongly tempted to replace workers of older ages.

TABLE 31*

COMPARATIVE ACCIDENT RATES IN VARIOUS DEPARTMENTS

Accident Frequency Rates per 1,000 300-Day Workers

Department	Machine Building 194 Plants in 1912		Iron and Steel Over 400 Plants, 1910–14	
	All Accidents	Death and Permanent Injury Only	All Accidents	Death and Permanent Injury Only
Yard	221.1	8.2	152.1	6.4
Power house	103.8	4.6	70.6	3.3
Mechanical department	108.1	3.7	188.2	5.1
Forge shops	169.9	5.8	177.2	4.4
Foundries	140.0	4.3	190.8	5.6
Total	118.0	3.9	176.7	5.1

* From Florence, '24, p. 282.

Certain health hazards are well known to experts in industrial hygiene and there may be many others. For example, Travers found stomach ulcers and other disorders of the digestive system extremely common in a group of salesmen of a specialty the nature and price of which were such that only the most exacerbated forms of high-pressure attack could sell it.

Consider the relative attractiveness to any given sort of person of work as an airplane pilot, sailor, miner, railway engineer, railway conductor, ticket-seller, reporter, proofreader, librarian.

Payment by omniscient employers to perfectly rational employees would approximate the marginal utility of the service rendered, but actually the variations therefrom may be wide. In spite of cost accounting and industrial engineers an employer rarely knows how useful J. Doe and R. Roe are to him, or how much he would gain or lose if he paid J. Doe 5% more and R. Roe 5% less. I venture the assertion that in almost any factory or store having a hundred or more employees there is one employee worth to the employer more than twice what he gets and one worth less than half what he gets. Custom and whims still play large roles in the employer-employee relation. There are few cases as extreme as the art crafts of Bali, where boys from

14 to 24 years of age "spend ten years of daily toil . . . without pay except their midday meal of rice" [Hoffman, '36, p. 264], but the same sort of force is at work in the case of hospital internes and assistants in universities. There are few people who send twenty dollars to every convict who sends them a whip or a lariat, as Jack London is said to have done, but most consumers and some employers act occasionally from equally unreasonable whims. Within the family such excesses are common.

The principle of substitution sets limits for the payments for many services, employers paying only a bit more to a man than it would cost to have the work done by an animal or a machine. The substitution of machines has possibilities far beyond the ken of most of us. For example, a machine has recently been constructed at a cost of about $150,000 which performs intricate and subtle mathematical analyses.

Certain powerful labor unions attain a certain degree of monopoly and hold wages far above what men of similar abilities and training receive in general. But this is usually temporary. Certain persons whose abilities can command a monopoly price may occasionally do so; but in general, as was shown in Chapter 5, the greatest abilities are the most underpaid in money.

Management in general acts as a multiplier of the services of those managed. Little is known about the relation of the payments for it in money, power and esteem to the product produced. In the case of high executives of large companies it is apparently not close. Some managers refuse better posts elsewhere because of loyalty to their owners and workmen. Some foremen take bribes. Some high executives use their inside knowledge to play the stock market against the stockholders. There is often a good deal of energy spent in petty politics, harmful rivalry, hatred, and envy within the management of a corporation. I conjecture that in any organization paying a hundred or more managerial workers, counting from foremen up, there is at least one in a hundred who receives more than twice what he is worth and at least one in a hundred who receives less than half what he is worth.

Entrepreneurs in the broad sense (including farmers, retailers,

contractors, owner-managers of barber-shops, shoe-shine stands, picture-theaters, etc., professional men, artists, etc., working for themselves, and certain piece-work operators in mines and factories who are responsible for ways and means of producing their product and assume certain risks) take what is left after paying expenses. They have the burdens of responsibility, but the joys of being their own bosses. Their pecuniary and psychic incomes are caused by somewhat the same mixture of utility, custom and accident which cause the incomes of employed workers of similar capacities and training, plus an amount (which may be negative) caused by their willingness to take responsibilities and risks, their ability to choose which to take and how to treat them, and in particular their ability to treat them so as to make money for themselves.

The customs and ideals of farmers and professional workers differ from those of business men by way of greater emphasis on the skill shown and the services rendered, and less emphasis on the pecuniary reward. Critics of business enterprise magnify this difference as in the following quotations from Tawney and Veblen:

"The difference between industry as it exists to-day and a profession is, then, simple and unmistakable. The essence of the former is that its only criterion is the financial return which it offers to its shareholders. The essence of the latter is that, though men enter it for the sake of livelihood, the measure of their success is the service which they perform, not the gains which they amass. They may, as in the case of a successful doctor, grow rich; but the meaning of their profession, both for themselves and for the public, is not that they make money but that they make health, or safety, or knowledge, or good government or good law. They depend on it for their income, but they do not consider that any conduct which increases their income is on that account good. And while a boot-manufacturer who retires with half a million is counted to have achieved success, whether the boots which he made were of leather or brown paper, a civil servant who did the same would be impeached." [Tawney, '20, p. 94]

"Efficiency conduces to the common good, and is also a mer-

itorious and commendable trait in the person who exercises it. But under the canons of self-help and pecuniary valuation the test of efficiency in economic matters has come to be, not technological mastery and productive effect, but proficiency in pecuniary management and the acquisition of wealth. Both in his own estimation and in the eyes of his fellows, the man who gains much does well; he is conceived to do well both as a matter of personal efficiency and in point of serviceability to the common good. To 'do well' in modern phrase means to engross something appreciably more of the community's wealth than falls to the common run. But since gains, and hence efficiency, are conceived in terms of price, it follows that the man, workman or businessman, who can induce his fellows to pay him well for his services or his goods is accounted efficient and serviceable; from which it follows that under this canon of pecuniary efficiency men are conceived to serve the common good somewhat in proportion as they are able to induce the community to pay more for their services than they are worth.

"The businessman who gains much at little cost, who gets something for nothing, is rated, in his own as well as in his neighbours' esteem, as a public benefactor indispensable to the community's welfare, and as contributing to the common good in direct proportion to the amount which he has been able to draw out of the aggregate product. It is perhaps needless to call to mind that of this character are the main facts in the history of all the great fortunes; although the current accounts of their accumulation, being governed by pecuniary standards of efficiency and serviceability, dwell mainly on the services that have inured to the community from the traffic with which the great captains have interfered in their quest of gain. The prevalence of salesmanship, that is to say of business enterprise, and the consequent high repute of the salesmanlike activities and aptitudes in any community that is organised on a price system, is perhaps the most serious obstacle which the pecuniary culture opposes to the advance in workmanship. It intrudes into the most intimate and secret workings of the human spirit and contaminates the sense of workmanship in its initial move, and sets both the proclivity to efficient work and the penchant

for serviceability at cross purposes with the common good." [Veblen, '14, p. 349 f.]

These statements are exaggerations of the honor paid to money-makers as such, of the extent to which making money dulls the mind to workmanship and utility, and of the superiority of professional ways over business ways. They also to some degree glorify features of utility and workmanship which the public simply does not want—clothes which will wear for ten years, autos that will run for twenty, tools which father can hand on to children, furniture which will last for hundreds of years, and neglect such triumphs of workmanship as the electric-light bulb, the insulation of electric wiring, the concrete highway, and the radio set. They are also misleading by their failure to allot any of the blame to the inertia, dullness and greed which lets us be outwitted and deceived.

But they do give a useful warning. The business man whose useful function is to provide people with what they want does easily shift to making them want what he can profitably provide. The means he uses to influence them may vary from mildly one-sided suggestions to the psychological weapons of the con-man. There is in fact a range among business men from those who act as trustees for their customers' interests to those who will deceive and rob a customer when they get the chance. Vicious customs, as of calling birch "mahogany," or shoddy "wool," may come to pervade whole industries and be respectable. If we pay a man more for enticing us to buy two articles made to wear out than for providing us with one article which will outwear the two, we can hardly expect him not to. Even the great mail-order houses, which in general provide us with what we want, and at fair prices, now feel compelled to spend some of our money in ballyhoo and to make such statements as that the Alpha Beta Gamma compound "helps Nature tone up the system . . . and aids the system generally." Even when the statements are in a certain sense defensible by being put as quotations from the makers of the product, they probably lead many uncritical readers to think that the mail-order house recommends the products and considers the statements dependable. Thus "Delta Zeta Theatas (the Excellent Iota Lambda

Combination). Manufacturer Claims Thousands Report New Pounds, New Strength, New Energy. Don't resign yourself to being thin and undernourished"; and "The makers of Mu Nu Omicron indorse its use as an aid in the treatment of dandruff. . . . Buy the large size—you receive twice as much of the famous antiseptic. . . ."

Payments by companionship, entertainment, freedom from interference, applause, honor, titles, decorations, and other forms of psychic income long antedated pecuniary rewards and may have antedated material rewards of any sort, except those received directly from nature.* They are meat and drink to the soul of man. Evidence of their power is found wherever one searches. It is only within areas of work which are similar in transpecuniary rewards that the order of human choice is determined by wage-rates.

Business concerns now award degrees and honors, and so does Soviet Communism. "In nearly every industrial establishment of any magnitude there have been formed one or more 'shock brigades,' the members of which (udarniki) are recruited from volunteers among the trade unionists. These shock brigades take as their function the acceleration of production, coupled with improvement in quality and lessening of cost. They undertake collectively special tasks in their own establishment, or they may volunteer to go to some other establishment which has fallen behind. They bring to their work exceptional energy, speed or skill; they labour more assiduously than is common; or they put in extra time in subotniki (voluntary work). They do this out of zeal, for which they receive honour and applause. They seldom or never have a higher wage-rate and usually no extra bonus, though when working by the piece their increased output automatically brings higher earnings. They often receive preference in the allocation of places in the holiday rest-houses, and, where necessary, in the convalescent homes, as well as in the distribution of the theatre tickets allotted to their trade union. They are put forward as candidates for the factory committee or for the local soviet. The outstand-

* The primitive early hunters of small game and pickers of fruits presumably paid themselves for their labor by eating the product.

ing ones may be awarded the Order of the Red Banner. And as an expression of the honour and applause which are spontaneously accorded to them, they are often given their meals in a separate apartment of the factory restaurant, in a comfortable, quiet privacy, with the highest grade of rations, and such little amenities as tablecloths and flowers, and occasionally special dainties. Of these shock-brigaders, or udarniki, there are reported to be, in the USSR, many millions." [Webb, S. and B., '36, vol. 1, p. 207]

Our American civilization has the habit of rewarding those who provide us directly with material goods and entertainment, chiefly by money; those who provide us with order and security by a strange mixture of esteem, power, and opportunity to make money by graft; those who provide us with esthetic and spiritual goods, chiefly by reverent approval—a noble sort of fame; and those who provide the fundamental advances in knowledge which increase the volume of material goods and free us from sordid toil, by the approval of the few who understand their work. This is rather a recent development. For thousands of years and in thousands of cultures the military and ruling classes and the priests or medicine men were highly paid in money or its equivalents as well as in esteem.

Partly because the old prejudice against handwork and trade still survives in the upper classes and in literature, and partly because those who are unable to make much money can be more comfortable by scorning it, there is a rather widespread feeling that, beyond the means of living decently, approval, especially from the wise and good, is a more desirable reward than money. If one cannot have both, it doubtless is. But there is something to be said in favor of making the pecuniary rewards of legislators, the army and navy, magistrates and policemen, ministers of the gospel, philosophers, moralists, artists, musicians, and men of science more proportionate to our opinions of the value of their services. They would perhaps use purchasing power better than business men. If they consider that poverty will be best for their work, they can give the money away as some Nobel prize-winners have done. It is somewhat demoralizing to people in general to be able to

discharge their debts to their benefactors by applause and reverence.

In the case of men of thought it has been seriously proposed that the discoverer of new truth should be permitted to patent his discovery and share in any profits from it, as the inventor of certain machines and processes can do now. A committee of the American Association for the Advancement of Science in a long and careful report decided against proposing such legislation, but hoped that "the growing recognition of the value and importance of scientists in our social structure will ultimately lead to some machinery based on moral suasion as well as logical considerations whereby the work of scientists will not be utilized without adequate consideration of their value." [Rossman, J. and others, '34, p. 40]

There are other facts concerning the payments which men receive for their inborn capacities, training, time and devotion which might well be reported here. Mobility from place to place, and from occupation to occupation, for example, influences payments and is itself influenced largely by psychological factors.

The doctrine that the payments to skilled labor and professional workers represent the pay of unskilled labor plus amounts adequate to amortize the costs of the training is psychologically unsound, and it might be worth while to prove that it is so.

This chapter will close with a resumé of certain rather obvious but often neglected truths about mental attitudes toward payments for human economic factors.

ATTITUDES TOWARD WAGES

Certain attitudes of the public toward payments for persons' services are important because they influence the workers' satisfaction; legislation taxing employers, property owners, or others to increase wages; the direction of charitable gifts; and to some extent the willingness of employers to raise wages.

The notion, prevalent in the middle ages, that there is a certain fair or just price for any given service still survives in the popular mind, regardless of whether the price is set under condi-

tions of competition, monopoly, or semi-monopoly. Many people think, for example, that farmers get too little and middlemen too much, scientific men too little and bankers too much, shop girls too little and movie actresses too much. These illustrations are not typical of opinions about fair prices in general, which are and have been largely determined by customary prices. But moral considerations also play a part, and also one's natural aversion to considering the services of others as worth enormously more than his own. Human labor is commonly productive, hence we form the habit of attaching intrinsic merit to it. There results a common feeling that if a person has worked faithfully his labor should be rewarded regardless of the utility of the product. This extends to entrepreneurs also, and what Dibblee calls "a prevailing feeling of justice" (the use of the term justice is not entirely justifiable) induces us to "requite producers of all kinds with a fair reward for their efforts and sacrifices. A strong basis for a moral appeal to buyers for a return of Cost of Production with a fair profit is built up by natural processes, and in small trades and industries concessions to the sentiment are very common." ['24, p. 51]

The actual direct influence of opinions about fair prices is by way of rational charity or irrational habit. Indirectly they influence workers' claims, the attitude of the public toward certain employers and employees (as in the case of strikes), and regulatory legislation. Hadley is, of course, right in saying that, "If every laborer makes his product worth a living wage by rendering society what *it* regards as an equivalent for the food, clothing, fuel, shelter, and other things represented by that wage, he can get it. If he attempts to insist on the wage while not rendering the equivalent—or, what amounts to the same thing, rendering that which he deems an equivalent but which the consumer does not—no amount of combination will enable him to enforce his demands. He may refuse to work for less; he cannot insist on being employed at a price which he deems fair, if the consumer views the matter otherwise." ['01, p. 365] But by getting enough votes on their side laborers or others can tax consumers, or owners, or both, to increase

their wages.* Such taxes are hidden gifts to the persons in question. It is doubtless often desirable to make such gifts, but it is rarely desirable to have them hidden.

Another common opinion is that the world or society or industry should provide any person aged 18 or over who is willing to work to the best of his ability with a living wage, and that its economic arrangements should be changed if it does not. The humane ideal of the first part of this opinion need not be disputed, but the wisdom of the second half depends upon many things. Is the living wage to equal two or three pounds of rice and two or three yards of cotton cloth as in India and China, or thirty pounds of flour and twenty yards of cloth as in the northern half of the United States? What is the probability that any given change of economic arrangements will lower rather than raise the national dividend or the share of it going to the persons now out of work? In the days of slave labor when it was to the interest of the owner to have 100 percent of employment, what was the percentage in the factories of Athens or Rome? A man who owns a manufacturing or distributing plant considers himself fortunate if he can keep it at work to half its capacity. If he could know that for twenty years every machine would be running full tilt twenty-four hours a day or even sixteen (save for necessary repairs) he would think the millennium had come. Is it so much easier to find work for men as long as they wish to work, than for machines as long as they can work?

A somewhat opposite opinion was long in fashion, and still is among realists, to the effect that an employer who could pay a man more than he could earn by hunting, fishing, picking berries and the like, or more than the food, shelter and clothes he got by working for his father, was his benefactor. Jobs in the New England mills at real wages equivalent to ten or twelve dollars a week today were eagerly sought successively by young women of good families, by migrants from the mari-

* Government could regulate the "unfair" prices of certain personal monopolies, as by forbidding any actor to receive more than $10,000 per movie, but so far has prudently preferred to abstract a large share of the excess as income tax.

time provinces, by French Canadians, and now by immigrants from abroad. A fairly steady job averaging a thousand dollars year in and year out is still regarded as a blessing and favor by millions of mechanical and clerical male workers in this country. Suppose some foundation provided a hundred thousand doctors each with an assistant at $15 per week of 50 hours. A hundred thousand maids old and young, able to keep accounts, sterilize instruments, and do many services for patients, could easily be found who would rank these jobs among the great boons of their lives. It is probable that the average plant in this country worth a million dollars, employing two hundred persons, provides two thirds of them (after paying the owner what he takes from the business) with a better income than they would have if the million dollars were divided equally among them and each was required to work for himself.

Historically the management has been the initiator of action in the employer-employee relation. It would be an interesting experiment to reverse this by having a group of workers hire a plant and a manager, contracting to work for, say, five years under his direction, dividing the proceeds among themselves according to some plan. They would own the business but not manage it; they would be exchanging their labor for a share of the product after paying for the use of the necessary capital and for management. Something like this has been done in certain sorts of fishing, treasure-hunts, guerilla bands, etc. There is no reason to believe that the earnings of persons of equal ability would on the average be much different in such an arrangement from what they are in the present hiring by managers. There would be losses due to internal dissension and surety of holding their jobs and receiving their shares, and gains due to the knowledge that they were working for themselves. A psychologist would expect these nearly to balance in a hundred such enterprises. They would probably vary much more, some of these groups of labor-adventurers losing a large fraction of their labor and others making a substantial bonus above the market-value of their wages. These differences would be due partly to accident, partly to the management, and partly to the cooperativeness and foresight of the group.

WAGE RATIOS

The ratio of the wage of an unskilled laborer in the United States to the wage of a person doing the same work in China is probably well over 10 to 1. The ratio of the wage of a locomotive engineer to the wage of the unskilled laborer working on the railroad was 3.6 to 1 in the years 1863–1868, and remained near that until about 1890. But by 1913 to 1918 it was only 2 to 1 and by 1925 had dropped to below 1.6 to 1. The ratio of the locomotive engineer's wage to the wage of the fireman working with him was about 1.8 in Sweden from 1860 to 1870, but was only 1.4 from 1915 to 1919, and in 1933 was 1.33.

These and other ratios of wages of skilled and responsible workers to those of unskilled and routine workers on railroads seem to have dropped in almost all countries during the last half-century.

It is certain that there has been no considerable change in the genes during this period in respect of fitness to do skilled labor or to be responsible for work. Nor have the jobs of engineer, fireman, car-cleaner, gauger, and pick-and-shovel man changed greatly in respect of their requirements. The change in the wage ratios must have been due to education, union tactics, governmental interference, or other environmental influences. It is instructive therefore to inquire what will happen to wage ratios in a world with its present genes but with all individuals having opportunity to be educated to the limits of their capacity.

The supply of persons able, as a result of education received or of that plus a few hundred hours of special training, to do the work of a railroad engineer, motorman, truck driver, painter, bricklayer, lather, steam-fitter, plumber, and of many other skilled workers will be greatly in excess of the number of jobs. It will no longer be necessary to pay John Doe much more if he has learned one of these trades than if he has not. Five-hundred years ago, the ability to read and write commanded an appreciable premium. When there is free schooling to age twenty, the ability to typewrite and drive a car may well command no more premium than the ability to read and write com-

mands now. Whatever abilities education can give will become cheap relatively to those which are given or withheld by the genes. Nobody need be only an unskilled laborer unless he is by nature so lacking that he cannot be more; and the great majority of persons will have several options. For those jobs which, say, three persons out of four are able to learn to do, the ratio of the wage to the wage of the same person at unskilled labor will not be much above 1.00, if employers and employees are free. The minimum wage for any person being set by what it would cost to have a machine, an animal, or some other person than he do the work, and the maximum by what the world will pay rather than go without the service in question, and human nature being such that men will nearly as willingly do skilled work as unskilled, independent work as supervised work, and responsible as routine work, when they are equally competent to do both, a very small premium will fill the jobs which in the past have had a premium of 50 percent or more over the unskilled labor wage. The force of custom may delay this and the powers of "craft" unions of skilled laborers may oppose it, but corporations and governments which are prudent or popular or both and the "vertical" unions of all employees within one industry, will favor it.

The extension of education will have very much less influence, in some cases probably almost none, upon ratios between the wage for work which requires a high degree of inborn capacity general or special, and the unskilled labor wage. The supply will be as limited then as now, except as the extension of educational opportunity serves as an adequate stimulus to develop capacities which without it would have stayed dormant. One must, however, distinguish carefully between certain abilities, now about equally rare, which are caused by genes and training respectively.

The influence upon wage ratios of changes in the human genes by breeding for general excellence deserves some comment. If by gradual selection, the genes of the worst specimen of humanity equaled those of the present average man, and the genes of the average specimen equaled those of the present 25 percentile man, and the genes of the best one percent equaled

or surpassed those of Aristotle, Goethe, William the Silent, and Leonardo da Vinci, what would the general drift of wage ratios be? Along with the selection there would doubtless have been a vast extension of educational opportunity. So let us assume that there is free schooling for all to age 22. There would also have been a development of machinery to do more and more of the work of agriculture, fishing, mining, manufacturing, etc. With such a population and such conditions there would be an abundant supply of persons (probably at least twice as many as needed) able to do the work of skilled trades and responsible clerical positions, to keep the machines in repair, to be ordinary doctors, teachers, engineers, and whatever other officers there then were doing work such as is now done by persons with I.Q.s of 110 to 125 and four or five years of education beyond high school.

The wages for any of these would not be much above those for the least skilled and most mechanical sort of work. The latter would be done by a person, not because he could do nothing requiring more capacity and training, but by choice, as recreation, as medicine for a brain wearied of responsibility and for other special reasons, or by compulsion for a time (as now with the years of service as conscripts).

Jobs, the present wages of which have ratios to the unskilled labor wage of from 1.50 to 3.00, would then have ratios to it of from 1.00 to 1.25. The unskilled labor wage then would probably buy very much more of what people in general wanted than it would buy now, so that all of the families might be better off than, say, a family of four with a present income of three thousand dollars. But the average doctor, lawyer, high-school teacher, chemist, civil engineer, architect, and the like would not be much better off in wages than the grave-digger, doorman, furnace man, dish-washer, navvy, hod-carrier and the like.

Extending educational opportunity thus not only reduces the inequalities of men in culture and refinement but also in wages if competition is free. Eugenic advance and what will presumably accompany it may carry this equalization to the point where most men are born nearly equal, and where, if competition is free, the pecuniary rewards are approximately the same

for most sorts of labor for which there is any considerable demand.* At that point, whether a given person earns his living by designing houses or by cleaning them may be decided by his interest and society's need, the payment being a negligible factor.

* Since the upper limit of gene quality can be advanced very little and very slowly, selection not only raises the mean but also reduces the variability.

Chapter 26

MONEY AND CREDIT

MONEY AS PURCHASING POWER

A child's first lessons about money are that certain coins and pieces of paper can purchase foods, drinks, toys, rides, et cetera. Money is what you transfer to some person or slot-machine to get certain objects and privileges. A cent is what gets you a stick of candy or a package of gum; five cents is what gets you a trolley ride or ice-cream cone; a dollar buys a hat, a dress, etc. Each of us continues with such experiences and attains a sense of varying amounts of money as potent to buy such and such. This is a scale of purchasing power with vivid emphatic points at 1c, 5c, 10c, 25c, 50c, $1.00, and whatever other amounts we have often used in buying. We may go further, refining and extending the scale by interpolation and extrapolation; but even sophisticated economists have a much more vital and dynamic sense of a dollar or a thousand dollars as purchasing power than of sixty-seven billion dollars, or of $.00146. Ordinary persons, unless engaged in trade, have a much more vital and dynamic sense of a dime, a quarter, a dollar, and ten dollars than of 28 cents, 63 cents, or $792, and have very hazy awareness of such large amounts as six or seven or seventeen billion dollars. Indeed, a farm hand or factory worker inheriting two or three hundred thousand dollars may think that it will buy all that he wants as long as he lives, and be much surprised to find half of it gone in a few years. The problem of inferring and realizing the purchasing power of large sums and rarely used sums from the nature of the money scale does not demand great ability or long effort, but some persons lack the ability, and many more do not make the effort.

The purchasing power of a given coin or sum of money may

change considerably without the fact being noticed by persons who have not been taught to look for such a change. The money remains the same in name and appearance; the increase in prices over a given time is not the same percentage for all commodities; there are often fluctuations in particular prices with no change in the general purchasing power of money. Consequently the mind is tempted to think of the value of money as constant and attribute changes in general price-level to the commodities rather than the money. Things are felt to grow cheap or dear. If the change is slow and confused, a person may not even refer the change to either things or money, but merely feel that somehow he does not get on as well as he used to.

The habit of multiplying money wages by a factor so as to estimate real wages was until recently extremely rare. The sudden and wide shifts in the value of the mark, franc, pound, and dollar should have taught all observant and thinking persons to do so, but there is evidence that it did not, and that at least a large minority of persons do not know what their real wages are at any given time. A common case is the person who uses high prices as a reason for demanding a higher money wage, but would sincerely regard as unjust a reduction in money wages as a consequence of low prices.

Men are more likely to be logical with respect to money than with respect to most forms of wealth, but it too is subject to sheer habit. For example, shop keepers and other traders commonly dislike to pay money out for goods although doing this is nearly as essential to making a profit as taking money in. Children and sailors, whose direct associations with spending have been pleasurable, rather like to pay money out. In general people feel better off and are readier to spend if they have a large supply of coins and bills on their persons, other things being equal.

MONEY AS A MEDIUM OF EXCHANGE

In present-day civilization direct barter is rare, and ordinary folk do not often think of trade as indirect barter, or of money as an invention to facilitate it. They think rather of money as

the most important, and even as the best and safest, form of wealth, with universal purchasing power, which one works to get and uses to gratify wants. They do not realize that even inequitable forms of money may be better than none, or that the rate of circulation of money is in some respects as important as the amount of it, or that what is satisfactory as a medium of present exchange may be very unsatisfactory as a medium of long-delayed exchange via loans and debts.

MONEY AND LONG-DELAYED EXCHANGE

The ordinary person in the United States who put his money in a savings bank, or bought a government or conservative private bond with it in pre-war times expected to get back approximately the same purchasing power that he handed over plus the specified interest. He expected the dollars promised to him or his heirs from an insurance policy to be dollars closely like those he had when he made the contract. This expectation was often so strong that he did not even think about the possibility of anything different happening.

Except for the brief period of the Civil War, he and his parents and grandparents had been subjected to no great sudden changes in the value of the dollar. From about 1815 to 1896 there had been a rise, a fall, and a rise amounting in all to a net rise of about 1 percent per year measured against wholesale commodities. Changes were thus on the whole a little in favor of the saver, counting the average experience of three generations. From 1896 to 1914 there was a fall of about 1½ percent per year. This perhaps was foreseen by some experts in investment, but at any given time from 1896 to 1914 a shift upward may have seemed, even to them, as probable as a shift downward. At all events farmers, manual and clerical workers, professional men, small business men, and trustees of institutions exchanged present dollars for future dollars with serene confidence. The experiences of European nations since 1915 and of the United States to a less degree destroyed this confidence, but the old habits of action persisted in many and are being renewed at the present time, in spite of vague fears of "inflation" and a general insecurity about investment. The generation whose savings

in, say, 1900 or 1910 now buy only a fraction (in some countries a very small fraction) of what they bought then feel miserable and betrayed; but they and their children continue in the main to exchange present money for future money at par plus interest via savings banks, life and endowment insurance, and bonds. Even trustees still do so, though much less than in former times.

Thus the industrious, frugal, thrifty and competent have been robbed to enrich governments and other debtors. The gold standard, whatever its demerits, prevented such robbery from going very fast or far; and set a standard of governmental honesty, which is gone perhaps never to return. When Philip Snowden announced England's debasement of her currency to Parliament in 1931 he expressed with tears in his eyes the shame he and his associates felt, and stated that they could find no other way out. But within a very few years the governments of the United States and other countries debased their currencies and boasted of it.

A cynic may argue that if governments did not rob the able, industrious, frugal, thrifty and competent by decreasing the purchasing power of money, they would do so in other ways. But no other way so far used is so temptingly convenient for governments and so disastrous for welfare.

An advocate of debasement may argue that the reimbursement of debtors, for example, farmers who borrowed to buy property when it was dear, is a worthy act counterbalancing the harm done. This is of course nonsense. Rewarding persons who paid high prices for property is an inferior form of charity, and debasing the currency is a very inept way of accomplishing it.

Some sentimentalists may argue that debtors as a class are as good as creditors, only less fortunate, and that relief to them as a class is a worthy charity or even a moral obligation. But obviously if we are to have class legislation, there are much better classes to reward than either debtors or creditors, for example, babies suffering from malnutrition, gifted youths lacking education, members of trades outmoded by no fault of the members. In any case, a forced contribution from one class to another should be described as such.

STABILITY OF THE PURCHASING POWER OF MONEY

Psychologically a purchasing power that is stable or increases only by the advances in science and management seems a suitable ideal. Stability would make money be what people in general long thought it was and still think, or at least hope, it will be; would remove it from fluctuations caused by speculators; would make it as good a medium for delayed as for immediate exchange; and would prevent unforeseen large shifts resulting from declining birth-rates, epoch-making inventions, or other potent economic forces. An approximate stability disturbed only by the increases (mostly slow) caused by man's progress in understanding and managing the world and himself has the disadvantage of imperfect stability with a trifle less stimulus to traders who buy to sell, but the advantage of much easier and surer attainability. Any reasonable "commodity dollar" would attain it approximately. Suppose that a dollar was defined as power to purchase (when combined with 99,999 other dollars in a $100,000 certificate) the following:

a units of a specified grade of wheat delivered at Chicago
b units of a specified grade of cotton delivered at New Orleans
c units of a specified grade of beef delivered at New York
d units of a specified grade of pork delivered at St. Louis
e units of a specified grade of coffee delivered at Cincinnati
f units of gold bars at Washington
g units of copper bars at Buffalo
h units of steel rails of a specified sort at Pittsburgh
i units of steel sheets of a specified sort at Detroit
j units of bricks of a specified grade at Milwaukee
k units of 2 x 4's of a specified grade at Boston
l units of Portland cement of a specified grade at Cleveland
m units of gasoline of a specified grade at Kansas City (Mo.)
n units of cotton cloth of a specified grade at Philadelphia
o units of rayon silk of a specified grade at Los Angeles
p units of coal of a specified grade at Birmingham
q units of pasteurized milk delivered at the door (average of 10 cities)

r units of personal transportation of a specified sort
s units of freight transportation of a specified sort
t units of electricity for household uses on a specified schedule (average of 10 cities)

and a score or two more commodities and services selected and weighted to represent what dollars now buy and will buy largely in the future, and to be defined and measured without error or ambiguity. The general purchasing power of such a "commodity" dollar would shift up and down very little, probably not a hundredth as much as one based on gold alone. It would shift up very slightly and very steadily (except for some extraordinary discoveries or inventions), rewarding slightly those who sacrifice present for future goods. Such a dollar would not need to be "managed" by politicians. It would "manage" itself. It would not be understood at first by most persons, but they do not understand now what a dollar or franc or pound is or is likely to be. Any arrangements for a more perfectly stable dollar would be very much harder to understand. Such a dollar would do for business and personal finance much the same service that exact physical units do for science and technology. It would indeed itself be a complicated physical unit.*

"MANAGED" MONEY

The writer is convinced that a money which is psychologically sound should have some stated physical equivalent which its owner can at will get in return for it, and not an economic equivalent dependent on the judgment or whim of a government, bank, board or person. Is it not false and mischievous to assert that since people do not know or care what the guaranteed physical equivalent of money is so long as it maintains its purchasing power, that equivalent can be anything or nothing? That seems much the same as to assert that so long as a bank lets its depositors withdraw deposits freely, the existence of assets covering those deposits is of no consequence, or that so long as a tree bears fruit its inner disease and decay is of no

* Its advantages to trade within the nation and between nations need not be discussed here. They would be approximately those of a perfectly stable unit of general purchasing power.

consequence. It is indeed largely because ordinary people do not know or care about the soundness of their money so long as it *seems* sound, that it should be exchangeable for a physical equivalent. They need that protection. It is no excuse for robbing people that they do not know they have been robbed, or that shrewd ones among them could have avoided being robbed by selling their nation's money short (or by some equivalent operation), or that the government could rob them equally by changing the physical equivalent of the money unit, or that the robbery has been made up to them otherwise. A managed currency is a constant temptation to a government to punish good qualities in its citizens, and to bribe supporters, and to hide tricky operations, and so seems psychologically indefensible. I prefer in money "as good as gold" to "as good as government." But some eminent economists may regard these comments as ill-advised.

MONEY AS A MEASURE OF VALUES AND PREFERENCES

There is some reason to believe that the values of this, that and the other object were measured and expressed in cows, wampum or other "money" even before there was trade in these objects. But among modern civilized men money is purchasing power first, and only secondarily a measure of value apart from exchange. Only secondarily, but fairly often, as when a man says that he would give a thousand dollars to have prevented the storm from uprooting that tree, or to recall the cruel words he spoke to his mother, or to enjoy golf as he once did, or as when money damages are paid for defamation of character, the alienation of affection, etc.

The custom of using money to measure other than purchasable goods has psychological merits. It encourages people to consider them quantitatively, and to temper those desires and aversions which appear offhand as infinite. It may teach people that things which they thought were beyond money and price really are purchasable; for example, community freedom from tuberculosis and syphilis, clear air, fame and good repute (within limitations). It may inculcate a healthy realism without brutality or coarseness.

This section is only a very elementary and superficial account of only parts of the psychology of money. The forces influencing the amount of money in circulation and its rate of circulation, the arrangements for managing currencies, those for supporting and manipulating the value of a currency in foreign markets, the effect upon the public of the fact that banks and insurance companies pay their depositors and beneficiaries with dollars regardless of how much debased or elevated they may be, the effects of many particular forms of ignorance and error about money—these and other matters of psychological import have been left untouched. Some psychologist with intimate knowledge of the phenomena should deal with them. Any half-reasonable sort of money is so much better than none that follies and trickery can do much harm without causing an actual rebellion among users of money. On the other hand, improvements in money may be expected to improve all forms of industry and trade, and also both private and public morals.

CREDIT

It is often said that credit, i.e. borrowing money or (what comes to the same thing) delaying payment of money beyond the delivery of goods or services, is a beneficent factor, indeed a necessity, in modern business. This is true where the facts in the case are such that repayment is reasonably certain. Convenience, economy of effort, utilization of capital, and opportunity to buy and sell advantageously are favored if a person's (or company's) supply of money is kept in exact accord with the changing need for it. When he has more he can lend it out; when he has less he can borrow. So a borrower obtains a call loan in order to pay a bill at once and receive a discount for cash, or to make an advantageous purchase. So a lender obtains interest money for the use of purchasing power which he himself does not wish to purchase anything with.

Individuals, banks, and other concerns which make a business of lending money can be as beneficent as farmers who grow foods, or workmen who make houses, shoes, and books. The old-time church prohibitions against the taking of interest were in essence as foolish and wicked as the prejudice of certain holy

men against baths. They also were supported by a false psychology and a vicious ethics. Their view was that a rich man did himself and others no harm by vicarious consumption and conspicuous waste in accord with the customs of his station in life, and used his wealth properly if he took a profit from loaning out land for a rent (of money, produce, or services) but misused it and debased himself if he loaned money for interest. On the contrary the really debasing thing was to spend for luxuries when others were suffering, and the real misuse was to prevent and retard the specialization of labor and the advancement of science and the industrial arts in favor of a narrow agrarian feudalism. Moreover, among borrowers those who pay interest and repay the loans are not injured as a rule. It is rather those who default. They may suffer from a guilty conscience, or from misery at their folly and failure. They may find excuses for themselves and form the deplorable habit of sponging upon others without shame, as by borrowing and intending to pay but conveniently forgetting the loans or confidently expecting to pay when their luck turns, or by misusing the privileges of incorporation and bankruptcy.

A loan without interest should be regarded by both parties as a gift, a gift of the use of the principal. A person who takes such a gift and then keeps the principal as well should regard himself as a thief, if he faces reality sanely. For reasons which will be noted later, gifts of the use of purchasing power should be made with more discrimination than outright gifts of the same value. The advantages of credit to business men as a business convenience should not disguise the disadvantages of having weak-moraled persons misuse the kindness of friends and the ignorance of small tradesmen.

Whenever credit is given there is a risk. Every interest rate is a rate for the use of money plus a rate for insurance against the risk of loss of part or all of the principal. This second fraction of the rate may be infinitesimal, as in the rate for call loans amply secured by highly liquid assets, or the 30-day notes of a prosperous corporation whose defaulting within 30 days has not one chance in a billion billion. The second fraction may act

negatively on the interest rate, when the risk of non-payment is less than the risk that the money would be stolen or destroyed if the lender kept it himself. But there is always a risk. The risk may be considerable. At the moment of writing, the yield on some bonds which have not yet defaulted on any interest payment is as high as 12 percent whereas the yield on others is as low as 2½, and call loans are at or near 1. As Hadley has pointed out, people who call certain loans perfectly secure may yet respond to their small but genuine differences in security. He says:

"Security affects the rate of interest in two ways, which must be carefully distinguished from one another.

"The *conscious* attempt to provide against particular risks causes differences in the nominal rate of interest. In uncivilized countries a large part of the interest payments are of this kind. The bottomry loan in old times often called for twenty percent interest because of the chance that the ships which furnished the security would be wrecked. But as civilization advances these risks come to be separated in the mind of the investors from a residual sum which they can obtain on *what they consider* absolutely good security. This rate is not looked at by the individual as a payment for risk. Yet its height is probably in large measure a result of past experience as to losses; and this experience is a most potent factor in determining the relative value which people place upon present and future goods even when they suppose those future goods to be certain. If investors have been free from unforeseen losses in the immediate past, there is at once a greater quantity of old capital in the hands of people who are ready to offer its control to others, and a greater habitual readiness to accept promises of moderate income rates as an adequate consideration for such control. If on the other hand people have suffered considerable losses of property which they have entrusted to others, there is at once a smaller supply of capital in the hands of people who are ready to part with its control, and a hesitation to accept promises of moderate income as an adequate consideration for such control, even when there appears to be no tangible risk in the particular case in-

volved. Thus the relative valuation placed upon present capital and future income is *unconsciously* influenced by the past experience of the community." ['01, p. 280]

Whenever credit is given there is some expense of time and materials in necessary records of the transaction, the interest payments, and the safe return of the money. This may have a substantial influence on the interest rate. A man borrowing $100,000 as a call loan with ample security will, at the date of writing, pay 1 percent, or about three dollars a day, but he could not, though offering equally ample security, borrow $1000 for three cents a day. When the loans are small and for short periods, and the security is clothes, furniture, future wages or the like, the rate rises to 20 percent or more, even when the business is conducted on a non-profit basis by philanthropic agencies. If the rate is less the loaning institution must be supported in part as a charity. 36 percent is allowed by law in states where the interest rate on real-estate mortgages would be from 5 to 7 percent. A pawnbroker requiring ample security and making loans averaging ten dollars would not grow rich from a 24 percent rate.

The exaction of a rate of 20 or 30 percent is no proof that the loaner is a loan shark, enriching himself from the necessities of the poor and unfortunate. He may be a benefactor, providing those who need it with services which nobody else will provide as cheaply.

The harm that is done by loan sharks through excessive interest rates can easily be neutralized by honest philanthropic agencies providing efficient service at cost plus a reasonable surplus. But the loan sharks do harm also by deceiving the borrowers and by encouraging persons to get credit who should not.

Installment selling is subject to a strong temptation to deceive its borrower-buyers, and to encourage persons to get credit who should not, and so to duplicate the worst vices of the loan shark. By arranging to take, but also to minimize, certain risks which banks would not take, and which ordinary retailers did not choose to take, certain concerns made a profit by selling to customers who were willing to buy, but had neither cash nor ability

to borrow at a bank, nor even an unblemished record of paying their debts. In the early days of installment selling, families would thus buy a home, or furniture, or a piano, or a set of books, paying most of the price after they possessed it, who would not have saved the money to buy it. It was considered a somewhat shameful or at least inferior form of transaction. Only rather small and ill-built homes were so bought; only rather cheap and tawdry furniture; only the sets of books which educated people did not buy. The shops selling on the installment plan were inferior.

The practice has grown by leaps and bounds, until it is probably now possible for a boy to buy his fiancée an engagement ring on credit, buy their wedding clothes and household furnishings on credit, and continue until he buys a cemetery lot on credit, never saving in advance for anything and never paying as he goes for much beyond electricity, food, gasoline, cigarettes, laundry, telephone, and minor articles of clothing.

A leading economist, Professor Seligman, has reported on installment selling in two elaborate volumes, and defends its economics. I am not willing to defend its psychological effects. It is true that persons who have not the imagination, foresight and persistence to work and save for a radio, bicycle, automobile, vacuum cleaner, or the like may work and save in order to retain one after it is in their possession. It is also true that there is a certain merit, or at least charm, in the carefree improvidence that buys what it wants and enjoys it while it can, leaving the future to be cared for as it arrives. But against these advantages there is the added expense, the misery for many of being work slaves of the collector, the loss of enjoyments to which one has become habituated, the dangerous habits of mortgaging the future, the loss of the anticipations which make planning, work, and saving pleasant and educative, and the probable failure to keep a reserve of purchasing power which can be applied to any purpose. There are also the dangers already mentioned (1) that installment sellers dealing in a commodity and in credit will deceive their customers more than dealers in commodities for cash and bankers would; and (2)

that whereas sound banking is most profitable when it lends to persons who should borrow, installment selling may profit from lending to persons who should not.

It is perhaps needless to add that installment selling is at its best in the case of productive or semi-productive instruments, such as farm tools, stock, shelter for man or beast, stoves, and refrigerators, and at its worst in the case of fashion goods and showy gadgets.

Installment selling has one advantage over the extension of credit to customers by retailers of the ordinary type who fail to collect either the debts or the used articles for which, as new, the debt was incurred; namely, the innocent do not pay so large a share of the bills of the guilty.

BANK CREDIT

There is one form of credit which is unlike others in that the lending concern has, within certain limits, the power of creating the money which it lends. If this week the hundred thousand richest men of the United States should take whatever stocks and bonds and other negotiable wealth they had to ten thousand banks and borrow as much as the banks would prudently lend on that collateral and also could legally lend, and take the proceeds of the loan away with them in the form of bank notes, they would have in their pockets and bags a large fraction of the money in the country. If they had given adequate warning, the Federal Reserve Banks could have printed enough so that what they took would have all been an addition to the previously existing stock. If they had not taken the money with them, but left it on deposit, there would still have been a creation of money in the sense that they could then have drawn valid checks for say five billion dollars more than they could the day before. In any case, the banks would have the stocks and bonds to use if they did not get the money back and the hundred thousand men would have the added purchasing power, but not an ounce of gold or silver or government promise to pay anything to anybody need have changed hands.

The individual could not himself create money by depositing his stocks and bonds somewhere and printing I. O. U.'s to the

extent of 50 percent of their current value. But the banks can, within certain restrictions, do practically that. This is admittedly a dangerous power. An eminent financial adviser opposed investment in bank stocks by any save those who might wish to borrow money from the bank in question! This certainly suggests that a bank is not an absolutely impartial loaner to those having equal security to offer. And the brilliant physicist Soddy, whose interest turned to economics, has written:—

"Once destroy the power of banks and private financial people to issue money, and confine their operations to legitimate transactions, and there would not be the least difficulty in maintaining the index number so constant that no one could detect its variation. It is not a question of knowing the correct amount of money to a million or even to ten million, for such sums are insignificant in their effects. But so long as private people can get money created for them and destroyed again when they have done with it, money must be capricious in its value. . . . Modern money, the vitally necessary internal national debt between the individual citizens in the community, to enable them to exchange their goods and services, is treated as an affair between some smart entrepreneur and a bank manager to be issued or withdrawn according to an agreement between them behind the closed doors of a private office." ['33, p. 59]

There is one borrower who can force anybody who has money to lend it to him, the government. Governments commonly prefer to entice persons to lend them money rather than coerce them directly. And individuals will often prefer to tax their children by buying government bonds which are very likely to be repudiated or paid in a debased currency than to tax themselves. So governments go deeper and deeper in debt for purposes good, indifferent, and, it is to be feared, bad.

From a loan of ten dollars to pay the rent to a loan of ten million dollars for a rich man to use in buying a property, or a loan of three billion dollars for the 1939 Congress to spend, the question suggests itself over and over again, "Who should be given credit?" Indiscriminate lending to those in need has obvious dangers as a form of philanthropy. Lending to a friend is likely to weaken or taint friendship. One who asks such favors is

likely to be the kind of person who values them low. If the loan is repaid, the irritation at having to repay it is likely to outweigh any grateful memories of the loan. If it is not repaid the lender tends to feel a certain contempt for the borrower, and the borrower attaches to the lender the discomfort which he feels at his own inferiority. But a rule against any loans from friend to friend would be absurd. Lending only to those who have adequate commodities, crop prospects, or negotiable securities to pledge is unsatisfactory. Even the most hard-boiled bankers think that ability and character should be considered along with the material collateral.

Some loans which might be entirely satisfactory to the lender in that he had high safety and a good yield, may be unsatisfactory from the point of view of the general welfare. Loans for a great advertising campaign to induce people to drink more whiskey and gin would not be desirable. Nor would loans to the Baptist and Methodist denominations to support a campaign to recruit members each from the other. Loans to certain city governments have demonstrably been more useful than loans to others which have far less to show in either material or spiritual improvements for the money which they owe. But no simple general rule will serve. Some self-liquidating loans may be worse than some loans for teachers' salaries, for example, if the loan is paid off only by a municipal monopoly which sets prices far above market, or by some other pernicious form of indirect taxation.

Psychology as yet offers no important help. It is my opinion that when the psychology of lenders and borrowers has been studied certain ideas will seem probable, or at least much less foolish than they seem now. They are: (1) that credit is neither the nourishment of business, nor its life blood, but is more like an extremely valuable medicine, one which in the rapid development of industry and trade in the last two hundred years has been of enormous help, one which still has essential services to perform, but not something on a level with capital goods or scientific knowledge; (2) that there is far too much borrowing; (3) that, except for certain recognized sound business practices, an individual or company that wishes to buy something and has

not enough money should get the balance by selling something else; (4) that anybody building a house or a factory or a railroad should plan to pay off about twice as fast as has been customary; (5) that insurance companies and other repositories of the small savings of the many should make it their aim to pay back equivalent purchasing power rather than equivalent monetary units, and should consequently hold relatively more real property and common stocks and fewer bonds; (6) that local governments should borrow very much less than in the past when an increasing population meant increasing needs and increasing future workers to pay the bills, and when the expenditures of the Federal government per capita were only a tiny fraction of what they are now; (7) that the Federal government should borrow nothing whatever for more than a few months; (8) least of all should it borrow in time of war when it will save enormously by paying in uninflated cash.

Chapter 27

OWNERSHIP

It is obvious that the present allotments of power through ownership are imperfect. Musically gifted children lack instruments, and musical dullards own them; able and industrious farmers lack land, and selfish sportsmen own it; men of genius in science and art lack materials needed for their work, and idle women are housed and clothed in the glory of Solomon, and so on almost *ad infinitum*. But it is rarely certain how far a given general change in the laws and customs concerning ownership will improve matters, or even that it will improve them at all.

Some more or less useful principles can be stated about ownership, and some instructive facts about human nature which are pertinent to arrangements for ownership can be reviewed. These may prevent unsound doctrines and practices and stimulate and facilitate the scientific experiments and inventions concerning ownership upon which improvements will depend.

PRINCIPLES CONCERNING OWNERSHIP

Who should own a nation's capital goods—the instruments of production due to past human thought and work?

(1) Other things being equal, those who are able and willing to manage them so as to produce most at least real cost (of labor, depreciation, consumption of natural resources, etc.). (1a) In particular those who have created capital goods by their ability are likely to be useful owners of it.

(2) Other things being equal, trusts devoted to welfare, especially by the advancement of knowledge.

(3) Other things being equal, those who are in general able and good and consequently will avoid follies and injustices and to a reasonable extent protect the welfare of others.

(4) Other things being equal, as many decent people as possible, because the possession of material capital insures a person or family against ruin by accidents, and is educative. Mere equality in possession is of little value, and possession by the foolish or vicious may increase the damage they do.

(5) Other things being equal, the public rather than any fraction of it, because the public is thus secured against tyranny and extortion.

In some cases decisions suggested by these principles are very likely to be beneficial. In others it is necessary to experiment and learn by trial and success. For example, it is not known whether the railways of the United States should be owned by entrepreneurs who have the genius to make sagacious choices of ways and means to make them useful, by the federal government, or by some benevolent trust which might be set up by Mr. Rockefeller to operate them on a non-profit basis somewhat as Harvard University is operated. No form of ownership is perfect, in the sense of guaranteeing that the property will be used to maximize the good life for good people. There is always at the end some unguarded guardian, who is subject to human imperfection. If the public is its own guardian we have obvious and grave imperfections, such as that it will be unfair to future men and will be at the mercy of those of its membership who are most adroit politically.

Psychology supports economics in its general emphasis on the advantages of having those own the instruments of production who can use them well and the relative unimportance of minor injustices and immoralities. These may be prudently left to the care of the law. Employees and consumers are likely to gain more from the ability than from the good will of owners. In the long run a man can take from the world only what he consumes, and this is subject to control by public opinion and by sumptuary legislation.

Who should own the appropriable physical natural resources, land, soil, rivers and harbors, and mineral deposits? *

* The sun's radiation and the rainfall are not themselves appropriable or transferable, but the ownership of land carries with it the ownership of the

(1) Other things being equal, those who are able and willing to use them so as to produce most at least cost.

(1a) In the case of the soil and minerals, those who will also give reasonable protection to the needs of future men.

(2) to (5) as for the ownership of capital goods.

There is a widespread and plausible opinion that the gifts of nature should be owned by all men to a greater extent than the products of the thought and work of particular individuals. Building a barn is certainly a different thing from finding that there is coal or oil under one's farm.

The "rights," whatever that may mean, of future men to natural resources also are different from their rights to our factories and railroads. Also much of the theory and practice of the utilization of land developed before man had adequate knowledge of the respective shares of sun, water, the physical structure of the soil, its chemical constituents, and its bacterial and other living residents, in causing fertility for this, that and the other crop. An ignorant or greedy farm owner may use the soil up in many unsuspected ways. *Per contra,* certain sorts of apparent misuse may be relatively harmless.

But all these and other considerations do not impair the validity of the principles.

Who should own the natural resources of ability and character resident in human genes?

Other things being equal, those who are able and willing to use such ownership for the general welfare.

This principle will sometimes lead to practices which are opposed to the world's customs, and to present popular sentiments, which would regard it as an atrocity that a woman's bearing of a child should be in the interest of general human welfare, rather than in the interest of sexual enjoyment or the desire to possess a child, and would regard it as ludicrous that a man's spermatozoa should be at the disposal of the state or some board of

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rays and rain that it absorbs. Except for a few small areas, oceans and their fish are in practice free for all, because the cost of maintaining ownership exceeds any benefits therefrom.

trustees. But the millions of women now bearing children to the misery of all concerned represent probably far more and greater atrocities than any regime of selective births which science recommends would entail. And such use of superior genes is incomparably less offensive to intelligence, morals and good taste than the present wide use of inferior genes to burden the world with low-grade bastards. Artificial insemination is now used occasionally for the benefit of individuals and could easily be used widely for the benefit of mankind. It may become as conventional a procedure in social medicine as blood transfusion is in individual medicine.

There is really nothing very radical in such a reform. Women today bear children to be maimed and killed at the pleasure of rulers. It is only a step further to have children born to serve the state in more useful ways. Children are taken away from parents considered unfit to rear them and given to others. It is only a small step further to prevent such from being born.

Who should own the houses, yards, gardens, furniture, ornaments, clothing, radios, books and other goods used primarily for personal comforts?

The principles are much the same as for the ownership of the more obviously productive instruments except for two facts.—(1) The maximizing of production cannot now be used as an approximate criterion for the maximizing of welfare. The enjoyment of possession by the possessor has much importance in the case of these creature comforts. (2) The inconveniences of ownership by the government or by boards of trustees are much greater. Unless individuals' predilections were sacrificed by standardizing houses, clothes, etc., the cost of distributing them to users efficiently would be very great. Unless they were repaired, cleaned and otherwise kept in order as hotel rooms, barracks and prison cells are, regardless of both the wishes and the efforts of their users, the task of proper maintenance would be very difficult.

Other things being equal, intimacy of knowledge will make the owner of a property use it better. So farmers are advised for their own welfare and for the common good to invest in farm

lands, and manufacturers to invest in their own factories or similar ones. People in general are advised to invest in local enterprises (e.g. real estate in their town) which they can keep under observation. Diversification is an important other thing which usually cannot be consistent with intimacy of knowledge.

These and other less important general principles are useful as checks against the acceptance of whatever is as right, and also against rash doctrines about natural rights, divine laws, the sanctity of the individual, the sanctity of the state, the sanctity of majorities, the sanctity of the proletariat, and the like. But they do not often lead to indubitable selections of suitable owners. They do not tell us forthwith who should own the land, the copper mines, the oil-bearing shales, the steel mills, the telephone wires, the retail stores, the churches, the dangerous weapons, the newspapers, the broadcasting stations, the theaters and concert halls, the roads, the rivers, the ocean, the medical schools, the law schools, the water mains, the fire-engines, the graveyards, the trees, the habit-forming drugs.

The choices between individual, family, partnership, club, neighborhood, trustees, municipality, county, province or state, nation, league of nations, and other possible owners cannot be made by a consideration of general principles alone. Nor can the choices be made by any simple set of rules whatsoever. No single set of rules can be best for such different natural resources as sunlight and rain, water powers, humus, deposits of coal, deposits of oil, human capacities. Nor will any one simple rule be best for all the railroads, factories, farms, telephone systems, retail distributing plants, plants for heat, light and power, and research laboratories. The variety and complexity of the objects and services concerned forbids that. So also does the variety and complexity of the human abilities, interests, and desires concerned.

Nor can any solution, no matter how elaborate, of the problem on the basis of present knowledge of human institutions and human nature be perfect. We do not know enough. Trustees for the welfare of *homo sapiens* can only experiment with the best plans that the sciences of man can make and be guided by ac-

curate observations of the results. Improvements should be less fortuitous, less often the indirect consequence of struggles of persons and classes for power by ownership, less often the sentiments aroused by prophets and enthusiasts than in the past, and more often the product of knowledge and impartial benevolence. They should come faster and with less contamination by mischievous features. But they will come by experimentation and selection, not without some surprises and errors.

As has been and will be reiterated, human nature is extremely (though far from infinitely) adaptable, and in the case of property, most of which is a recent feature of man's life, many different arrangements will be tolerable for him. Most of us could have been fairly happy as tramps or mendicant friars if we had been bred to that form of life and successful in it. Indeed some persons who are able to own houses to live in, factories to manage, and farms to till, voluntarily live as glorified tramps going from hotels in New York to hotels in Palm Beach, owning only what is in their trunks and safe-deposit boxes. Doubtless many slaves were undisturbed at not owning even their own bodies.

Anthropology reveals great diversities in customs concerning ownership, as is illustrated by the following quotations:—

"*Incorporeal Property*

"Contrary to what might be supposed, the notion of patents or copyrights is well-developed in the lower reaches of civilization, and its prominence among certain peoples reduces the dogma of a universal primitive communism to a manifest absurdity. That this fact has not been adequately grasped by earlier writers is in part due to that rationalistic prejudice which is the bane of all historical inquiry. To minds steeped in the spirit of an industrial era it is difficult to conceive that privileges without obvious utilitarian benefits may be highly prized and sometimes distinctly rank as wealth.

"Even in so humble an environment as that of the Andaman Islands 'choses in action,' to use our legal phraseology, are not wanting. This is all the more remarkable because with reference to utensils such as cooking-vessels, the aborigines display a large-mindedness actually approaching communism: 'the rights

of private property are only so far recognized that no one would without permission appropriate or remove to a distance anything belonging to a friend or neighbor.' But no such latitude holds with regard to the songs composed for the occasion of a tribal gathering. A song that has been received with applause may be repeated by request at lesser gatherings, but irrespective of its popularity no one dare sing it except the composer himself.

"The Koryak believe that the course of events may be shaped by magic formulas, which serve to banish disease, lure game, consecrate charms, and exorcise evil spirits. All incantations originated from the Creator. They are now held by elderly women, who treasure them as trade secrets; indeed, there is a belief that to divulge the formula is to destroy its efficacy. For chanting a formula the owner receives from her client cakes of pressed tea, or several packages of tobacco, or a reindeer. 'When a woman sells an incantation, she must promise that she gives it up entirely, and that the buyer will become the only possessor of its mysterious power.'" [Lowie, '25, p. 235 f.]

Knowledge or power acquired from spirits during a trance or vision may be property in the fullest sense.

. . . "The visionary experience might extend its beneficent influences to other individuals who had never ventured in quest of a revelation or had tried and failed to obtain supernatural favors; and they might come to share the benefits not merely in a subsidiary fashion, as patients cured by a visionary or as participants in the dance he founded, but in the fullest sense, as though they themselves had enjoyed the spiritual blessing. This was rendered possible by the notion that privileges conferred by a spirit are transferable; and this conception became a source of gain to the visionary through the additional conception that they were alienable only through sale. Why certain rights should have come to be prized by the people of this or that tribe is not always obvious any more than in the case of the Nootka; the important fact is that they are highly esteemed and thus add to the social standing of the possessor; that no one ventures to infringe his patent; and that any one desirous of sharing it or buying it outright will sacrifice property to what we should consider an absurd amount. Transfer by gift is excluded even where

the relationship of the negotiating parties is as close as possible; I know of a Crow who bought the right of using a special kind of ceremonial paint from his own mother, and the Hidatsa medicine bundles, uniformly derived from ancestral visions and hereditary in certain families, must nevertheless be bought by sons from their own fathers." [Lowie, '25, p. 238 f.]

HUMAN NATURE AND OWNERSHIP

There is probably an original tendency in man to drive away animals, including persons, who intrude within striking distance of one's lair, as do certain birds and mammals; or within a certain area where one feels at home, as do certain primates. There are probably original tendencies to resist the abstraction from one's person, or close neighborhood, of one's offspring and other objects which one is accustomed to have and use. At all events there are deep-rooted feelings that one's ownership of his home is specially sacred, that to take children from their mother's possession is the acme of robbery, and that direct possession and use add to the legality of ownership.

There is also probably an original tendency to respond to the abstraction from one's grasp or *entourage* of any object which one possesses and uses, by resistance, clutching the object, attacking the "robber," and anger.

In general, however, the customs regarding ownership have been relatively recent human inventions to prevent, curb, regulate, or at least systematize and make predictable, the operations first of robbery by brute force and later of robbery by trickery and wiles.

Any workable system of ownership is so much better than freedom for the powerful bully to take what he wants, and any workable system which sets limits within which trickery may operate and rules to which it must conform is so much better than freedom for the trickster to take what he can, that man has been justly proud of systems which yet stand in need of further improvement. We may be especially proud of the systems operating in trade whereby a bushel of wheat or a ton of copper may change ownership a score of times to the advantage of all parties and with no risk of being abstracted by some strong-arm man

in its course from farm or mine to bakery or factory. We may also be especially proud of such systems of public ownership and maintenance for the common good as the temples of Athens, the roads of the Roman Empire, the dykes of Holland, the schools of Scotland, the state universities, the state and national parks, public health services, the housing schemes of Sweden, and many other beneficent enterprises of government for public service. We may also be proud of such cases of public-spirited private ownership as the Mayo hospital, the Bell Laboratories, the Cadbury chocolate factories, the Dennison Company. We may also be proud of such triumphs of effective organization and service of concerns with over a hundred thousand owners as the American Telephone and Telegraph Company. The management of property held by trustees for universities and philanthropic foundations has been attacked here and there from time to time, but competent and honest thinkers among the worst enemies of such self-perpetuating trustees would probably admit that their control of the properties in question has been much better for the welfare than control by any form of plebiscite or than the public's control of its public lands, oil deposits and the like.

The world is learning to test customs of ownership by their consequences rather than by their traditional sanctions or by their agreement with man's wishful dreams and passions.

A common romantic argument in favor of some form of communistic ownership is that a nation or even all mankind should treat national or mundane property as a group of parents and children now treat the property which they own. This seems a very weak argument for communism to a psychologist who has studied family life. He sees, it is true, certain happy-go-lucky families in which communism (or more exactly great freedom in borrowing) and a good life coexist, but he sees more in which the use by one member for his private ends of the property of the family as a whole or of another member of it interferes with the good life. He finds in families superior in respect of happiness and usefulness a stronger sense of individual property rights in toys, clothes, beds, etc., but also a greater generosity in waiv-

ing these temporarily and transferring them permanently. Moreover, the psychologist distrusts any argument that what is best for the allotment of the properties of a mated pair and their offspring living under one roof will be best for the allotment of the properties of the residents of a city, or the citizens of a state.

A common argument for ownership by individuals is that certain objects are the products of the physical or mental activities of a given individual and so belong to him alone by right, regardless of what the consequences of his ownership of them may be. Socialists are justified in branding this as superficial and unsound. A man's acts are made possible by his physical and social environment. A most elaborate and intricate analysis would be required to estimate even approximately what he contributes to the world and what the world contributes to him. Moreover, the doctrine that what a man contributes belongs to him is not axiomatic but rather a reflection from the very customs of ownership which it is used to justify.

This is not to deny that the distinctions between a man and the rest of nature, and between one man and another, are among the most important in human affairs; or to deny that the custom of permitting an individual to own the share of the world's wealth which he has contributed to it is very beneficent.

Most questions about who shall own the world's wealth are relatively unimportant in comparison with the questions of its per capita magnitude and rate of increase and of the elimination of violence and deception as means of acquiring or destroying it. If there were a twenty-fold increase of durable goods in this country (population remaining constant) so that it contained forty million comfortable houses easy to heat, light, and keep in order, mechanisms utilizing all the waterfalls and tides, and all the solar radiation not needed for animals and plants, permanent roads and waterways to reduce transportation costs nearly to a minimum, and a similar superabundance of factories, barns, fences, telephones, automobiles, hospitals, parks, radios, dams, roads, etc., it would not matter very much whether each citizen owned an equal share, or Mr. Rockefeller owned them all, or each present owner had his property increased tenfold.

Whoever owned them, all decent persons would have the use of them so far as needed, except for certain highly improbable interferences.

If a thousand hours of unskilled labor could buy a well-built four-room house; if five hours of unskilled labor could buy a first-class radio; if a hundred hours of it could buy a car and four hundred gallons of gasoline—the question of who owned the houses, radios, or cars would lose interest. Anybody could own as much of them as he needed who was fit to use them.

The misuses of ownership by the idle, the stupid, the ignorant, and the hard-hearted are insignificant in comparison with misuses by the violence of whole tribes and nations. Reforms which concern the ownership of material property concern only a rather small fraction of life. The possession by a mother of the child she has borne and nursed and loved is as important as her possession of her quota of material goods. Two generations ago a mother in Europe or the United States was robbed of three or four times as many of her children by death before the age of five as she is now in our better states. War robbing us of children and friends is a worse enemy than the most predacious of business practices. Knowledge and ideas are now free goods beyond what any man three thousand years ago could have dreamed. At trifling cost a man may possess almost limitless beauty in literature and music. This may sound priggish, but it is true. Why then make so much fuss about who owns the land and buildings, the ships and mines, the rails and cables? Why not make material goods so cheap that any man can own all that it is desirable he should own? Why not reward productivity and prudence and punish predacity and folly?

Chapter 28

THE PSYCHOLOGY OF CAPITALISM AND ALTERNATIVE ECONOMIC SYSTEMS

To match this title there should be a long book, not a single chapter. It should be written by a competent psychologist who had studied anthropological facts, historical and statistical records, and case histories to learn all that they tell about man's work and welfare under various forms of free and controlled activity. There is no such book whose main facts might be summarized. Nor do I dare to estimate what these facts would be. So I shall merely report a very incomplete and somewhat disconnected set of notes.

1. The adaptability of man, so frequently mentioned, makes it very risky to assert that "human nature will not endure" or "can never prosper in" such and such an economic regime. Russians have endured extreme changes in property, the church, and the family.

2. The tribes and nations of the world have worked out by trial, error, and success various systems of arrangements whereby men live, propagate, and get more or less of what they want. All of these systems involve some agency or system to determine what each person shall do, how he shall be made to do it, what he shall receive, and whether he shall receive the reward before or after he has done the work. The capitalistic system of private ownership, free enterprise, and operation for private gain has many defects, but the great merit that it operates on the whole in the interest of human wants. It takes from each according to what he can do that other humans want done and gives to each according to what he wants and can pay for, leaving other needs to be cared for by charity when necessary. Its worst results are due to our vices and folly rather than to its arrange-

ments. In it, the wants of those who are able to satisfy the wants of others are the forces that make the determinations listed above. These forces may give too much weight to the wants of inheritors of wealth, accidental discoverers of gold mines, and the like; they may include others ill-qualified to represent wants productive of welfare. But they are at least the real wants of real people.

This system uses the distribution of wealth more as an economic force to increase its production than as an ethical force to direct its consumption. Under it any one of us whose real wages could be doubled by some wizard with a wand would gladly pay the wizard half the increase. He could, in fact, extort all the market would stand. The wands during the hundred years past have been the advancement of science and technology. The wizards who have used them have included doctors, engineers, architects, teachers, entrepreneurs, and others. The net total results on production and distribution were roughly (1) to increase production greatly and more than double the real wages of labor, skilled or unskilled; (2) to increase capital goods enormously; (3) to use up large amounts of certain natural resources; (4) to increase the population of industrial countries; (5) to increase greatly the private material wealth of anybody who had capital (little or great) which he used courageously and skilfully to make cloth, railroads, steel, machinery, dynamos, telephone systems, bathtubs, trolley cars, automobiles, moving pictures, radios, refrigerators, and whatever people wanted which the new science could give, and of his heirs, if they had the ability not to lose it.

With capitalism Europe attained by the end of the nineteenth century and the first decade of the twentieth probably the highest level of goodness of life for good people that it has ever had. But along with the development of capitalism there was the advancement of science and invention, which may deserve much of the credit. The improvement of welfare seems to have been slow until about 1850, but very rapid thereafter. This suggests that the use of steam and electricity, the appearance of scientific medicine, and the increase of kindly feeling may have been large causes in the improvement.

3. Capitalism has the very great merit of using rewards rather than punishments as its main motives. Recent psychological experiments reinforce very strongly the argument that freedom of contract is superior to coercion by either custom or government.

4. Capitalism has the merit of giving power over business to persons who have shown ability in business. It has the demerit of giving them too much power over other human affairs, but perhaps a remedy can be found for this.

Persons may have power by reason of brute strength, sex appeal, qualities of appearance and behavior which evoke instinctive submission, bravery, caste or social status, persuasiveness, popularity, wealth, reputation, skill, intellect, and knowledge of reality. A psychologist esteems these in approximately that order. Inherited wealth is, of course, a more dangerous form of power than earned wealth, but a son or daughter of the earner tends to have much of his ability and remote descendants must have at least the ability not to have wasted it. Capitalism gives relatively too much power to wealth and business skill in comparison with other skills and knowledge of reality; feudalism gave far too much to a status too dependent on ancestral strength, bravery, and skill in war. Modern alternatives proposed for capitalism give too much power to persuasiveness, popularity, and political skill.

5. An economic system is good, other things being equal, in so far as it has each person do work which he is well fitted to do. Such capacities as have been measured show adult Europeans distributed somewhat as in Fig. 10 on page 175, mediocrity being the commonest condition, with any given degree of superiority about as rare as the corresponding degree of inferiority. The difficulty of the work done under a regime of capitalism does not seem to fit the distribution of ability very well. There are not enough jobs for mediocre abilities, and far too many at the lower level of unskilled labor. But there seems to be even a worse fit in communistic (or socialistic) Russia. It certainly was worse in feudalism.

Even more important is the provision of suitable work for persons of very high capacity, and arrangements whereby they are chosen to do it. Capitalism opened many careers to the

talented. It now seems likely that any working socialism will abandon the doctrine of "to each according to his need" and use not only power, dignity, and prestige, but also the most material incentives to extract "from each according to his ability." Some Russian salaries are said to equal fifty times those of the unskilled laborer; an American labor leader is paid $25,000 a year. The doctrine of the equality of the genes of men is not a necessary feature of any forms of communism or socialism, and they are very much stronger without it, except for a certain emotional appeal. The Stalin oligarchy, while asserting it in words, seems to abandon it in deeds.

6. Capitalism is more closely affiliated with freedom and individualism than with restriction and cooperation, though it requires much of the latter also.

As between freedom and restriction in technology and in business present knowledge of human nature is overwhelmingly in favor of freedom, because it increases the probability that beneficent variations in the conduct of business will originate, survive, and produce offspring, and the probability that power will come into the hands of the able (and also the good, by a fortunate correlation in human nature). In all human and social engineering the elimination of undesirable and inferior behavior, though important, is far less important than stimulation to desirable and superior varieties. One Edison outweighs a million cranks. One Pasteur outweighs a million drug addicts. The invention of life insurance or of savings banks outweighs the harm of a million thieves.

As between cooperation and individualism, psychology favors cooperation but with reservations. Both are slippery words and each may be used to cover a multitude of sins as well as virtues. Cooperation in general involves a richer life, a higher level of ability, increased production, and more stimulus to originality and inventiveness. It is consistent with self-reliance, individual enterprise, personal responsibility, leadership when needed, and submission when needed. Organization is perhaps a better word for these good features of working together. But cooperation has historically meant co-working with no too great differences in power, dignity or reward, and it will be best to hold to these

limitations. Such cooperation is hard for man. A human organization usually requires defined leadership and assumes either the older hierarchical type, or the newer functional type. Cooperative production, selling, or purchasing tends in spite of its obvious economies to be beaten or at least rivaled by individual profit makers, or to become itself almost indistinguishable from a corporation with many stockholders. So the Webbs write: "In other countries [than Russia] the associated workers find themselves ruthlessly competed with and undercut even to the point of extinction, by the mass production of gigantic establishments eager to obtain a monopoly of the markets. But experience shows that associations of producers in capitalist countries also succumb in another way. Here and there, very exceptionally, usually by creating a speciality of their own, or attaching to themselves a special clientele, they have successfully withstood the warfare of their capitalist rivals, even to the point of sometimes making considerable incomes for the cooperating members. These have then, almost invariably, sooner or later, limited their numbers, and shrunk into small partnerships, including shareholders who are not working members, and employing non-members at wages. Tempted by what are, in effect, high profits, they eventually become indistinguishable from the capitalist profit-makers themselves." ['36, vol. 1, p. 232]

The history of the cooperatives formed by southern tobacco farmers in the '20's, as told by an ardent sympathizer, proves that mutual contracts between cooperators made for their common welfare are broken. These farmers found themselves ruthlessly, and also illegally, competed with by an undercut by some of their own membership. Thirty-eight percent of a group had sold portions of their products in violation of the contract. [Lindeman, E. C., '25, p. 283]

The California fruit-growers' cooperatives seem indistinguishable psychologically from a cartel or trust of big capitalists.

Early coöperative enterprises among workingmen, for example Powderley's Knights of Labor and the Rochdale plan, were inspired by idealism and general benevolence, and this is retained to some extent in many cases, perhaps in all. But it tends to lapse. Some labor unions give representation not according to

the number of members, but according to the number of paid-up members. [Lindeman, '25, p. 286]

7. Proponents and opponents of capitalism alike lament the decrease in the opportunities for an able young man to "rise" from the status of employee to that of employer, or some near equivalent. In 1901 Hadley wrote: "Certain it is that the prospect of becoming capitalists does not act as so powerful a motive on the laborers of to-day as it did on those of a generation ago. The opportunities to save are as great or greater; but the amount which has to be saved before a man can hope to become his own employer, has increased enormously. When a man who had accumulated a thousand dollars could set up in business for himself, the prospect of independence appealed to him most powerfully; when he can do nothing but lend it to some richer man, the incentives and ambitions connected with saving are far weaker—too weak, in many cases, to lead the man to save at all, except through the medium of a friendly society or trades-union. We thus have a separation of the community into more and more rigidly defined groups, different in industrial condition, distinct in ideals, and oftentimes antagonistic in their ambitions and sympathies. This separation of laborers and capitalists into distinct classes involves serious dangers to society as a whole." ['01, p. 371]

What Hadley said seemed utterly true in 1900. But soon thereafter thousands of skilled laborers or persons earning no more than skilled laborers became employers in the business of making automobiles and automobile parts, and any man who had accumulated a thousand dollars could set up in the garage, automobile repair business, or taxicab business. Many tens of thousands have done so since then. I have not found a record of the number of garages, greasing stations, automobile laundries and repair shops, but they employed about 700,000 persons in 1930, and probably numbered over 200,000. Other tens of thousands have set up in the moving picture business. It is not at all certain that the percentage of manual workers and others who set up in business for themselves from 1800 to 1830 (except by taking up land to farm) was much greater than the percentage of them who did so from 1900 to 1930. In 1920 the prospect for

young women seemed worse than that for men in 1900. The dressmaking trade was declining; the department stores were displacing the specialty stores; women were driving to the cities to buy their clothes. But any able young woman who saved her thousand and started a beauty parlor had a first-class chance to become an employer. Now in 1940 it again seems useless to save with the expectation of becoming an employer. But we can at least be sure that if new opportunities come the savers will have first choice.

8. Capitalism has been responsible for the one-family farm (the family varying from a three-generation patriarchate to man, wife and children or single man). This is supposed by experts to be very inefficient pecuniarily, but is lauded as a preserver of the family and builder of character by many. Communism cannot tolerate the one-family farm because it is practically impossible to force such units to turn their produce into a common pool. The American one-family farm had a psychological appeal to the head who was his own master, and to members in proportion as they enjoyed a fixed habitat, country life, and the care of animals, but was lonely and barren of entertainment. The telephone, automobile and radio have changed it greatly. But the abler members still flee from it. I think everybody could do without it except those men who cannot tolerate being ordered about by others, but lack the ability to obtain such mastery in any large enterprise.

9. The life of the small individual shopkeeper or manufacturer has value as training for larger entrepreneurial responsibilities and as a trial race whose winners are in some ways the best fitted to manage the trade and industry of the world. Also it is obvious that a man can be more safely trusted to take care of the business of others who has succeeded with a business of his own. "Small businesses are on the whole the best educators of the initiative and versatility which are the chief sources of industrial progress." [Marshall, '20, p. 249]

But in a capitalism of national railway systems, giant industries, power companies, chains of stores, etc., managed by men who cannot own more than a small fraction of the stock if they would, the training as owner-manager of a small business may

not be so good as the training of a subordinate in a large organization. And in a socialist economy where succeeding as a private satisfier of wants paid by those whom you satisfy is a crime or an eccentricity, training as a subordinate to meet the standards set by the total enterprise should be much better. Fighting duels would not be good training for soldiers in a modern army. So far as concerns the pleasure which many persons derive from being their own masters in a small garage or repair shop or grocery store, it seems even less worthy than the similar passion in a farmer, because less related to the maintenance of a home and a desirable life for children.

The abolition of the small farm and the small shop does not seem a vicious feature in a socialist or communist economy.

10. Socialists argue that many economic functions now performed by private enterprise can be performed equally well and much cheaper by government. So Mr. Hoan, the honest and competent Socialist Mayor of Milwaukee, writes that:

"The average annual cost of police protection to a municipality runs from $4.00 to $7.00 per capita. This protection includes the patrolmen on the beat, detective service when needed, and, in short, all-year protection to both home and person. No one would argue that such service could be secured from a private agency for $7.00. The truth is, one could not hire a 'tin-horn' detective to do much more than look through the keyhole for $7.00 and if you could, you would probably have to hire another person to watch him.

"Several years ago the health authorities reported that Milwaukee was threatened with a smallpox epidemic. The medical fraternity were unanimously convinced that all citizens should be vaccinated. Despite a doubt about the value of vaccination as a preventive, and mainly because the medical world demanded it, the writer consented upon the condition that the work be done by the Milwaukee Health Department. The usual charge of a doctor for this service was $2.00 to $3.00 a person. The Health Department performed the task and paid the salaries of the doctors and nurses who vaccinated 400,000 persons, some of whom needed second treatment, at a total average cost of seven cents a person." [Hoan, D. W., '36, p. 15]

The work of the United States Geological Survey, Public Health Service, and Bureau of Standards are examples of the same sort on a national scale. No advocate of private enterprise should belittle such facts or exaggerate their dangers as precedents.

To leave to government only those services which private enterprise cannot perform at all or will not perform because it can do so only at a loss is unscientific and probably selfish. A wide variety of ingenious experimentation is desirable. For example, in certain states the population should have iodine to reduce certain diseases. Private enterprise might care for the situation by advertising the merits of salt to which iodine has been added. But it probably could not except as a charity. So unless the population is highly intelligent, government will intervene. Two ways suggest themselves: a campaign of education in favor of using salt to which iodine has been added, and a law forbidding the sale of salt to which it has not been added. But conceivably it might be well to provide also for the free dosage of school children with iodine, or for bounties to dealers on sales of the treated salt.

Hotelling ['38] concludes from novel and ingenious arguments that the construction and use of railroads should be paid for largely out of general taxes rather than specific charges for the transportation of the person or object in question, and this is now done to some extent in some transportation systems. A simpler case of the same general sort would be to argue that public drinking fountains should be installed thickly enough in a city to enable any thirsty one to get pure water with no expense of money and only a trifling expense of time. A more extreme case would be to argue that bread should be provided conveniently to anybody who would eat it on the premises.

11. Lord Eustace Percy has said of the English worker that "his ambition is to own a business rather than to operate it." ['34, p. 122] This is true of nine out of ten professional men and clerical workers also. Most of us want income, not managerial power and responsibility. Rebellion against capitalism is very rarely caused by a sincere desire to manage production and distribution better than they are now managed, but often by

a simple childish hope that we, the rebels, will have more material goods and a better social position, or by a theoretical faith that the world will be better for all save a few financiers and business executives. It is not like a rebellion of a district which really wishes to govern itself, or of a sect within a church which wishes to conduct worship in its own way, or of teachers who wish to use a new method. Such rebels appreciate the importance of what they wish to change, but rebels against business enterprise usually minimize the importance of the entrepreneur, and perhaps fail to understand his work and the utility of the business institutions and customs which he has established.

12. Socialists usually assume that the masses will respond admirably to kind treatment and that an order established with the welfare of all as its primary purpose will have the support of nearly all. As Marshall said of G. D. H. Cole's Guild Socialism, the new order "is to bring out latent powers of goodness in human nature: the task of regulation is to be as simple as it would be if all men were as unselfish and earnest as the writer himself: the vast difficulties of modern business organization are so completely left out of account as to imply that they have never been seriously studied. . . . In the present economic system, discipline is enforced in great measure automatically 'by an unseen hand.' It is often rather harsh; and its severity calls for frequent mitigation by human effort. But if automatic discipline is removed, an all-pervading authority must be invoked to check abuse in small matters as well as in large. Unless Guild organization develops some notion, of which it at present seems to have made no forecast, it may probably drift into chaos, from which relief can be found only in a military despotism." ['20, p. 660]

How the Russian system replaces the incentives and deterrents of capitalism may be judged from three quotations from the sympathetic account of the Webbs:

"The problem is not one of trying how little the indispensable people can be got for, but of discovering by what inducements and special provision for training the existing shortage in these 'cadres' can be most effectively diminished. Then the main body of manual workers are divided into eight or more grades, as may be found most suited to the industrial processes; grades not ac-

cording to craft or function, but according to degrees of skill or capacity, very largely based on its relative scarcity. The grades are, in fact, grades of wage-rates; fixed according to what is called 'social value,' which means, in effect, according to the relative scarcity of any particular kind of capacity to perform the operations required. These graded wage-rates rise by steps from one for the unskilled worker to two, four or eight times that amount per month for different degrees of skill or capacity. Any worker may enter any grade for which he can perform the work. The zealous and ambitious young man in the lowest grade (say grade one) may at any time claim to be promoted to grade two. 'Very well,' is the response, 'you can have a fortnight's trial. If in that time you make good, to the satisfaction of the management and of the trade union official, you will remain in grade two, and draw its higher rate of wage. If not, you will revert to your lower grade.' Presently the workman claims to be able to proceed to grade four, when the same procedure is gone through. The result is that a very large proportion of the young workers—in one factory we were told, it ran up to 90 percent—are found to be voluntarily studying in evening classes (which charge no fees), endeavouring to 'improve their qualifications.' As there is no risk of unemployment, and as all the workers in each industry are in one and the same union, there are no 'demarcation' disputes. As every increase in skill and capacity means increase of output and decrease of 'spoilage' or waste, the management, and equally the trade union, has nothing but welcome for its unskilled labourers turning themselves into skilled mechanics, and even into scientifically educated engineers. All that is essential is that the growth of net output should at least keep pace with the increased wage-bill." ['36, vol. 1, p. 186 f.]

This shows that "to each according to his need" has been "liquidated." The ratio of 8 to 1 is approximately that of the wage of the manager of a shop of a thousand workers to the wage of the lowest unskilled worker in it, under a capitalistic regime, and approximately that of the wage of the president of a great university to the wage of a policeman in its city, also under capitalism. Soviet Russia seems to rely on pecuniary incentives very extensively.

"Payment According to Social Value

"Very interesting is it to find all this manipulation of wage payments for different grades which always assumes a national minimum of desirable personal expenditure, becoming gradually more and more dominated by the principle of payment according to 'social value.' This principle is applied alike in the case of particular crafts, or kinds of skill, of which there is, at the moment, a shortage, or for which there is an increasing demand; and, at the other extreme, to a whole district to which it is desired to attract immigrants. When we asked, in 1932, why the work of coppersmiths had been placed in a higher grade than that of other smiths, we were informed that the rapid development of electrification was hindered by the lack of an adequate number of workers who could do coppersmithing with technical efficiency. In order to encourage more boys voluntarily to take to this particular craft in their apprenticeship, and young mechanics to qualify themselves as coppersmiths in evening classes, the craft of coppersmithing was put into a higher grade. In a remarkably short time the supply of coppersmiths was increased." ['36, vol. 2, p. 712 f.]

This is better than coercing boys to learn a certain trade and deporting citizens to a certain district, but seems to be simply putting the gloved hand of the ruler in place of the "invisible hand" of the total action of human wants working lawfully in a state of free enterprise.

"What are the incentives, in place of profit, that spur the membership of this self-selected vocational Order to the zealous performance of their function of leadership, in which they show a devotion certainly not less than that of the capitalists of the western world? We can only repeat our survey of the diversity of motives by which they are moved. There is the pleasure, or the persistent glow of satisfaction, which every person of ability and character feels in the successful exercise of his vocation; none the less when this vocation is obviously and directly exercised in the service of the community than when it is in pursuit of his own wealth, or, as we may add, in the expression of his own personality in art, or in the promotion of his chosen branch

of science. Scarcely distinguishable from this is the sense of achievement, which some may call the sense of success or the sense of power, in directing or influencing the actions of others. Further, the sustained emphasis on the application of science to every problem of society which, as we shall describe in a subsequent chapter, is implicit in Marxism, is a perpetually recurring stimulus to intellectual curiosity and invention. Nor can we doubt—though communists vehemently disclaim it—that we have here something analogous to the feeling of the devotees of the old religions, who are irresistibly impelled to the performance of duty by influences which non-believers find unintelligible or merely mystical.

"But there is a further factor in the maintenance of a high level of character, ability and zeal of this vocational Order. As we have described elsewhere, its entire membership is not only constantly watched from the centre, but also subjected, every three or four years, to a drastic purging, by which something like 20 or 30 percent of the members are actually expelled from the Order, or relegated to the lower degree of candidates or sympathisers. Every member has thus to stand his trial; make confession of his shortcomings, in private life as well as in public office; and answer the accusations that will be publicly brought against him. This is not merely a deterrent to weaklings or wrongdoers. It has a great effect in keeping the whole Order always up to the mark, by continual elimination of those falling below its standard.

"This leadership in Soviet Communism differs essentially, in two all-important features, from that of the capitalist class in western nations. Its constant and deliberate purpose is not the enrichment of any individual, any family or any social class—not even the non-pecuniary advantage of individual, family or class —but exclusively the lasting benefit of the community as a whole. And the policy, which from time to time it adopts and puts in operation with a view to securing the advantage of the whole community, is always one in which the entire Order, unlike any capitalist class, works together in unison to achieve the common end." ['36, vol. 2, p. 792 f.]

The next to last paragraph is hardly consistent with the last.

to say the least; and a psychologist wonders whether the remainder after a dozen or more such purgings will be of the ablest and best or of the shrewdest and fondest of power and whether Marshall's military despotism is not already a threat.

It is probable that whatever merits a socialist or communist economy may have will not be those of an idyl.

13. Sombart has stated interestingly the fact that though business men care relatively little about gain they are always working for it:

"The real interest of undertaking does not always lie in mere gain, certainly not for the dominating personalities who determine the type. Walter Rathenau was, as I think, perfectly right when he once said: 'I have never yet met with a business man whose chief aim was to acquire wealth. I will even go so far as to assert that he who is out to make money cannot possibly be a great business man.' Something very different occupies the thoughts of the undertaker. His heart is set on seeing his business thrive. Once more Walter Rathenau has expressed it well. 'The object of the business man's work, of his worries, his pride and his aspirations is just his undertaking, be it a commercial company, factory, bank, shipping concern, theatre or railway. The undertaking seems to take on form and substance, and to be ever with him, having, as it were, by virtue of his bookkeeping, his organization, and his branches, an independent economic existence. The business man is wholly devoted to making his business a flourishing, healthy, living organism.' This view is shared by all the capitalist undertakers of the day in so far as they have expressed themselves on the inner meaning of their activity.

"Now, what is really meant by making a business, that is, a capitalist undertaking, flourish? Observe that a business begins with a sum of money and ends with the same, and that therefore its existence is bound up with the realization of a surplus. Success in business can only mean success in realizing this surplus. No profits, no business success. A factory may make very dear or very cheap goods, and their quality may establish their maker's name as a household word throughout the globe, but if the business continues to show a deficit from year to year, it is a failure

from the capitalist point of view. To flourish, a concern must be profitable; to prosper, it must pay." ['15, p. 172 f.]

Veblen has asserted that modern capitalism by the interest of its leading persons in pecuniary gain loses sight of the forces of knowledge and skill which it uses and the wants of the ultimate consumers, to gratify which it is supposedly maintained.

"Variations of capitalization, e.g., occur without its being practicable to refer them to visibly equivalent variations either in the state of the industrial arts or in the sensations of consumption. Credit extensions tend to inflation of credit, rising prices, overstocking of markets, etc., likewise without a visible or securely traceable correlation in the state of the industrial arts or in the pleasures of consumption; that is to say, without a visible basis in those material elements to which the hedonistic theory reduces all economic phenomena. Hence the run of the facts, in so far, must be thrown out of the theoretical formulation. The hedonistically presumed final purchase of consumable goods is habitually not contemplated in the pursuit of business enterprise. Business men habitually aspire to accumulate wealth in excess of the limits of practicable consumption, and the wealth so accumulated is not intended to be converted by a final transaction of purchase into consumable goods or sensations of consumption. Such commonplace facts as these, together with the endless web of business detail of a like pecuniary character, do not in hedonistic theory raise a question as to how these conventional aims, ideals, aspirations, and standards have come into force or how they affect the scheme of life in business or outside of it; they do not raise those questions because such questions cannot be answered in the terms which the hedonistic economists are content to use, or, indeed, which their premises permit them to use. The question which arises is how to explain the facts away: how theoretically to neutralize them so that they will not have to appear in the theory, which can then be drawn in direct and unambiguous terms of rational hedonistic calculation. They are explained away as being aberrations due to oversight or lapse of memory on the part of business men, or to some failure of logic or insight. Or they are construed or interpreted into the rationalistic terms of the hedonistic calculus by resort to

an ambiguous use of the hedonistic concepts. So that the whole 'money economy,' with all the machinery of credit and the rest, disappears in a tissue of metaphors to reappear theoretically expurgated, sterilized, and simplified into a 'refined system of barter,' culminating in a net aggregate maximum of pleasurable sensations of consumption.

"But since it is in just this unhedonistic, unrationalistic pecuniary traffic that the tissue of business life consists; since it is this peculiar conventionalism of aims and standards that differentiates the life of the modern business community from any conceivable earlier or cruder phase of economic life; since it is in this tissue of pecuniary intercourse and pecuniary concepts, ideals, expedients, and aspirations that the conjunctures of business life arise and run their course of felicity and devastation; since it is here that those institutional changes take place which distinguish one phase or era of the business community's life from any other; since the growth and change of these habitual, conventional elements make the growth and character of any business era or business community; any theory of business which sets these elements aside or explains them away misses the main facts which it has gone out to seek. Life and its conjunctures and institutions being of this complexion, however much that state of the case may be deprecated, a theoretical account of the phenomena of this life must be drawn in these terms in which the phenomena occur. It is not simply that the hedonistic interpretation of modern economic phenomena is inadequate or misleading; if the phenomena are subjected to the hedonistic interpretation in the theoretical analysis they disappear from the theory; and if they would bear the interpretation in fact they would disappear in fact. If, in fact, all the conventional relations and principles of pecuniary intercourse were subject to such a perpetual rationalized, calculating revision, so that each article of usage, appreciation, or procedure must approve itself *de novo* on hedonistic grounds of sensuous expediency to all concerned at every move, it is not conceivable that the institutional fabric would last over night." ['19, p. 249 f.]

Veblen's indictment would not be true of most of the business men that Sombart had in mind. They would be dealing in pota-

toes or fish or automobiles and would know and care about the catching of fish and the wants of buyers of automobiles. Parts of it would be true of the big financiers who buy control of this or that, merge this and that, or take such and such an industry "in hand." They would be even truer also of the diminutive financiers who buy ten shares in the American Car and Foundry Company without knowing what it makes, or in the Union Carbon and Carbide Company, thinking perhaps that it makes carbon paper, or pencils, or carbonated drinks, or all three. These big and little financiers do not carry thought beyond their purpose, which is not to use knowledge and skill better in industry or to satisfy anybody's wants save their own and the parties with whom they are dealing. Nevertheless their acts are not necessarily excrescences, fifth wheels, parasites, or diseases of economic life as described by a factual hedonism.

A combining of potato growers into something like the California orange-growers cooperative associations might be made by a Chinese financier who had never seen a potato, and knew not for what they were used, but his act might be the indirect result of very simple hedonistic causes. These operations of high finance seem related to ordinary work for food and lodging and barter to get what you want in place of what you do not want somewhat as operations with imaginaries, integrals, and differentials are related to ordinary arithmetic. They really fit the same system, and would not need metaphors to describe them if we would take the trouble to trace their causation.

Whatever Veblen's arguments show about the inadequacy of the traditional deductive economics, or about hedonistic theory in general, they do not demonstrate a weakness peculiar to capitalism. If financiers lose sight of human abilities and wants in their super-deals, and misuse economic forces for private gain, so do governors lose sight of them and misuse political forces to remain in office, so do diplomats lose sight of them and misuse delegated power to save their faces and reputations. So will the top managers of socialist states in their super-deals.

14. A human mind in order to do its work well has to keep some things together and others apart. A business man in a regime of capitalism, and equally a manager of production or

distribution in a regime of state socialism, has to decide when to consider only business considerations, when to consider only philanthropic considerations, and when to consider both.

The older approved view was that for the most part he should keep them apart. Adam Smith held the opinion that business men do more good by trying to make a lawful profit than by trying to do good. The great liberals from Bentham to Herbert Spenser rather favored letting business pursue its own advantage within the law, regulating it by added legislation when advisable. The elder Rockefeller, though a most benevolent man, would hardly have mixed business and welfare work as his son did in the following "industrial creed":

"Might not the parties to industry subscribe to an industrial creed somewhat as follows:

"1. I believe that labor and capital are partners, not enemies; that their interests are common, not opposed; and that neither can attain the fullest measure of prosperity at the expense of the other, but only in association with the other.

"2. I believe that the community is an essential party to industry and that it should have adequate representation with the other parties.

"3. I believe that the purpose of industry is quite as much to advance social well-being as material prosperity; that, in the pursuit of that purpose, the interests of the community should be carefully considered, the well-being of employees fully guarded, management adequately recognized and capital justly compensated, and that failure in any of these particulars means loss to all four parties.

"4. I believe that every man is entitled to an opportunity to earn a living, to fair wages, to reasonable hours of work and proper working conditions, to a decent home, to the opportunity to play, to learn, to worship and to love, as well as to toil, and that the responsibility rests as heavily upon industry as upon government or society, to see that these conditions and opportunities prevail.

"5. I believe that diligence, initiative and efficiency, wherever found, should be encouraged and adequately rewarded, and that

indolence, indifference and restriction of production should be discountenanced.

"6. I believe that the provision of adequate means of uncovering grievances and promptly adjusting them, is of fundamental importance to the successful conduct of industry.

"7. I believe that the most potent measure in bringing about industrial harmony and prosperity is adequate representation of the parties in interest; that existing forms of representation should be carefully studied and availed of in so far as they may be found to have merit and are adaptable to conditions peculiar to the various industries.

"8. I believe that the most effective structure of representation is that which is built from the bottom up; which includes all employees, which starts with the election of representatives and the formation of joint committees in each industrial plant, proceeds to the formation of joint district councils and annual joint conferences in a single industrial corporation, and admits of extension to all corporations in the same industry, as well as to all industries in a community, in a nation, and in the various nations.

"9. I believe that the application of right principles never fails to effect right relations; that 'the letter killeth but the spirit giveth life'; that forms are wholly secondary, while attitude and spirit are all important; and that only as the parties in industry are animated by the spirit of fair play, justice to all and brotherhood, will any plan which they may mutually work out succeed.

"10. I believe that that man renders the greatest social service who so co-operates in the organization of industry as to afford to the largest number of men the greatest opportunity for self-development and the enjoyment of those benefits which their united efforts add to the wealth of civilization." *

The majority of public-spirited business men of the present would subscribe to such a creed and so would a majority of the bureaucrats of Russia. They expect in business as well as in

* From a speech entitled "Representation in Industry" delivered before the War Emergency and Reconstruction Conference of the Chamber of Commerce of the United States, at Atlantic City, New Jersey, December 5, 1918. This "creed" was officially indorsed by the Conference. Quoted in Hamilton, '19, p. 634 f.

their private lives to do more good than the law requires and less harm than the law forbids. They may even read sympathetically such demands as those of Allport, who says:

"A real change of attitude in industry is necessary before lasting harmony can be secured. There must be a partial abandonment of the diminishing returns principles upon which business is largely based. Instead of calculating the wages and benefits to be given the employees upon the basis of the *profitableness* of such measures to the firm the basis must be the welfare of the human beings concerned. Interests of profit must be tempered by regard for the needs of the workers. This does not mean a socialistic control of industry; but merely a socialization of individual control.

"To state the matter in another way, big business should be administered with two purposes instead of one. These two purposes are profit making and social adjustment. Neither of them should be sacrificed wholly to the other, but both should be kept in view. . . . *Laissez faire*, right to buy in the lowest market and sell in the highest, privilege of employing, paying and discharging as one pleases, are not natural and sacred rights of mankind. . . . There *is* no abstract or absolute Right which can be evoked to justify either side. The immediate personal needs of human beings sweep aside these rationalized fictions. Power for social control brings with it the obligation to exercise that power wisely and well. Corporations, therefore, which control the livelihood and destinies of thousands must face the responsibility of so ordering that control as to satisfy the needs of human life and bring contentment to their workers." * ['24, p. 414]

* Neither business men nor sober realistic thinkers about welfare can be expected to read with ardent sympathy the sentences which I omitted because they seemed to me to confuse and weaken Allport's demands. The first is "There is no argument to justify unlimited acquisition of wealth or unrestricted return for capital or ability." On the contrary history and experiment may show that to limit the size of fortunes or the rate of interest or the wages of ability is bad for welfare. It would be just as true to say that "there is no argument to justify limiting the acquisition, etc." We simply do not know. The second is "They are merely useful assumptions which may become rationalizations for greed. The capitalist stresses the justice of his scheme just as the socialist preaches the justice of the confiscation of capital. In the same manner both sides in the late war prayed to the same God, and each demanded from him the right of victory." But the law

15. According to the Webbs the weakest spot in the Russian economy is the "subordinate officials such as the inspectors, the rate-fixers and the foremen; the clerks and shop assistants; the chairmen of local soviets and the directors and book-keepers of collective farms; the station-masters, train conductors and other leading transport workers; the men and women in charge of small posts or distant offices—taken as a whole, and with many honourable exceptions—have not yet acquired the habits of punctuality, honesty, regularity, exactness and above all, absolute fidelity to the trust necessarily placed in them, upon which the most successful administration depends. This is not a new complaint about the countries east of the Vistula. We believe that those who knew the Russia of twenty years ago recognise an improvement in these respects. Much may be hoped for when the children now at school have taken the places of their parents. But at present the human links between the policy-makers and the primary workers are, as a whole, inferior in loyalty and efficiency both to the leaders and to the industrial wage-earners, and far behind those of Great Britain; and it is to this deficiency that the patent defects of soviet administration are very largely to be attributed." ['36, vol. 2, p. 797 f.]

This is somewhat puzzling if true. The workers in question would have approximately the same relative power, income, prestige and probability of doing the sort of work they like in the Russian system as in the freer enterprise of capitalism. Are they perhaps chosen less on merit, or have they perhaps less hope of advancement by merit?

Brutzkus puts especial blame on those higher in the system: "Indeed, many of the failures of our socialist construction are obviously connected with the psychological weaknesses of our organisers. Many millions of pounds of potatoes were received from the peasants and were allowed to spoil; wood was stored only to be stolen, and so on. We may be sure that if a capitalist

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of the land is not well named a "merely useful assumption." Nor is it the same thing to call "just" what is lawful and what is unlawful. Nor is it good psychology or good morals to assert that the law-abiding citizen upholding his lawful rights and the revolutionary taking them from him are acting the one "just as" or "in the same manner" as the other.

entrepreneur undertook to deliver potatoes or wood the potatoes would not go rotten and the wood would not be stolen. The entrepreneur will not be indifferent to the loss of the profit for which he is working, and he will vigorously defend himself against any attack upon his capital. At a certain meeting the workers complained that the shoes purchased by the foreign trade commissariat had proved to be unsatisfactory. The representative of the commissariat answered thus: "We are not merchants, proletarians! The American capitalists who supplied the shoes cheated us." The workers accepted this explanation in good humour." ['35, p. 82]

More damaging evidence of bad management at the top is the fact, related by the Webbs as a tribute to the Russian system, that 150,000 "shock brigaders" engaged busily in an effort to find or devise better methods of cost-accounting for factories and produced some definite improvements. Surely a few experts put at the job could have done as well or better at an enormous saving.

16. It may be laid down as certain that the middle half or two thirds or three quarters of a nation in respect of ability will never manage well the nation's business or government. Still less will the low half or two thirds or three quarters. They never have. Not in any church, not in any labor union, not in any political party, not in Russia. They lack both the interest and the ability. Also there are too many of them.

It may further be taken as certain that the welfare of society will never be cared for by society acting by itself, but only by the acts of persons. What Veblen says of a community organized on a pecuniary basis is substantially true of a community organized on any basis.

"In a community organized, as modern communities are, on a pecuniary basis, the discretion in economic matters rests with the individuals, in severalty; and the aggregate of discrete individual interests nowise expresses the collective interest. Expressions constantly recur in economic discussions which imply that the transactions discussed are carried out for the sake of the collective good or at the initiative of the social organism, or that 'society' rewards so and so for their services. Such expressions are commonly of the nature of figures of speech and are service-

able for homiletical rather than for scientific use. They serve to express their user's faith in a beneficent order of nature, rather than to convey or to formulate information in regard to facts." ['19, p. 305]

17. The merits of an economic system are not fully measured by its production and distribution of vendible goods and services minus the discomforts endured in producing and distributing them. There are other useful tests.

One test is to ask "What sort of person is rewarded by the system in question?" Under feudalism the brave and the faithful were specially rewarded, but also the servants who were in close personal contact with those who had rewards to give, and the flatterers and panderers. Under capitalism rewards come to the industrious, the thrifty, those who discern what people will buy if it can be offered to them at a certain price, those who can manage machines, workers, and salespeople, those who can estimate costs, those who can learn to whom to give credit, those who can make useful scientific, technical, and business inventions, those who can foresee business and industrial conditions, those who are honest, those who can estimate closely the maximum which a buyer will pay and the minimum which a seller will take, but also those who are honest only when it is a good policy, those who can hoodwink people into wanting what is of little good to them, those who set so high a value upon the success of their personal ventures or of the business with which they are associated that they will sacrifice the interests of their country, their employees, their neighbors, their friends, and their families by corrupting legislators, bullying workmen, cheating competitors, and neglecting their children. Under state socialism or communism the world's limited experience indicates that the high government officials and those who, by merit or otherwise, please these government officials, are especially rewarded.

Another useful test is the behavior of people in what may be called neutral or indifferent matters, where the system does not operate directly by wages, profits, or the conditions of work, but indirectly by the more general ideas, habits, interests, attitudes, etc. which it causes. Such matters as personal cleanliness, the

disposal of litter, the treatment of domestic animals, the care of flowers, the use of leisure, the contents of popular newspapers, the general behavior of people on the streets and in public gatherings, the frequency of certain offenses against persons and property, and the frequency of certain eccentricities and delusions should be significant, if other things than the economic system are equal.

It may be noted that these two tests will be useful in evaluating systems of government or religion as well as economic systems of production and distribution.

Chapter 29

POLITICAL SCIENCE AND THE OTHER SCIENCES OF MAN

Great thinkers have reflected upon the facts of government and have made up their minds concerning what Society, the State, Rights, Duties, Government, and Law, Natural and Divine, are and what they are not. Their reflections were powerful forces in their day and make profitable reading still. But the safest conclusion one can make from their statements is that Society, the State, Rights, Duties, Government and Law are *words*,—words which may mean observable realities but which may mean admixtures of observable realities with forces which are either mythical or deeply concealed in the actual flow of life.

It will perhaps be agreed that in studying the psychology of government one is studying primarily the psychology of power and coercion, but these words also are multi-meaning. They may tempt students of political science to talk instead of observing and experimenting. Professor Duguit says that "The doctrine of solidarity leads further to the consequence that the State is obliged to make certain laws. It is obliged to put the power which it controls at the service of social solidarity." ['23, p. 211] This may all have to be so in order to make the flow of words in Monsieur Duguit's mind consistent; but do the facts of history, past or present, show states devoting their men and funds to the service of social solidarity?

There is a danger of glib plausibilities in all these general terms. Rousseau wrote that "the strongest man is never strong enough to be always master, unless he transforms his power into right, and obedience into duty." These words may have encouraged worthy men in worthy deeds, but just what do they mean,

and if translated reasonably into real facts of behavior, are they true? Political scientists would perhaps disown Rousseau; but is the often-quoted pronouncement of Professor Duguit much more helpful? He says "According to the doctrine of solidarity, the individual has no rights, he has only social duties; * the State has the duty of doing nothing which prevents the individual from the accomplishment of his social duties and particularly the free development of his activity." ['23, p. 213] At its face value this means that the reader has no right to breathe, but that the state must take care that he is not prevented from breathing. What magic is there in solidarity which can take something away as your right and give the same thing back as the duty of the state to you? And what is the difference? Moderns write to the effect that government is the means whereby society controls individuals in the interest of the whole. Of how many actual governments has that been true?

The science of psychology is averse to thinking in so broad and rich terms as society, solidarity, the state, duty, power, and the like. It prefers humbler but more objective concepts. Even so slight a change as the use of plurals, such as *societies, states, duties,* helps. Mr. E. P. Herring ['37] has, for example, used the term "power-units" to direct attention to the pluralism of government, and this seems helpful. Also the psychologist is a disciple of what may be called the factual and observational as contrasted with the philosophical and reflective exponents of political science, and desires, as they do, knowledge which will describe, predict, and control what kings, presidents, ministers, cabinets, parliaments, legislatures, ambassadors, judges, policemen, generals, soldiers, bosses, tax collectors, voters, crowns, scepters, titles, edicts, laws, primaries, warships, post-offices, custom-houses, etc. do, how they do it, and why they do it. He is more concerned with what sort of persons the two million persons in the United States who are paid public money to do public work are and should be than with what general principle gives them the right or duty to rule and serve. It is not that he prefers details to common elements, general principles, and

* Rights rather than right seems the proper translation for *"droit"* in this sentence.

"laws." If a principle or law can predict events, the more general it is the better, and the simpler the elements with which it deals the better. Merriam ['25, '31, p. 129] lists as specially worthy of study the vote, the legislative roll-call, the judicial action, administrative process, military forces, schools, and public personnel. These words are many steps nearer to observed reality than solidarity or state with a capital S. But each of them covers millions of diverse facts.

The psychologist does not even require that the data of political science be defined rigorously or distinguished sharply from the data of economics, or law, or ethics. To the reproach that one must define clearly what one is talking about in order to discuss it profitably he replies, "That may be true, but we are planning to work with facts before we talk about them. We will know what we are talking about when the time comes. Let us not hamper anyone's observations and experiments by trying to slice up human behavior too soon and too rigidly into what belongs to this, that and the other science."

Realists observing the phenomena of government are less likely to indulge in over-simplification and over-generalization than absolutists thinking about its essential nature. But they are not immune. Many of them hold the doctrine that government is operated solely for the selfish interests of its personnel (including the hidden personnel of political "bosses," their henchmen and their financial supporters), to the limit that the traffic will bear. For example, Kent ['35, p. 9 and p. 103] writes that "It is not too much to say that the great bulk of the men holding municipal, state, and federal offices throughout the country today were elected or appointed to these offices because of the support of the party organizations or machines. They are exactly the same thing. . . . Placing just as much of his machine as he possibly can on the payroll is the primary purposes of the boss. That is the fundamental idea back of a political organization." Many philosophical writers accept this as true of that part of government which they more or less stigmatize as politics. Duguit's "*solidarité*" does not prevent politics from being "the art of getting power and jobs and holding on to them." ['23, p. 112] Can it be so simple as this? Many realists seem

to accept Veblen's doctrine that not only do purely selfish interests rule in the making and upkeep of states, but that they always involve an invidious and pernicious satisfaction of one at relative superiority which is more easily attained by degrading others than by bettering oneself. So James Harvey Robinson writes:—

"Perhaps the most realistic and penetrating suggestion about the origins and nature of the state ever written is that which is contained, incidentally, in the late Thorstein Veblen's ironic book on 'Absentee Ownership.'

"Mr. Veblen describes thus the character of the state and of the forces which have kept it going:

'State-making was a competitive enterprise of war and politics, in which the rival princely or dynastic establishments, all and several, each sought its own advantage at the cost of any whom it might concern. Being essentially a predatory enterprise, its ways and means were fraud and force. The several princely and dynastic establishments took on a corporate existence, with a corporate interest, policy and organization; and each of them worked consistently at cross purposes with all other similar corporations engaged in the same line of adventure. Among them were also principalities of the Faith, including the Holy See. The aim of all centered in princely dominion and prestige, and in unearned incomes for the civil, military and ecclesiastical personnel by whose concerted efforts the traffic in state-making was carried on. Any one of these dynastic corporations could gain further dominion and prestige only at the expense of others of their kind, and only at the cost of their underlying population. It is a matter of course that the loss, damage, decay or discomfort of any one counted as gain for the rest; all gains being differential gains.

'The traffic was carried on then as now by warfare and warlike diplomacy; which always revolves itself into an expenditure of life and substance on the part of the underlying population of all contending parties. It was always, as it has always continued to be, an enterprise of intimidation which counted on an eventual recourse to arms—*ultima ratio principum*—and the business was always, then as now, worked out in terms of mutual damage and

discomfort, the outcome being decided by the balance of damage and loss; the cost in life and substance falling then as now, on the underlying population, and the gains in dominion, prestige and goods going to the princely establishment and the kept classes.'

"It needs only a few modifications of phraseology to make this description fit not only the earlier history of government, but public affairs in our own day of so-called democracy and government 'for the good of the governed.'" ['37, p. 233 f.]

Can it all be so simple as this?

The opinions of the classical observers of government, such as Aristotle, Machiavelli, Montesquieu, Bagehot, Bryce, deserve careful attention, but they lacked knowledge of recent history, anthropological science, and the growth of certain ideas and habits in children. Also they were restricted and misled by inadequate biology and psychology, considering a man to be rather a unitary mind or soul or self, possessing a set of tools or faculties of attention, memory, imagination, judgment, reason, will, etc., which operated in relative independence of the concrete situations concerned. Also they did little in the way of measurement or the analysis of measurements made by others.

Anthropological studies may be overvalued and misused, but they have the great merits of being almost a sure cure for the acceptance of the customs of Europe from 500 B.C. to 1900 A.D. as laws of nature or of God, and of presenting certain facts of government in new and often simpler settings. I quote three brief examples:

The first shows early kings or chiefs chosen as protectors of the group not so much from bad men within or without, as from bad spirits of nature. It is not a great exaggeration to say that such a "ruler" caused the spring to come, the animals and plants to grow. Naturally his person was sacred and his will was potent.

"The work which in primitive society is done by all alike and by all equally ill, or nearly so, is gradually distributed among different classes of workers and executed more and more perfectly; and so far as the products, material or immaterial, of this specialised labour are shared by all, the whole community bene-

fits by the increasing specialisation. Now magicians or medicine-men appear to constitute the oldest artificial or professional class in the evolution of society. For sorcerers are found in every savage tribe known to us; and among the lowest savages, such as the Australian aborigines, they are the only artificial class that exists. As time goes on, and the process of differentiation continues, the order of medicine-men is itself subdivided into such classes as the healers of disease, the makers of rain, and so forth; while the most powerful member of the order wins for himself a position as chief and gradually develops into a sacred king, his old magical functions falling more and more in the background and being exchanged for priestly or even divine duties, in proportion as magic is slowly ousted by religion. Still later, a partition is effected between the civil and the religious aspect of the kingship, the temporal power being committed to one man and the spiritual to another." [Fraser, J. G., '20, p. 150 f.]

The second shows that leadership may exist without coercion or subordination, at least in a small tribe. "Even in the absence of any form of organization which implies subordination, leadership develops. Eskimo society is fundamentally anarchical because nobody is compelled to submit to dictation. Nevertheless the movements of the tribe are determined by leaders to whose superior energy, skill, and experience others submit. The man, the provider of the family, determines the movements of the household and his wives and dependents follow." [Boas, F., '28, p. 221 f.]

The third shows that the particular traditions and customs of a group may maintain forms of government contrary to what would be expected from the life of the people, or from the governmental practices of surrounding peoples.

"Regardless of variations in time and space, it is justifiable to say that the Negroes evince an inveterate proclivity for at least the forms of monarchical government. Apparently this represents essentially an old cultural heritage of both the Bantu and the Sudanese. The fact cannot be impressed into the service of that geographical mysticism which is once more raising its head, because stocks possessing a different set of traditions depart

widely from the Negro norm even though they may live surrounded by Negro tribes, that is, in the identical geographical environment. This is demonstrated most clearly by the case of the Masai, which is likewise instructive from another point of view. A priori one would certainly be inclined to conjecture that the head of so martial a people must be some warrior of renown, but this assumption for all its reasonableness does not even approach the truth. Such central power as exists is vested in an hereditary seer who is not so much as permitted to accompany a war expedition, but is expected to prepare a medicine insuring the warriors' success and to foretell future events. He is also empowered to appoint by divination the headmen of the several districts. But though he enjoys the respect due to a holy man, the character of his office is far removed from that of a typical Negro autocrat. He is more of a national saint than a ruler, does not dispose of life and death, indeed, rarely acts as judge at all, and never basks in the splendor of a court." [Lowie, R. H., '25, p. 382]

Many of the elementary facts of government appear in the nursery. Coercion and cajolery, mastery and submission, war and peace, competition and cooperation, compromises and revolutions can all be studied there. For example, a more or less hierarchical scale of mastery or dominance can be figured out in any group who have been associated for even so short a time as 50 waking hours. So Hanfmann ['35] found that among nine five-year olds in a kindergarten, H dominated I, G dominated both H and I, F dominated G, H, and I. E dominated F, G, H, and I, but only to the extent of preventing them from coercing him; he did not force them to do his will. A, B, C, and D dominated E, F, G, H, and I, but their relations one with another did not show a single order of dominance. C and D submitted to B, but bossed A. A, however, bossed B, and C bossed D.

The observable phenomena of political science are the behavior of persons. In Walter Lippmann's words, "It is the individuals who act, not society; it is the individuals who think, not the collective mind; it is the painters who paint, not the artistic spirit of the age; it is the soldiers who fight and are killed, not

the nation; it is the merchant who exports, not the country." ['27, p. 172]

So biology and psychology should be useful. It is perhaps extreme to say as Merriam does, that human nature is "the terra incognita of the political and social philosophers," but these gifted men certainly did not know such facts as have been presented in Part I of this book, nor did they observe directly and zealously the behavior of men outside their own circle. Their followers have, with a few notable exceptions, been too busy with their own science and its most congenial relatives, history and law, to do differently. Yet they would probably admit that Merriam is right in his belief that "Politics cannot live and flourish upon the abstractions surviving from the natural-law philosophy, or the historical roots of institutions (which are not without nourishment), or the stimulations of legal logic . . . it must adapt itself progressively to the new intellectual technique of the time. During the last century politics learned to take cognizance of great historical, economic and social forces, in the seventeenth and eighteenth centuries much neglected. This was a memorable achievement. It is equally necessary now to examine the new insights into human nature offered by modern science working in psychology and biology and other fields. The new politics will be a synthesis of many elements now found in the older and in the newly developing discipline. Of fundamental significance is the new point of view and the new method afforded by what we call psychology; and politics can no more ignore it than we can ignore history or economics in their respective fields." ['31, p. 99 f.]

The next six chapters should be replaced soon by a psychology of government written by an expert in both. Until then I hope they will do at least more good than harm.

Chapter 30

HUMAN RELATIONS

A complete psychology would study not only the nature and causation of the abilities, propensities, wants, feelings and acts of men and the individual differences among men, but also the relations of men one to another, singly and in groups. This half of psychology has barely begun. The behavior of two persons, A and B, obviously depends not only upon the nature of A and the nature of B but also upon whether the relation in which they stand one to another is that of stranger to stranger, friend to friend, friend to enemy, old to young, mother to child, leader to led, master to servant, teacher to pupil, employer to employee, seller to buyer, entertainer to seeker of entertainment. Each of the sciences of man deals especially with certain of these relations. Philology and linguistic science, for example, are specially concerned with the speaker-hearer relation. Economics is specially concerned with the seller-buyer and employer-employee relations. Each of such relations designates those components in the external situation and in the inner "set" or adjustment of either party which cause certain characteristic behavior regardless of who the persons are.

An individual may obviously be and act in certain relations to a number of individuals or to groups of varying degrees of cohesion, common feeling and joint-action. So we have the relation of officer to men in an army, of pastor to flock in the church, of president to board of directors in a business. Any combination of individuals may be in certain relations to any other combination of individuals.

POLITICAL SCIENCE AND HUMAN RELATIONS

Political science is especially concerned with the relations to other men of hereditary, appointed, elected or self-constituted

rulers of all descriptions from presidents to policemen, of protectors and guardians, of lawmakers and law-enforcers, of taxpayers and tax-spenders, of state to state, of province to province; but it may for one reason or another need to study the relations of trustees and patrons to beneficiaries, representative to represented, superior to inferior, higher officer to subordinate, parent to child, neighbor to neighbor, citizen to municipality, citizen to nation, lord to serf, priest to parishioner, landlord to tenant, nobility to commoner, and many other human relations. It may even deal with the relations of persons to things, as in the consumption of food in time of war or famine, or the consumption of certain drugs.

Some of these relations are not easy to describe adequately. Wherein does the set of a man's mind who acts as a citizen of England differ from the set of his mind when he acts only as a citizen of his village. The difference is made by the action of tendencies left in his brain by traditions told in the home, lessons learned in school, books, magazines, and news in the papers and over the radio. It is not made by any mystical force emanating straight from the spirit of England or the souls of Englishmen. "How do we know," says the historian Pollard, "that we are a nation and an Empire? Well, we have *The Daily Mail* to tell us so, and *The Times* and other Atlases with maps all colored red."

The list of relations given above does not include the important cases of relations to God, conscience, duty, the right, and other supernatural or highly abstract entities. Yet these undoubtedly play important parts in government. It was not a reactionary bishop of the church, but a radical professor of law and worker in municipal and federal government who declared that of the forces at work in government "The third and greatest group of forces is the longest range group of all. They are ethical and spiritual. Without them neither the short range effectiveness of action or the longer range effectiveness of thought can mean very much." [Berle, A. A., '35, p. 149] The supernatural realities involved may be left to religion, but the natural phenomena in which they manifest themselves and operate should be described here. They are deep-seated habits

and attitudes in men, and the relation between them and men's thoughts and actions is a relation between two parts of one man. The relation between trust in Jehovah and courageous attacks by the Jews upon the Philistines was a relation between a deep trust that one will be taken care of and one's acts as a fighter. The psychology is the same whether the trust is of a Jew in Jehovah, a Mohammedan in Allah, or a soldier of Cromwell in his triune God. The relation between the voice of conscience or sense of duty and unpleasant acts of duty is a relation between deep-seated habits and ideals which give orders without giving reasons, categorial imperatives as Kant called them, to the rest of the man.

Conscience has urged billions of men to conduct which is good for the group in which they have been brought up or was thought to be good for it by those who trained them. It, or something like it, has also urged many men to acts which a different training would have taught them to abhor. The conscience, (or something like it) of a nobleman of the old regime made him defraud creditors and ruin his family in order to pay gambling debts which present laws regard as invalid. The conscience (or something like it) of Abraham made him lay his son on the altar.

The psychology is the same in all these cases. A part of a man can govern and otherwise influence other parts of him. Supernatural and abstract entities operate on man by the habits and ideals instilled in him, especially in early life. It is only as God, right, duty, and the like take up their abode in a man that they become political forces in the natural world.

One of the most important human relations is that of a man who has much power to a man who has little or none. The powerful-powerless relation is a feature in many of those specially studied by political science.

The human genes provide apparently a tendency to enjoy physical dominance or mastery whereby others run when you attack, give up their hold on what you seize, and yield to you in matters of sex. By association this enjoyment may become attached to less obvious forms of mastery, such as giving verbal orders, directing the acts of men remote in space or time, or

receiving prayers and tribute. There is also a tendency to enjoy submission to the proper sort of master. This too changes by association. The captain may enjoy doing Napoleon's will as truly as he enjoys having soldiers do his own will. There seem to be wide differences in the genes of individuals in respect of the mastery and submission propensities.

Some environments are so discouraging to the exercise of power over the less powerful that a general status of "live and let live, mind your own business, do not exalt yourself" is maintained. The anthropologists have reported tribes living so, and probably some monasteries, research institutes, artists' colonies, men's clubs, and labor unions could be found where the mastery of others, for either selfish or altruistic purposes, was deprecated. But the rule is the reverse. The powerful commonly use their power. They also use it for themselves ahead of others, but if they have much intellectual ability and the amount of good will normally correlated with intellectual ability, they will have many times as much power as they will wish to spend on themselves. Without any uncomfortable self-denial such men will use much of their power for the welfare of their followers, compatriots, employees, slaves, or others over whom they have power. In all this they will be much influenced by the customs of their time, place, and social class.

Western civilization at present, partly because of the humanitarian development in laws and customs during the last hundred years, partly because of fear in the powerful few of the combined power of the many weak, and partly from other causes, expects the most powerful one percent to use their power in the interest of the least powerful half to a degree found hitherto in only few and small tribes or "cultures." A Carnegie or Cadbury of the days of Columbus or even of Washington would not have regarded himself as a trustee of his wealth for the public. Gustavus Vasa did not regard himself as doing his duty by the peasants of Sweden.

It is well to be reminded of the tyranny which our ancestors suffered for centuries in feudal times. Boissonade has given a vivid picture of how the "other half" lived in the year of Our Lord 1000.

HUMAN RELATIONS UNDER FEUDALISM

"The villein might be defenceless against the arbitrary will of his Lord, but he was usually sheltered from the attack of tyrannous neighbours. Seigniorial government here gave him a relative protection. There was as yet no analogy with the continuous security enjoyed by labour in modern society, but in feudal society a minimum of security was nevertheless obtained. The feudal régime was, in effect, born of a social necessity, of a contract of safety, the protection accorded by the soldier in exchange for the useful services of the peasant. The lord took charge of the military defence, policing, and administration of his tenants. It may be that he often showed himself a brutal and capricious protector, but at least, out of self-interest, he sought to perform these functions in such a way as not to diminish the number and value of his human capital. It is true that he did not admit his subjects to a share in the exercise of political rights and sedulously maintained them in a condition of dependence in this matter. But customs became established —the expression of wisdom, experience, tradition, according to the German term (weisthümer)—and commanded a respect which guaranteed to the peasants a certain minimum of privileges, which even the lord dared not violate. Thus in England the peasant could appeal to the royal court if he suffered violence from his master; in Germany he was allowed to interrupt his labour services in order to go and assist his wife in childbed; in many parts he had to be fed and sometimes given a small payment when he worked upon the lord's demesne. Throughout the West he was permitted to group himself with his fellows in associations for common cultivation and police; he was called upon in his village assemblies to decide rules for pasture and the use of woods and waters, and, finally, was eligible to sit in the manor court which judged his peers. The seigniorial régime was not a hell, in which the villein must abandon all hope, and, hard as it was for the peasant, it left him several openings in the direction of a better future.

"Nevertheless, during the first two centuries in which it prevailed, this régime was exceedingly hard. Although good and

charitable lords were to be found, like Count Gérard d'Aurillac, who was canonized by the Church, and also intelligent administrators, such as the Dukes of Normandy and the Counts of Flanders and Anjou, the majority of the feudal lords were exacting and capricious masters, incapable of controlling their violent passions. They liked to boast that they were responsible to God alone in their relations with their subjects, and the feudal conscience was a fragile protection, nor was it even invariably guided by an enlightened selfishness. The feudatory did not realize the advantages of a more liberal régime than that which was ordinarily in use upon the domain. In every possible way he hindered the activity of his subjects; he would never moderate his dues; he burdened the cultivator with innumerable taxes, which were prejudicial to good farming. The peasant was unable to dispose of his own time or of the produce of his holding, and he could not even enjoy the common lands without coming up against abusive restrictions. He was subjected to heavy monopolies, in exchange for services, in assessing the remuneration for which he had not been consulted. At every step he was met by seigniorial regulations or *bans,* which cramped his initiative. He had to see his fields devasted by rabbits and pigeons bred in the lord's warrens and dovecotes, or by wild animals which were preserved for the lord's hunting. At any moment he could be forced to give up his carts, or cattle, or provisions, by virtue of the *droit de prise,* and to ruin himself in order to lodge and feed the lord and his officials, by virtue of the rights of hospitality (*gîte*) and procuration. He was not free either to buy or to sell. The perpetual tutelage of the lord paralyzed his labour.

"It was for these reasons that the material and moral existence of the peasants was so uncertain and often so wretched before the twelfth century. Certainly there were regions in which it was tolerable, such as the Rhineland, Aquitaine, Flanders, part of the north of France, and the Mediterranean South, but in general it shows in sombre colours during the first 150 years of the feudal era in the West. Isolated in their farms, or more often grouped into the thousands of villages which had grown up upon the territory of the dismembered villas of antiquity, or

often, in the south, collected in little fortified townships, the villeins lived day by day under material conditions not far removed from discomfort and actual want. The mass of cultivators was made up of poor folk, who were bowed beneath the weight of rents and services, and who had no means of improving their daily life. Their dwelling-place was a hovel, with thatched roof and floor of trodden earth, furnished with the utmost scantiness. The type remained unchanged for centuries. Their clothes of woollen or linen cloth were rough and coarse, their food was frugal. The villein, says a moralist of the early twelfth century, never drinks the fruit of his vine nor tastes a scrap of good food; only too happy is he if he can keep his black bread and some of his butter and cheese.

S'il a grasse oie ou la géline,
Un gastel de blanche farine,
A son seigneur tot le destine.

If he have fat goose or hen,
Cake of white flour in his bin
'Tis his lord who all must win.

He may keep only what is strictly necessary. By the social law of his time, says Bishop Adalbero, he is bound before all else to furnish the propertied classes with 'money, food, and clothes'; and another pious publicist, Étienne de Fougéres, agrees that the function of the villein is to plough the soil and rear livestock for the profit of his masters.

Car chevalier et clerc, sans faille,
Vivent de ce qui travaille.

For the knight and eke the clerk
Live by him who does the work.

"Bad methods of cultivation, exactions, brigandage, and feudal warfare, natural disasters, murrains, floods, droughts, defective harvests—all seem to have conspired to make the life of the workers of the West more difficult. Since they did not know how to husband their reserves, and since each lived, as it were, isolated within his own lordship, famine was an almost endemic scourge. Like a sinister handmaid of death, it moved swiftly,

ravaging as it went. In France between 970 and 1100 there were no less than sixty famine years. In England the tradition is still preserved of the terrible dearths of 1086 and 1125. The whole of Western Europe experienced in turn this frightful scourge, which decimated the population of entire districts and brought in its train a revival of the practices of primitive bestiality. Privations and the lack of hygiene also multiplied epidemics and plague and leprosy. Yet such was the effect of family life and of the facilities for establishing families upon the soil, that the gaps were filled and, in spite of misery and want, the population rose, even to the point of disturbing the equilibrium between the production and consumption of means of subsistence. But this fertility created a new cause of distress in those countries wherein colonization did not open up the prospect of a better material existence for the wretched inhabitants.

"Worse still, perhaps, was the moral state of the rural classes. The state of mind of the majority was a gloomy passivity. Left to his own resources, the villein in his isolation found solace only in the bosom of his family, in the village community, and in his participation in the ceremonies and beliefs of a Christian life, which were brought within his reach in the thousands of parishes which had been created in the West. But in him, as in his masters, the old ancestral spirit still maintained itself, unquenched by education, with all its train of ignorance, superstition, brutality, cruelty, coarseness, and violence. The low and abject trickery of the mass of villeins and serfs was the melancholy heritage of centuries of oppression, to which the feudal régime had only added its own. No one sought to raise up these lower classes or to inculcate in their breasts the sentiment of human dignity. Aristocratic society, despising the villein, was not wise enough to improve him by treating him as a man. In spite of evangelical maxims about the equality of Christians before God, which are sometimes to be found in the sermons of preachers or in the writings of theologians, the propertied classes held that villeinage and serfdom were institutions consecrated by divine right, and placed the serf a degree lower than the beast of burden. In the eleventh century a French serf was worth 38 *sous* and a horse 100. The Church itself did no more

than counsel the lord to use charity and the serf to show unlimited obedience and respect. But the seignorial class was devoid of the spirit of kindness and justice, which might have won the peasants' attachment. The lord had only hard treatment and contempt for the villein, by whose labour he lived. His pleasure, as a churchman of the age admits, was to trample, rail, and scoff at the peasant, and, ignorant of the spirit of equity and pity, he reigned by violence and terror." ['27, p. 143 f.]

THE BROTHERHOOD OF MAN

The relation of one member of the human species to another favors to a slight extent certain acts of mutual aid including protection of the weak and care of the suffering. But it is not hard for man to treat other men as he treats non-human wild or domestic animals. This may well happen in the year 2000 A.D. as in the year 1000 A.D. or 1000 B.C. There is probably nothing in the genes to prevent; the democracy of the Christian religion did not achieve a preventive or a cure; nor did the political democracy of the eighteenth and nineteenth centuries, though many hoped that it had.

Man tends inveterately to form a "closed society" in which are men whom he classes roughly with himself and one or more outer classes which he treats very differently. One or more of these may easily become an object of hate and other responses appropriate to dangerous wild animals. Others may easily become objects of exploitation appropriate to domestic animals or machines. There is usually some real or fancied reason for such exclusions. The excluded are of a different color, or religion, or nation, or economic status, etc. But the monomaniac, the fanatic, the self-confident conqueror or reformer may at times divide mankind into two classes, himself and all others, and treat his foes as wild animals, his friends and neutrals as domestic animals. So a Napoleon at war spends men who are his fellow citizens and friends as he spends horses or munitions. Judging from one biography, Collis P. Huntington, famous as a robber baron of American finance, seems to have treated the population of California, the legislators of the state and nation, and even his partners for the most part as rather contemptible

creatures whose only importance was as aids or hindrances to the success and profits of the railway to which his life was devoted.*

Some students of government take so pessimistic a view of the power relations of man to man and group to group that they seriously propose that only such laws and customs should be established by the state as would be established by the arbitrament of war. So H. L. Childs writes that "Any attempt to institutionalize groups—that is to say, establish a rigid governmental framework in which each group according to its nature has a definitely weighted influence—will most certainly lead to dissatisfaction and at critical times to the use of force. In that extremity the outcome would doubtless indicate the relative weight of the combined elements constituting the nature of the group. The only way to avoid such a resort to force would be to make it perfectly clear that every law and institution set up by the state reflects clearly what would have been the result had force of arms been resorted to." ['30, p. 180 f.]

A similar view was expressed thirteen years earlier by Bertrand Russell. It was then disregarded by political scientists as a specimen of the whimsical brilliancy of its author, I fancy: "So long as law is the theory supreme, it will have to be tempered, from time to time, by internal revolution and external war. These can only be prevented by perpetual readiness to alter the law in accordance with the present balance of forces. If this is not done, the motives for appealing to force will sooner or later become irresistible. A world-State or federation of States, if it is to be successful, will have to decide questions, not by the legal maxims which would be applied by the Hague tribunal, but as far as possible in the same sense in which they would be decided by war. The function of authority should be to render the appeal of force unnecessary, not to give decisions contrary to those which would be reached by force." ['17, p. 66 f.]

So extreme a doctrine seems to me to sound better in words

* This is not to say or imply that Napoleon and Huntington did not do much more good than harm. About that no claim is made. A man may conceivably exploit his fellow men and yet benefit them greatly.

than it would turn out to be in fact, because it underestimates certain humane tendencies in the human genes, neglects the strong correlation between intelligence and morality which has been so potent in protecting civilization and in resurrecting it, and runs a risk of losing the better by guarding against the worst. But it is useful as an antidote to sheer wishful thinking in pacifists, idealists, humanitarians, and other liberals and may prevent them from losing their good fight by grossly underestimating the enemy.

RELATIONS OF SPECIAL CONCERN TO POLITICAL SCIENCE

The Protector-Protected Relation

Let us turn now to some of the human relations with which political science is especially concerned, and first to the protector-protected or guardian-guarded relation. This is far older than man. Many mammals guard their young in various ways, some more assiduously, apparently, than man does; some have definite arrangements for guarding the group. It has roots in the genes. Its early manifestations are such simple matters as holding the child who clings, welcoming the child who runs from an animal or other fear-producing object. In our present social order it develops into an elaborate arrangement of nurses, doctors, teachers, priests, guards, policemen, detectives, traffic-regulators, armies, navies, war planes, diplomats, spies, bacteriologists, entomologists, sanitary-engineers, safety-engineers and many more who spend all or part of their working time in protecting us against wind and storm, wild animals, diseases and pests, ignorance, folly, bad men within our group, and other groups with whom we conflict. In the early days of man when civilization was at the level of that found among the aborigines of Northern and Central Australia, a wise man or committee of the elders did the protective work now done by science, engineering, the government and the church.

For many centuries in our era, governments in Europe busied themselves mainly with protection against bad men within the group and against outside groups. Governments have made much less progress than science and engineering in the quantity and quality of protection given, and have made less progress

in protection against outside groups than in protection against bad men within the group.

It may be argued that the protection against outside groups has on the average cost much more than it was worth; for example, that the dangers from outside against which the feudal lords protected their subjects were largely manufactured by the feudal lords themselves. The same may be said truthfully of many rulers of nations, perhaps of their sum total. But such protection in and of itself is good, and until the breed of man is greatly improved, is necessary. We may hope that the social sciences will improve our protection against bad and foolish rulers as the biological sciences have improved our protection against diseases, but they have great difficulties in discovering the truth and still greater difficulties in inducing people to use it.

The Ruler-Ruled Relation

The ruler-ruled relation is found in the family, industry, and business as well as in government. The ruler demands, commands, appoints, organizes, and makes rules. The ruled tend to satisfy his demands, obey his commands, work at the jobs to which they are appointed, in accord with the organization that is set up, and learn and follow the rules, but of course in varying degrees according to their natures and the nature of his rule. The work of the ruler as organizer has received least attention from students of government, and his work as appointer, next least. Both are important.* A good ruler is not only one who demands little more power, money, dignity, etc. than he needs to do his work well, and makes wise decrees and laws, but is also a skilful organizer of the tribal, municipal, or national affairs for which he is responsible, and a sagacious fitter of men to jobs.

The ruler-ruled relation in a city or state does not operate in

* "Super-organization creates the first-rank posts, probably the second-rank and possibly the third-rank posts, but it may only man the first-rank posts and possibly the second-rank posts, leaving the manning of the third-rank posts to the first-rank man. Thus the general managing director would arrange the scope of the work, the department, of each superintendent and foreman; but while appointing the superintendent himself might leave the appointment of the foremen to the works manager." [Florence, '33, p. 142]

a vacuum, but in a nexus of things, ideas, and habits, many of which run back beyond the memory of man, many of which extend out to all peoples with which the realm is in effective contact. This adds to the difficulties due to the sheer magnitude of the task and the variety in the abilities and wants of the ruled.

In this nexus are certain forces which compel rulers to do certain things and restrain them from others. Omission of the former or commission of the latter will produce revolt and the substitution of another rule for his. Acceptable customs, especially those of great antiquity, were felt to be inviolable even by kings. A truly absolute monarch is a psychological impossibility. If he violates the ideas and habits which his subjects cherish as essential values of life, he will *ipso facto* display himself to them as a bogus or unfaithful king. They may still reverence the divine right of the kingship, but they cannot feel that *he* is a proper king. On a more abstract and conceptual level of thinking there arose the doctrine of laws made by past rulers, or by nature, or by God, as higher than any king, limiting his monarchy. Both the law of Nature and Divine law are now out of fashion, leaving present-day dictators perhaps freer to use power absolutely without limit than any European government for two hundred years. But even they are not absolute.

This control of rulers, however, is of little practical importance. A ruler can be almost infinitely selfish without overstepping the psychological limits of tolerance of his subjects. He can ruin them more completely than Louis XIV ruined France without overstepping those limits. What is of practical importance is that the control is so ineffective that the utmost care is desirable in selecting rulers. And this is nearly as true of elected rulers in a democracy as it is in any sort of government. The strategic position of a ruler with prestige and patronage at his disposal makes it unlikely that he will be ousted by the able and good in the interest of the community's welfare. The able and good are also by their natures, which are peaceful and tolerant oftener than violent and rebellious, more inclined to spend themselves

in offsetting a bad ruler's errors than in getting rid of him. The able and good in general have probably used force and politics less than they should during the past half-century.

The political ruler who likes to rule will commonly seek, consciously or unconsciously, to keep in office and to increase his power. This seems characteristic of the relation itself regardless of the incumbent. For many, perhaps most, persons political power is a habit-forming psychological drug. Once an office-holder always an office-seeker is probably only a moderate exaggeration. Kent writes:—

"The interesting thing about these candidates—all of them—whether they win or lose, is that they are chronic candidates. Once a candidate always a candidate! It is an apparently incurable disease. No man has yet been discovered who, after election to an office, did not want either to hold on to that office for another term or run for a better one—if there is a better one. 'Few die and none resign' is such a true saying concerning the office-holding army that the exceedingly rare exceptions, like John Sharp Williams, of Mississippi, merely prove the rule.

"None of them voluntarily quits. They may retire with ostensible relief. They may decline to run again on the ground of poor health, or publicly proclaim that the strain of the job is too great, or that they cannot live on the salary, or because of the wishes of their families, or for any other of a number of excuses, but these are all hollow and insincere. They really get out because, as the politicians say, they 'cannot make the grade' again." ['35, p. 216 f.]

Small ['32] has shown that even so modest a man as Lincoln worked to increase the presidential power. Voluntary resignation of power of any sort is not common, but abdication by kings, popes, and party leaders seems especially rare.

This particular psychological drug seems to have as a correlated effect an increasing neglect of the important matter of training a successor. Few dictators or party leaders attend to this obvious duty, even though they may be sincerely devoted to their realms. Even the combination of public duty, parental feeling, and the sense that one's rule continues in the hands of

one's son have not always sufficed to make an hereditary monarch take pains about his successor.

The Punisher-Punished Relation

Coercion, which plays so large a part in government, is largely a matter of punishment and threats, though its most effective action is by so arranging the situations in question that the subject is compelled by the laws of his own nature to do what the government wishes him to do. The latter is rare because much ingenuity is required to manage such indirect and concealed coercion.

The psychology of the punisher-punished relation is instructive. Recent experiments have disproved the traditional doctrine that punishment is dynamically the opposite of reward, weakening tendencies to the same degree that reward strengthens them. Its efficacy is limited and specialized. It is potent mainly by associating fear, shame, or disgust with certain tendencies, and by special situations where freedom from a certain punishment appeals to the subject as a reward, a real satisfier, an adequate outcome of his behavior. This second sort of potency seems logically to make a distinction where there is no difference. But biologically there is a real difference. For instance, a child who feels satisfied every moment that he is not being whipped, and wretched when he is being whipped, and a child who merely feels wretched when he is being whipped are biologically different.

The second sort of potency is a detestable one to make use of, because it usually implies that the subject's life is on so low and mean a level, and so ruled by fear, that what would be hardly tolerable in a good life becomes accepted as a boon.

Whether it has any deterrent effect or not, punishment has a shocking and disrupting effect upon the recipient. This may be slight, as in the case of mere pain, or serious as in the case of fear, shame, and disgust. These shocks are perhaps as bad for subjects receiving them from rulers as they are for children receiving them from parents, teachers, or playmates. At all events they are intrinsically very undesirable.

Punishment has less degrading effect upon the personal relation between the coercer and the coerced than some oversensitive moralists have supposed. Blows, kicks, and lashes, if customary from a ship's captain to the crew, may not greatly increase their fear and hatred of him, or his contempt and hatred of them. But the effect is in that direction.*

Other things being equal, the less coercion the better. Business has learned that it gets on better by rewarding free men for serving our wants than by punishing slaves for not serving them. Education is learning that it gets on better by rewarding the good impulses of the young than by punishing their follies, weaknesses, and errors. Government should profit by their example. The best reason or excuse for coercion by government is that its coercion replaces more and worse coercion by individuals and small groups.

Not only should government minimize the sum total of coercion. It usually does. What Pollard says of the rule of the Tudors could be said of many governments noted for coercion:

"Order is Heaven's first law; on earth it must always go before liberty. England could not have done without the Tudors and all their works; for they gave us law and order. They prepared the way of liberty; and, now, to us who enjoy that liberty, their works and their methods are hateful. We dream of revolutions made with rose-water, and think that peace might have been won by persuasion. It might, had it not been for human nature." ['07, p. 77 f.] It is true, as all the textbooks say, that government is characterized by coercion, but it is also true that the growth of government is usually characterized by a reduction in the sum total of coercion in the community.

The Rewarder-Rewarded Relation

The relation of benefactor or patron (more exactly rewarder or satisfier) to beneficiary needs some comment. Though not

* In some persons' brains there is a perverse connection whereby the infliction of pain upon others produces the voluptuous sensation of sex or something partaking of its nature. Such are obviously unfit to be policemen, prison guards, army sergeants and the like unless they have the moral stamina to make no unfair use of their opportunities to inflict corporal punishment.

in the past so important in government as those of protector, ruler, and coercer, it has always been important. There have always been spoils to divide—tribute from the conquered, taxes from the citizens, or both. The government has sometimes had also the income from certain property. It has often had at its disposal the spare time of military and police forces when these were not engaged in war or the maintenance of order. According to its nature and the customs of the time and place a government dispenses patronage to its favorites. This has been and still is psychologically inevitable. Any human government will have favorites, and until objective criteria of the merits and demerits of persons are established by science no set of customs or laws can prevent a government from favoring them. On psychological grounds one would expect, and on historical grounds one can perhaps conclude, that governments do more good (or harm) by a given amount of reward than by an equivalent amount of punishment.* In the present state of the world the wherewithal for rewards cannot be acquired by conquest. Every war now ends in a deficit for both parties. But a government may hide the fact of the deficit and distribute land, mines, etc. as if they were the spoils of war which in reality were very dearly bought by the tax-payers. The wealth of citizens continues as a fund on which governments can draw to pay the cost of protecting, ruling, providing services of varying degrees of merit to welfare, and also to distribute rewards. It can be drawn on to the point of exhaustion or rebellion. The citizens who earn and do not waste are in so far forth the real benefactors or satisfiers, the government being only a distributing agent of the bounty which it coerces them into providing. This will remain substantially true if governments own all productive instruments and manage all productive work. The coercion will be applied at an earlier stage, and will have the task of causing citizens to earn and not waste instead of merely to hand over what they or their ancestors have earned and

* The equivalence is, of course, rarely calculable; but we can and do make rough estimates, as in the case of promotion one step in rank for merit *versus* demotion one step for deficiency, or the cases of wages paid to a conscript army *versus* catching and fining deserters from it.

saved under a regime of private property and personal profit. Who finally gets it will be very important.

The Representative-Represented Relation

The relation of representative to the community of persons whom he has been elected to represent is of importance in most modern governments. The general psychology of this relation offers nothing of consequence, I think, being only that the representative will do what his nature and training have led him to do in the same or similar situations. In the training certain political ideas and customs figure largely. The idealistic theory is, as in Burke's famous address to the electors of Bristol, that the representative will set the welfare of the nation far above that of his particular constituents. This implies also in psychological fact that he will use his judgment rather than theirs concerning what will benefit the nation. It would not be unreasonable for a representative to go even further and use his judgment rather than theirs concerning what will benefit them. Parents, priests, and physicians do so for those in whose interest they are supposed to act. A ward or district might instruct its representative in government to "Take care of us, using your own judgment" and turn itself to business and pleasure. This in effect is what many voters do who are ignorant about public affairs, or whose ideas are derived mainly from school textbooks, or who would rather be cheated than take trouble to influence their representatives. They do nothing but vote, except in great emergencies.

The working hypothesis of practical politics is that a man represents primarily the machine which got him the nomination and to some extent the election, and the party voters who elected him, and only secondarily the community as a whole, still less the larger community of which it is a part. He does what his bosses tell him to do and more or less of what those who did vote for him or may in the future do so ask him to do. Many of the latter bedevil him for favors great and small. They may not get the favor, but have at least the sense of dignity which comes from being able to think and say "I sent a strong telegram to my congressman about that," or "I wrote my assemblyman

about that. He wants me to drop in to see him sometime." For certain sorts of persons this is literally the cheapest way of increasing one's sense of personal worth.

Certain sorts of men are favored in the elective process. As everybody knows, clergymen are much rarer than lawyers as representatives in city councils, state legislatures, and the federal congress. Working men are much rarer than farmers. Election is a reward for work in the party and so selects cooperative conformists. The conditions of life and training of representatives doubtless make them more alike than they were when elected. These major adjustments do not, however, assimilate human variety into a narrow type of politician. Politicians vary from a Coolidge to a Harding, from Cleveland to Al Smith to the two Roosevelts. In intellect, in character, in temperament, in training, how different! Alike only in being devoted to politics and successful at it. There is a current doctrine that the bosses and party machines make it a main part of their business to prevent the public from getting what it wants, with the purpose of getting somewhat more for themselves. The truth seems to be nearer the opposite, that they are eager to find something that the public wants and provide it, taking what seems to them a reasonable commission. If the public wants something which the labor leaders, farm bloc, or financial supporters of the machine, etc. do not want, there is, of course, difficulty. But in such a case "The public be damned" has given way to propaganda which will make the public want what will not embarrass the contributors of money and votes to the political war-chest.

The representatives elected by the majority probably do not greatly misrepresent it. If they were all deeply devoted to the general welfare they might do better for it, but they would do so by misrepresenting it, over-representing its more generous and idealistic elements. It seems unlikely that the main defect in majority elections should be that the majority was right but those whom it elected did not represent its ideas and wishes. The main defect would seem rather to be in the ideas and wishes of the majority, who may often think what is not true and want what is not desirable, or in the incapacity of their representatives

to get public business done well. The psychology of majorities will be discussed later.

The relation of trustee to beneficiary is known in all civilized communities. One person accepts the responsibility of acting for the interest of another, and thereby is empowered and expected to do certain things and estopped from doing others. The community's notions about what he should do and refrain from doing in the case of property held as a trustee are defined in its laws, but its notions about what "being a trustee for the welfare of such and such a person or groups" means or should mean have not been so defined. "Public office is a public trust" would mean at least that an officer of government should not steal, squander or invest rashly the public money, but how much more cannot be affirmed. The word trustee suggests responsibility, respectability, caution, and benevolence; oaths of office bear certain resemblances to acceptances of trusts; * the

* Few people in this country know what their various elected and appointed officers of government do swear to do and refrain from doing when they take office. I therefore insert here representative oaths for such and also a few other oaths:

Federal officers, elected or appointed, including clerks in the executive departments take oath as follows: "I, AB, do solemnly swear (or affirm) that I will support and defend the constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office on which I am about to enter. So help me God."

Postmasters and postal clerks take oath as follows: "I, AB, do hereby solemnly swear (or affirm, as the case may be) that I will faithfully perform all the duties required of me and abstain from everything forbidden by the laws in relation to the establishment of post offices and post roads within the United States; and that I will honestly and truly account for and pay over any money belonging to the said United States which may come into my possession or control; and I also further swear (or affirm) that I will support the Constitution of the United States. So help me God."

The New York State Constitution requires that all members of the Legislature, and all officers executive and judicial, except such inferior officers as shall be by law exempted shall take oath as follows: "I do solemnly swear (or affirm) that I will support the Constitution of the United States, and the Constitution of the State of New York, and that I will faithfully discharge the duties of the office of ————————, according to the best of my ability."

governments of some private institutions by trustees are models for the governments of some public institutions; it is therefore probably good psychology to urge that elected representatives consider themselves trustees for their districts. But if they should inquire just what that means, an adequate answer would be hard to give.

The relation between two sides in a conflict of interests is at the root of government and law. Unfortunately, psychologists have made no extensive or intensive studies of it in animals, children, primitive man, or modern civilizations. Communities have established and tolerated a great variety of methods of terminating such conflicts. Many of these methods are grossly unjust, but may be better for the community than a combination of strife and suspense. They may, however, be worse. The older naïve evolutionary view assumed that the survival of the community and of the method of settling disputes within it proved that the method had merit. But it is now admitted that a community can survive even with one or more customs which are worse than what the genes alone would decree. The total outfit of ideas and customs, the "culture," has to be well enough

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An elected officer must also swear that "I have not directly or indirectly paid, offered or promised to pay, contributed, or offered or promised to contribute, any money or other valuable thing as a consideration or reward for the giving or withholding a vote at the election at which I was elected to said office, and have not made any promise to influence the giving or withholding any such vote."

In pre-war Germany the oath taken by public officers was: "I, N.N., swear before God the Almighty and the All-knowing that, after having been appointed an officer of the German Reich, I will in this capacity be faithful and obedient to His Majesty the German Emperor, will observe the constitution of the Reich and the laws of the Reich and will perform accurately all duties binding me pursuant to my office in accordance with the best of my knowledge and conscience, so help me God."

During the Weimar republic their oath was: "I swear faith to the constitution, obedience to the laws and conscientious performance of my official duties."

Under the Nazi government their oath is: "I swear: I shall be faithful and obedient to the leader of the German Reich and the German people, Adolf Hitler, shall observe the laws, and shall diligently fulfill my official duties, so help me God." The last four words may be omitted.

English judges swear "to do right to all manner of people after the laws and usages of this realm, without fear or favor, affection or ill-will."

adapted to reality to prevent extirpation by non-human nature or other men, but this permits many social mistakes to be made and perpetuated.

"La Politique," as Tarde says, tries to "make human desires harmonize" ['02, p. 152] but often it cannot. To maintain relations of agreement in a common purpose is doubtless a finer work than to palliate discords, just as preventive medicine is a finer work than relief from pain. But the latter has been more prevalent in government.

The relation of leaderless cooperation, or cooperation with equal division of control, is hard to establish and maintain anywhere, especially perhaps in government. Bertrand Russell points out that "There are innumerable instances of small States growing into great empires by conquest, but hardly any of voluntary federation. For Greece in the time of Philip, and Italy in the Renaissance, some degree of co-operation between different sovereign States was a matter of life or death, and yet it could not be brought about. The same thing is true of Europe in the present day." ['38, p. 183]

THE LEAD IN ESTABLISHING AND USING A RELATION

In the case of many human relations it is useful to discover which party leads in establishing the relation and which party leads in using the relation to modify man and his ways. For example, in the speaker-hearer relation the speaker obviously leads in establishing the relation, and certain observations and experiments indicate that the speaker leads also in modifying language. Very frequent modifications are abbreviations which the speaker uses to save himself time and effort. If these do not hinder comprehension by the hearer too much, they soon become standard speech.* Individual grammarians and lexicographers and such groups as the French National Academy also have influence, but their inventions and criticisms have played a much smaller part in the development of this great social tool than the inventions and criticisms of men of science have played in the development of the mechanical tools of communication. In establishing a protector-protected relation

* See for example Zipf ['35, Chapter 2] and Thorndike ['38 C].

there is often mutuality as in the case of mother-infant. In using it for changing ways of living, the protector is oftenest the leader if my information is adequate. Physicians and biologists, not the sick and pest-ridden, change protection against diseases and pests. Moralists, criminologists, police officers, and sellers of burglar alarms, not the actual or potential victims of criminals, change customs and laws. The relatively rich founders and maintainers of monasteries, hospitals (in both the old and the present meaning), orphan asylums, and poorhouses gave protection to the poor. The industrial and old-age pensions of Germany were similarly invented by the protectors rather than the protected. In recent years there has been a shift; in some states the old, the unemployed, and the recipients of charity are making emphatic demands for more protection, but some of their schemes are fantastic.

In establishing a new ruler-ruled relation the rulers usually lead. The children in a family do not entice the parents to rule them. The populace did not drag Mussolini to power. A very small minority of the proletariat assumed dictatorship over Russia. A small minority leads a political party. Only rarely do the ruled cry out for a Boulanger or other popular idol to displace what the party managers offer and succeed in their demands. In using rule to change man's ways the facts are more varied and complicated. I do not know the history of the origin of new practices in government which correspond to inventions in technology or in business (the acceptance of a majority vote as final, the party system, the secret ballot, conscript armies, international conferences, the merit system for the civil service, and the like) well enough to estimate what fraction of them came from the government, what fraction from the ruled, and what fraction from ingenious individuals. My impression is that the masses of ruled are seldom the prime mover, and that the commonest case is an invention by an individual which then receives support from some within the government and some outside it. Concerning the slow processes whereby one custom or institution or law gradually changes into something very different, I am insufficiently informed.

In the actual coercer-coerced relation the nature of the human

animal decides that the coercer leads (except for certain rare and almost pathological cases where persons beg as it were to be treated like slaves). In the uses of coercion to change man's ways, however, the individual genius may be and has been very influential. If his invention (say, the inheritance tax) enables the government to get more out of its subjects with less trouble to itself, government will welcome and support the invention. If his invention (say, the secret ballot) enables the coerced to decrease undesired coercion, they may support it.

On the whole, improvements in the theory and practice of government have been oftenest caused by some relatively impartial persons whose suggestions have been supported by enough of the governing group to obtain a trial. The interplay of human forces,—the "I's" of Catlin, the "power-units" of Herring, the "classes" and "interests," and whatever else they may be,—has germs of variation and improvement by the survival of the variation which increases human satisfactions. Among these germs by far the most beneficent is the free play of intellect studying reality and adapting it to men and men to it.

Chapter 31

THE FUNCTIONS AND CRITERIA OF A GOOD GOVERNMENT

THE SCOPE OF GOVERNMENT

What the scope and functions of local, district, and national governments should be is not known. If it were we should not have intelligent and educated students disagreeing as widely as they do. Imagine Herbert Spencer reading that schools "are the agencies of society which, more than any other, attempt to level up the inequalities which obtain between families. . . . . and that governments do and must go further and regulate the just distribution of the products of industry and see that there is a fair adjustment between wages, profits, interest, and rent." [Taylor and Brown, '26, p. 26 and p. 43] Imagine these authors reading Herbert Spencer.

Some argue that when an enterprise becomes very extensive, it should be taken over by government. So Parsons argues for public labor exchanges on the ground that "the task of keeping an adequate record of the need for labor of various kinds in different parts of this great country and of placing men where there is a demand for the services they can render is too much for any private institution, and should be undertaken by our governments, municipal, state and national." ['11, p. 131]

Walter Lippmann proposes that government should have as one important function to counteract the excesses of popular movements in general in the way that many have proposed in connection with the excessive caution of the public during the low swing of a business cycle. When the people are frantic for war, let the government keep peace; let the government protect the rich when the people assail them; let it be frugal when the

people are mad for bread and circuses or for schools, courthouses, and boulevards.

Gerald Heard advances the doctrine that representative democracy is a defense against rules, a compromise by which men protect themselves against a necessary evil:

"There is another feature peculiar to the Greeks' development. As individuality among them was born by internal effort, not snatched by external violence, from the body politic, it retained for a considerable time a strong political, instead of a religious, aspect. The individuals when they emerged did not feel themselves strangers and orphans. They took for granted that the state belonged to them—not they to the state—and, extending their growing interest, that the whole world was theirs to enjoy, with their vivid, original senses, their new focus, their feeling of seeing things for the first time. This concentration led in the first place to democracy and afterward to science. True democracy is direct democracy, is democracy invented to give individuals power over the state, to make it express their will, to be their instrument. That actual democracy cannot work at all save through the city state. Representative democracy, the only form we now know, is in reality not democracy at all. It is simply a device to give individuals or groups not control of but defence against the state, grown strong by vast size and intricate centralization, necessitated by the natural selection of national competition. Representative democracy is a deliberate compromise, not a natural evolution." ['29, p. 136 f.]

Pareto remarks dryly that "governments have generally considered it their duty to assure the subsistence of the populace. In that they were not wrong, but they have rarely chosen the best means of attaining that end. The most efficacious means are to make peace and safety sure, to guarantee the freedom of trade, to abstain from destroying wealth. The interest of the governing classes being often in opposition to such measures, they have believed they could do without them, substituting simple legislative arrangements for them." ['97, vol. 2, p. 254]

"What ought to be the relation of the State to industry? Some say that it ought to subserve but not to interfere; others say it

ought to take over industrial functions: . . . . . nor does either side hesitate to describe what it believes to be 'the nature of things,' without enquiry into the psychological facts or the moral ideals which make up the complex of . . . . habits at present called civilization." [Burns, '21, p. 29] *

The contributions of psychology and ethics to the problem of the proper scope of government are not at present momentous. And the probability is that in the future as in the past what government can properly do will be discovered largely by trial of inventions made by observers of government itself. A psychologist or moralist of the Middle Ages could hardly have inferred that the upkeep of roads was a proper function of governments. It was in their day a religious duty, a pious charity to travelers, like visiting the sick. [See Jusserand, '12, p. 37 f.]

What psychology has to offer may be put in five statements of fact or probability:

First, there is an enormous natural advantage in having a thing done by one man rather than two or more. Despite all that sociologists and social psychologists say truthfully about the individual being only part of himself when deprived of the social forces which act so pervasively upon him, a person is not simply one tenth of an amorphous group of ten. One person can have a purpose, plan for it, work for it, learn how to attain it, profit by his learning, and use it along with the rest of his mental equipment, all more simply and effectively than two or ten persons can. The harmony of one brain is far from perfect, but it is better than that of two. Only a super-human being can feel as much responsibility for what he does as one of a group as for what he does by himself. Governments usually, and perhaps necessarily, divide one job among several persons, and, when they do assign one job to one man, too often choose a job which no one man can do.

In the capitalistic system of free enterprise and the liberal system of government with freedom of action for all within the law, the load of initiative and responsibility is divided among

* Burns commits the sin against which he protests by inserting "bad" before habits!

individuals. There are dangers in the transfer of the load to groups. There are of course often many advantages, but it is far harder to collectivize brains than property.

Second, as has been said in other connections, human nature is adaptable within certain limits about which little is known. To be drafted for industry may be as acceptable to it as to be drafted for war (though I think not in the case of young males). The world may learn to get along without the rich as it has learned to get along without the nobility. Such a regimentation of genes and men as is pictured for example in Huxley's "Brave New World" may have three or four percent of possibility.

But, third, sudden disturbances of the adjustments which have been made in the growth of our civilization are more likely to be demoralizing than inspiring. If everybody received a thousand dollars tomorrow morning it would be a curse to many. If everybody's I. Q. were raised 20 points by a miracle, the sudden increase of intelligence, though a great blessing on the whole, would demoralize some and make some unhappy. If a million unskilled laborers were given severally the fortunes of the million idlest rich in the world, these being put to do the unskilled labor, the net result would probably be very bad and about equally bad for both.

Fourth, the individual differences among men are utilized after a fashion in the present social order. Government should increase this utilization rather than decrease it. As Catlin says,

". . . the more the connection between mind and body, between psychological characteristics and physical peculiarities, is recognized, the more such reduction of all conduct to one standard and of all social order to a uniform pattern is likely to become regarded as dangerous and unnatural. The task of the eugenist and criminologist may perhaps be to weed out the deformed. But the task of the educator is to provide for the unperverted unfolding of the characteristic talents and natural gifts of the individual. And the task of the politician and legislator is to provide a social order in which these gifts may be exercised so far as they are consistent with a balanced fulfilment of the wills of others, and not only so far as they are consistent

with traditional conventions and formulae of some erstwhile balance of power." ['30, p. 420 f.]

Fifth, to reward good and useful men, and the good and useful in all men, is psychologically sound. The present arrangements for science, the arts, the professions, agriculture, and business are in the main such as reward the persons who, and the acts which, are useful to those who have the power to reward. The record of the public in respect of rewarding the scientists, inventors, artists, and sages who have been useful to it is not encouraging. But perhaps it would feel more responsibility and have more wisdom if it seized the power.

To these rather trite conclusions from psychology, I may add that intelligent and unselfish rulers ought to be able to manage whatever enterprises have been found manageable by trustees, and that the interferences of a labor party with industry will probably be much less harmful than the interferences of a Charles of England or a Louis XIV of France.

CRITERIA OF GOOD GOVERNMENT

The goodness of a government will vary with its adaptation to the fundamental natures of the persons in the community and also with the circumstances of their life. Governments suited to the early life of man as described by Boas in the passage quoted below might today satisfy the first criterion, but would fail almost completely to satisfy the second:

"In the early days of mankind our earth was thinly settled. Small groups of human beings were scattered here and there; the members of each horde were one in speech, one in customs, one in superstitious beliefs. In their habitat they roamed from place to place, following the game that furnished their subsistence, or digging roots and picking the fruits of trees and bushes to allay the pangs of hunger. They were held together by the strong bands of habit. . . . No one had fundamental interests at stake that were not more or less also the interests of his fellows.

"Beyond the limits of the hunting grounds lived other groups, different in speech, different in customs, perhaps even different in appearance, whose very existence was a source of danger.

They preyed upon the game, they threatened inroads upon the harvest of roots and fruits. They acted in a different manner; their reasoning and feeling were unintelligible; they had no part in the interests of the horde. Thus they stood opposed to it as beings of another kind, with whom there could be no community of interest. To harm them, if possible to annihilate them, was a self-evident act of self-preservation.

"Thus the most primitive form of society presents to us the picture of continuous strife. The hand of each member of one horde was raised against each member of all other hordes. Always on the alert to protect himself and his kindred, man considered it an act of high merit to kill the stranger." [Boas, F., '28, p. 67 f.]

What is now needed is, one expert says, "a social physician reconciling, by the study of political methods, the psychological needs of the individual and the conditions of social life established by our civilization. . . . The ills . . . of human nature and of social life will be cured neither by dragooning nor by incantations but by the skilful diagnostician who understands at once the general principles and the particular facts." [Catlin, '30, p. 458]

Sympathy with Catlin's view that good government is scientific government by an expert social physician does not, however, relieve us from considering other criteria. For there has never been a government of that description whose results may be compared with those of traditional sorts to verify the hypothesis; so we cannot be sure that there is as yet enough of a science of government to outweigh certain personal advantages. Moreover, in practice we need to apply criteria to judge such governments as we do have and are likely to have. Government by political scientists is not likely to be chosen by any electorate or dictator in the near future.

Criteria may be derived from observation of long past and present, from deliberate scientific experiments, and from certain recently developed methods of analysis of variations.

Scientific students of government have not been permitted to control governments for experimental purposes and the variation

analysis has been applied in only a very small way. Observation is still the main reliance.

We start with certain common criteria set up by opinion and observation and test these by more observation. So Helvetius opined that a good government produces internal happiness and external dignity, "Le bonheur des peuples dépend, et de la félicité dont ils jouissent au-dedans, et du respect qu'ils inspirent au dehors." So a consensus of civilized opinion would rate a government good, other things being equal, in proportion as it avoided war, civil or external, maintained order and justice in its own realm, cooperated with other governments to maintain international order and justice, paid its bills, did its work economically and honestly without bribery or graft, and promoted science and the fine arts. So a substantial body of opinion would rate a government good in proportion as it encouraged freedom of thought, speech, and contract, opportunity in proportion to merit, and good will regardless of race, creed, party, caste, rank, or wealth.

Respectable opinion can be found in favor of certain minor criteria, such as the number of middle-class people compared with the number of the nobility and of the unskilled and semi-skilled laborers, or the minimizing of governmental intervention. In the following passage, Pollard attributes the superiority of English over Spanish government to the former.

"Its [i.e. Spain's] long warfare with the Moors had stereotyped the military, crusading and exclusive character of its feudal class; the nobles declined to adapt themselves to the commercial conditions of the age; Spanish industry and commerce were discouraged by foolish pride and crushed by insane taxation. The middle classes were denied their proper outlets for political, social, and economic expansion; Spain was pauperised rather than enriched by the wealth of the Indies; Renaissance and Reformation found no soil in which to take permanent root, and Spain in the sixteenth century plunged back into the theology of the Middle Ages.

"England, on the other hand, has been for centuries peculiarly the land of the middle classes; they give the tone to everything

English, good or bad, and English history has been made by its middle class to a greater extent than the history of any other European country. This peculiar strength of the English middle class is a complex factor in our history, nor can it readily be explained. We can perceive conditions even in the Middle Ages tending to foster a strong middle class; but one always has the uncomfortable suspicion that these conditions are as much the effect, as the cause, of the strength of the middle class." ['07, p. 42]

Governmental intervention is now much more fashionable among thinkers than it was a century ago, but even its proponents would probably agree that, *other things being equal,* the less of it the better. Dicey's comments are instructive:

"The beneficial effect of State intervention, especially in the form of legislation, is direct, immediate, and, so to speak, visible, whilst its evil effects are gradual and indirect, and lie out of sight. If a law imposes a penalty on a shipowner who sends a vessel to sea before he has obtained a Board of Trade certificate of its seaworthiness, it is probable that few ships will set out on their voyage without a certificate, and it is possible that, for the moment, the number of ships which go to sea unfit to meet a storm may be diminished. These good results of State intervention are easily noticeable. That the same law may make a shipowner, who has obtained a certificate, negligent in seeing that his ship is really seaworthy, and that the certificate will in practice bar any action for real negligence, are evil results of legislation which are indirect and escape notice. Nor in this instance, or in similar cases, do most people keep in mind that State inspectors may be incompetent, careless, or even occasionally corrupt, and that public confidence in inspection, which must be imperfect, tends to make the very class of persons whom it is meant to protect negligent in taking due measures for their own protection; few are those who realise the undeniable truth that state help kills self-help. Hence the majority of mankind must almost of necessity look with undue favour upon governmental intervention." ['20, p. 257 f.]

Manuals of government and public administration suggest

other criteria on the basis of opinion and observation. These need not be discussed here.

Psychology emphasizes the following:

1. What sort of persons are being born?
2. What sort of persons are migrating in?
3. What sort of persons are migrating out?
4. What sort of persons are rewarded by the government?
5. What sort of persons are punished by the government?
6. What sort of persons hold office in the government?

Birth is now more or less controlled in all civilized communities. Other things being equal, a government is good which makes life hopeful for the children of persons whose genes are superior and a government is bad if good people dislike to expose their children to it. A measurement of the physique, intellectual capacity, and certain features of character and mental balance of a representative sampling of a community's children is useful in many ways, one of which is as a partial indicator of certain subtle but potent influences of government.

Immigration and emigration are of course influenced largely by other differences between communities than differences in the government. But these are real and important both directly and indirectly in their influence upon economic opportunity, religious toleration, and other matters. For at least five hundred years and probably for five thousand, governments have bid for certain immigrants. "The government of Edward III saw that if England was to do without Flemish cloth, Flemish workmen must be brought over. Accordingly, it resorted to the measure which all European governments that wished to encourage the growth of a manufacture found it necessary to employ, down to a period much later than the Middle Ages. It turned its attention not so much to the prohibition of foreign wares as to the importation of foreign skill." [Ashley, '93, p. 195]

There is much to be said, from the point of view of world welfare, for absolute freedom of movement of persons. The able and good will serve the world better in the countries which are attractive to them, and the weak and vicious will do less general

harm in the countries which are attractive to them. But if there are to be political "systems of preference and restraint" with migrants, the prudent government will make itself attractive to persons who will be good for the community on the whole, and not import merely to suit the pecuniary interests of employers (or of labor-unions), or the sentimental wishes of the advocates of the suffering, or unwise prejudice, or temporary emergencies. The same applies of course to exports of persons.

The causal relation between the ability and morality of a nation's citizens and the quality of its life has not been measured, but the relation in the case of the forty-eight states of the Union has been. The personal qualities of the population far outweigh their wealth as causes of the goodness of life for good people. The differences between the states in welfare in 1930 were measured by the G composite of 37 desirable traits described in Chapter 16. A personal qualities score, P, and a per capita income score I were computed in the same way as for the cities described in Chapter 16 (except for two minor changes). Of the variation of the states in G,

14 percent is attributable to income alone,
46 percent is attributable to personal qualities alone,
24 percent is attributable to what is common to income and personal qualities,
16 percent is caused by other factors than personal qualities and income.

[Thorndike, '39 D]

Records of what sorts of persons are punished and what sorts are rewarded by different governments would show a wide variation even in western civilizations of the present, and an almost infinite variety if all nations and tribes were included. One common human tendency is for a man to punish those who in any way or for any reason are associated with discomfort to him and to reward those who in any way for any reason seem to him to relieve his pain or increase his pleasure [within the limits of his apprehension, in both cases]. Another is to form habits of punishing and rewarding such persons and continue to do so even when the behavior of the one group is innocuous, and that of the other group not appreciably pleasing. Rulers are not free

from these tendencies. Their errors and whims have tainted their own official acts, and have also established customs and laws which perpetuate the harm. All students of government use these two criteria. Psychology only confirms their practice and suggests that the character of the persons rewarded should be given more weight than that of those punished.

The sanity, honesty, intelligence, managerial ability, and industry of government officers are important intrinsically and as evidence of the ideals, customs, tone, morale, and other subtle qualities of a governmental system.

About one person in ten in the United States who live to be 50 is insane at some time. Dr. Carney Landis informs me that the percentage has probably been about the same for hundreds of years. The wonder then is not that there have been so many insane rulers, but that there have been so few, especially among prime ministers and party leaders in constitutional monarchies and among presidents of republics.

A good government should prevent insane men from being appointed or elected to office, and should get them out quickly if they do get in. It may be hard to compare the honesty of, say, the policemen of various countries or cities, but the number who become insane should be ascertainable. The abilities measured by intelligence tests are ascertainable, and at early ages. The score of a candidate for office would be at least a better guide for voters than his personal appearance.

Verification of any of these opinions is difficult. It is hard to get accurate estimates of the general goodness of governments. It is almost impossible to get governments differing in the feature to be tested but with all other features equal. Common consent provides such facts as that the government of England from 1500 to 1900 was better than that of Spain during the same period, that the governments of Holland and Switzerland have been better than the governments of Greece and Sicily, or that the governments of Stockholm, Edinburgh, and Springfield, Massachusetts, in 1900 were better than those of Constantinople, but there are not enough such. Even if there were hundreds of governments

* The wonder is probably explained by a positive correlation between sanity or mental balance and intellect.

known to stand in a certain order for general goodness, the inter-relations of the features whose significance it is desired to test are complex and baffling. So are their relations to other factors.

For this baffling complexity there is a remedy, or at least a partial remedy, in the statistical techniques of partial correlation, multiple correlation, and path coefficients. These are the methods of analysis of variation referred to early in this chapter. They promise to be of very great service in political science.

The techniques are those by which the causation of the differences of communities in welfare were determined. If we have N governments each measured as to general excellence and in n traits or features (a, b, c, d, etc.) whose value as symptoms or criteria of the general excellence of a government we wish to determine, we can arrive at a series of statements like I below by partial correlation, at a series like II by multiple correlation, and at a series like III by path coefficients.

I

In so far as the N cases represent governments fairly:

X percent of the variation in general goodness among governments identical in b is determined by their variation in a and whatever that involves.

Y percent of the variation in general goodness among governments identical in b and also in c, is determined by their variation in a and whatever that involves. And similarly for governments identical in b, c and d, or in b, c, d and e, etc.

Z percent of the variation in general goodness among governments identical in a, (or in a and c, or in a, c, and d, etc.) is determined by their variation in b and whatever that involves.

II

X percent of the variation in general goodness among the N governments is accounted for by what causes their variation in a. If additional factors causing their variation in b are used also, the percentage is increased by K_1 (which may be

zero in some cases). If additional factors causing their variation in c are used also, the percentage is still further increased by K_2.

Similarly with the use of a, b, c, and d, of a, b, c, d, and e, and so on.

III

The variation in general goodness among the N governments is determined as follows:

... percent by what is peculiar to a
... percent by what is peculiar to b
... percent by what is peculiar to c

. . . .
. . . .
. . . .
. . . .

... percent by what is peculiar to n
... percent by what is common to a and b
... percent by what is common to a and c
... percent by what is common to b and c

. . . .
. . . .
. . . .
. . . .

... percent by what is common to m and n
... percent by factors not represented in $a, b, c, d, \ldots\ldots n$.

Chapter 32

RULERS

If an impartial board of trustees for human welfare present and future, possessed of all present knowledge concerning nature and man, had to decide who should govern, what principles would they use? What would guide them in selecting tribal chiefs, sultans, presidents, councilors, senators, political "bosses," legislators, judges, treasurers, generals, admirals, directors of public education and health, policemen, teachers, tax collectors, and other persons who attend to public affairs? They would decide mainly on the basis of past experience concerning the quality of the service given in each sort of work by each sort of person who had been tried, and would distribute the jobs among the persons so as to maximize the contribution to welfare. They would have to consider the claims of private jobs along with public.

To supplement the findings from experience they might use the relevant facts of psychology, and even, in default of anything better, the opinions of psychologists. What does psychology offer, especially concerning the selection of the leaders in political units from a great nation down to a small village or rural area, who interpret the public's wants and needs, decide on policies, pass laws and ordinances, make appointments, exercise discretion as judges, members of administrative boards, diplomats, and executives, and in other ways manage public business? The selection of government employees in minor positions as policemen, soldiers, sailors, teachers, postmen, clerks, jailers, game wardens, etc. is important. They govern us as well as serve us. But for a number of reasons the problems concerned with selecting them will be neglected in this chapter. For convenience let us call the group we have in mind the "rulers." Let us consider

in order character, knowledge, ability, interest, good will, sanity, government by experts, government by men of affairs, government by ordinary professional politicians, sex, age, and personal impressiveness.

Character

Psychology adds to the specifications of character desirable in a ruler which realistic students of political science set forth, a warning against excessive demands, rigidity, and over-simplicity. Rulers must be chosen from men, not angels. President Poincaré observes that "The eternal chimaera of men is to seek to put in constitutions the perfection which they themselves do not have." * In a sense no man is able and good enough to rule his fellowmen. But somebody must!

The same job may be almost equally well done in many ways by many sorts of characters. Greater honesty in one may be balanced by greater loyalty or greater unselfishness or greater cooperativeness in another. George Washington and Abraham Lincoln, for example, had admirable but very different characters. It is well to avoid the word 'must' in specifications of character.** All expectations of finding characters of certain distinct types, such as one character suited to a poet's life, another to a

* Quoted from *Le Temps*, of Sept. 27, 1920, by Duguit, '23, p. 207.

** "Bosses differ as wards and municipalities do. No two of them are alike.

"To be successful, however, a boss must have a mind that reacts quickly and accurately to any problem of practical politics. And when he makes up his mind he must keep it so. A wobbly boss in politics never gets beyond first base. Decisions quickly made and made rightly half the time; promises infrequently given but scrupulously kept; loyalty encouraged and unfailingly rewarded—these are first principles in the manual of bossism. On the other hand, the boss need not be a man of uncommon shrewdness or subtlety. He need not even be an adroit political strategist. No matter how maladroit he may be in planning his campaign, if he has the good fortune to win the election he will be credited by his followers with amazingly skillful generalship. When a boss has been in power for a while there grows up about him a legend which everyone believes, however devoid of basis it may be. Nevertheless, the successful boss must have some adeptness in the game that he plays. It is excusable for him to be deficient in politics as a science but not in politics as an art.

"Apart from this flair for the art of politics it is difficult to name any quality that a boss cannot get along without. A recent study of the

scientist's, two or three to a ruler's life, and so on, are doomed to disappointment. The man in the street, literary men, and to some extent historians, are wrong in what they say and imply about 'types' of character.

Knowledge

The ruler of a village needs to know his village. The ruler of an army needs to know his soldiers and the art of war. Competent government of any sort by any person in these days depends upon knowledge more or less like that of a doctor, priest, or salesman. Sometimes this is theoretical knowledge of the social sciences, which leads Guy Stanton Ford to declare that "If university men, especially those in the social sciences, measure up to their high calling, they will become in these difficult days the trusted guardians of the common welfare and the only insurance that the common welfare can be achieved by a self-governing society." ['36, p. 497] Sometimes it is intimate knowledge of a particular political situation and governmental problem, such that "Only the insider can make decisions, not because he is inherently a better man but because he is so placed that he can understand and can act. The outsider is necessarily ignorant, usually irrelevant and often meddlesome, because he is trying to navigate the ship from dry land." [Lippmann, '27, p. 150] Sometimes it is knowledge of matters of history, chemistry, psychology, medicine, or economics which, though technical, are so important for government that somebody in the government should know at least enough about the matter to consult the authorities. Dibblee says of ignorance of the part played by capital used in exchange, "As to capital used in exchange, which is, in practice, very difficult of disentanglement from capital used in production, a very much more difficult question is hereby opened for discussion. The workers, including in this connection also the higher class of

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personalities and careers of outstanding American bosses shows them to be as diverse in characteristics as it is possible for any group of grown men to be." [Munro, W. B., '24, p. 64 f.]

Munro, it will be observed, uses only two must's in describing successful political bosses, and he does not expect the reader to apply these two over the entire field of rulers.

workers, such as the scientific experts, the professions, the artists and literary men, an extremely important body, have no appreciation, and a very inadequate conception, of the nature or amount of the difficulties overcome by capital in marketing the results of production. To say that they undervalue its share would be a misstatement, because they do not value it at all. . . it is the second use of Capital [i.e. its use in exchange or distribution], and the preservation and improvement of the delicate marketing machinery, inherited from a more prosperous age, which most need careful supervision in these times. Here lies the point where a strangle-hold may be laid, by rough and ill-advised handling, on the production of the future. Any carelessness in allowing a cog to slip here in the economic fly-wheel will receive a penalty five-fold greater than any mistake made elsewhere." ['24, pp. 157–159 *passim*] There is reason to believe that many rulers small and great are as ignorant in this matter as workers in the arts, sciences, and professions are.

Lord Rosebery quotes a remark of Walpole to Henry Fox, upon seeing the latter with a book, to the effect that Walpole had so neglected reading all his life that he could not read even a few pages. ['21, p. 217] Ignorance caused the nobility to let the burghers take their property so long as they did not imitate their clothes or manners. Ignorance caused governments in the early days of the machine age to oppose the general use of spinning machines. [See Sombart, '15, p. 166 f.] A first duty of a government is to learn what is known about the probable consequences of a line of action before taking it.

Ability

All students of government agree that intelligence, especially concerning people and their passions, and managerial ability are very important. The only disputes will be about their relative importance in comparison with such qualities as integrity, good will and popularity, and about whether the possessors of these abilities in the highest degree should be made rulers in government rather than in industry and trade. I conjecture that in the present state of the world, government should have first choice.

It will be profitable to note in this connection certain facts concerning the very early history of rulers related by the eminent anthropologist Fraser:

"Wherever ceremonies of this sort are observed for the common good, it is obvious that the magician ceases to be merely a private practitioner and becomes to some extent a public functionary. The development of such a class of functionaries is of great importance for the political as well as the religious evolution of society. For when the welfare of the tribe is supposed to depend on the performance of these magical rites, the magician becomes a personage of much influence and repute, and may readily acquire the rank and authority of a chief or king. The profession accordingly draws into its ranks some of the ablest and most ambitious men of the tribe, because it holds out to them a prospect of honour, wealth, and power such as hardly any other career could offer. The acuter minds perceive how easy it is to dupe their weaker brother and to play on his superstition for their own advantage. Not that the sorcerer is always a knave and impostor; he is often sincerely convinced that he really possesses those wonderful powers which the credulity of his fellows ascribes to him. But the more sagacious he is, the more likely he is to see through the fallacies which impose on duller wits. Thus the ablest members of the profession must tend to be more or less conscious deceivers and it is just these men who in virtue of their superior ability will generally come to the top and win for themselves positions of the highest dignity and the most commanding authority. The pitfalls which beset the path of the professional sorcerer are many, and as a rule only the man of coolest head and sharpest wit will be able to steer his way through them safely. For it must always be remembered that every single profession and claim put forward by the magician as such is false; not one of them can be maintained without deception, conscious or unconscious. Accordingly the sorcerer who sincerely believes in his own extravagant pretensions is in far greater peril and is much more likely to be cut short in his career than the deliberate impostor. The honest wizard always expects that his charms and incantations will produce their supposed effect; and when they fail, not only really, as they always do, but

conspicuously and disastrously, as they often do, he is taken aback: he is not, like his knavish colleague, ready with a plausible excuse to account for the failure, and before he can find one he may be knocked on the head by his disappointed and angry employers.

"The general result is that at this stage of social evolution the supreme power tends to fall into the hands of men of the keenest intelligence and the most unscrupulous character. If we could balance the harm they do by their knavery against the benefits they confer by their superior sagacity, it might well be found that the good greatly outweighed the evil. For more mischief has probably been wrought in the world by honest fools in high places than by intelligent rascals. Once your shrewd rogue has attained the height of his ambition, and has no longer any selfish end to further, he may, and often does, turn his talents, his experience, his resources, to the service of the public. Many men who have been least scrupulous in the acquisition of power have been most beneficent in the use of it, whether the power they aimed at and won was that of wealth, political authority, or what not. In the field of politics the wily intriguer, the ruthless victor, may end by being a wise and magnanimous ruler, blessed in his lifetime, lamented at his death, admired and applauded by posterity. Such men, to take two of the most conspicuous instances, were Julius Caesar and Augustus. But once a fool always a fool, and the greater the power in his hands the more disastrous is likely to be the use he makes of it. The heaviest calamity in English history, the breach with America, might never have occurred if George the Third had not been an honest dullard.

"Thus, so far as the public profession of magic affected the constitution of savage society, it tended to place the control of affairs in the hands of the ablest man: it shifted the balance of power from the many to the one: it substituted a monarchy for a democracy, or rather for an oligarchy of old men; for in general the savage community is ruled, not by the whole body of adult males, but by a council of elders. The change, by whatever causes produced, and whatever the character of the early rulers, was on the whole very beneficial." ['20, p. 82 f.]

Special Abilities

Concerning the special accessory abilities of rulers in various lines psychology has little to offer beyond the general facts concerning abilities presented in Chapters 3, 4, 9 and 10. "It is rather unfortunate," says Munro, "that nobody has yet undertaken to make a psycho-biographical analysis of American political leaders, big and little. No one has set himself to tabulate their ancestry, their early training, their political and social background, their affiliations, their tactics and methods, their strong and weak points,—in a word, their qualities as a class. Yet it is only in this way that we can ever obtain the data from which to draw sound conclusions as to the technique of leadership. What we now depend upon is the random observation of individual personalities. That being the case we are altogether likely to be misled by the exceptional because it happens to be conspicuous. General conclusions, when based upon a few untypical examples, are certain to be worthless or worse." ['24, p. 111]

Munro's own conclusions concerning the special abilities of politicians and statesmen (if there is any difference) who have to win their power in elections within a party and between parties, are useful, even if unverified by a wide sampling. He lists six:

"1. Unusual sensitiveness to the strength and direction of social and industrial tendencies with reference to their party and political bearings.
2. Acute and quick perception of possible courses of community conduct with prompt action accordingly.
3. Facility in group combination and compromise; political diplomacy in ideas, policies and spoils.
4. Facility in personal contacts with widely varying types of men.
5. Facility in dramatic expression of the sentiment of interest of large groups of voters, usually with voice or pen—fusing a logical formula, an economic interest and a social habit or predisposition in a personality.
6. Courage, not unlike that of the military commander, whose

best laid plans require a dash of luck for their successful completion." ['24, p. 107]

Satisfying our board of trustees for the welfare of the world is not the same as satisfying voters, but the latter is one element in the former with great weight. For a ruler even if chosen by such a board or by God in heaven has to get along with voters and needs the cooperation of men on earth. Indeed mere personal popularity, mere likeableness, may for the purposes of ruling as for preaching, persuading, selling, and other dealings with persons, be considered as a valuable ability or at least a valuable mental asset.

A combination of high intellectual ability and originality is somewhat penalized in government, joint-stock enterprises, and other activities involving groups, compared with mathematics, science, and work of the old-style entrepreneur. The great majority distrust it, largely because it puzzles them; superiors, unless so extremely able as not to fear competition or so extremely generous as to sacrifice themselves for their organizations, look askance at too much of it in their subordinates; colleagues are naturally envious.

It has even been intimated that a sensible man with an intellect equal to that of the 95 percentile lawyer or engineer will give better service as a congressman or the mayor of a city of 50,000 than one of the ablest hundred men in a million would give, because he will have better understanding and support. The matter should be studied in such an inquiry as Professor Munro advocated. So also should the intelligence of elected officers of government at all levels in comparison with appointed officers, and with men doing similar work for private and semi-private concerns. Doubtless the general intelligence of our rulers is below what trustees for our welfare would choose to have, but how much lower it is and how much harm is done it would be rash to guess.

It may however be noted that municipal governments make some rather silly rules and also that they are sometimes careless about the rules which they or their predecessors have made.

The following is no relic of a small town's pettifoggery but an

ordinance of 1920 passed in a city of over 75,000 at the date of its passing:

AN ORDINANCE PROVIDING FOR THE REGISTRATION OF BICYCLES BY THE OWNERS THEREOF AND FOR THE PREVENTION OF THEFT AND FOR THE DETECTION AND IDENTIFICATION OF LOST AND STOLEN BICYCLES AND PROVIDING A PENALTY FOR VIOLATION HEREOF

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF XYZ as follows:

Section 1. That each and every owner or person in charge or control of a bicycle or bicycles, except dealers thereof, within the corporate limits of the city of Xyz, shall, within thirty (30) days from and after the passage of this ordinance, register said bicycles with the Chief of Police of the City of Xyz, by making application for registration in writing, upon blanks furnished by said Chief of Police, which application shall state the name and address of the owner or person in charge and control of such bicycle or bicycles and the make and kind of bicycle and the factory number thereof, and from whom same was purchased, and such other description and information relative thereto as may in the judgment of said Chief of Police be necessary and proper for the identification thereof, and thereupon the Chief of Police of the city of Xyz, upon the payment to him, for the use and benefit of the City of Xyz, by said applicant, of not more than fifty (50) cents, shall issue to such applicant an identification metal tag, having thereon in raised figures and letters the word Xyz and a serial number, which tag shall be immediately placed and securely attached by such owner or person in charge or control of such bicycle or bicycles, upon the front upright bar of said bicycle and at and just below the handle bars thereof, so that same may be plainly seen, and which metal tag shall at all times remain on said bicycle and not be removed therefrom, and said Chief of Police of the City of Xyz, at the same time shall give to said owner or person in charge or control of such bicycle or bicycles an identification card to be carried at all times by the owner thereof when said bicycle is in use, having upon it the identification number assigned to the owner of such bicycle registered, and also stating the name and address of the owner and a brief description of such bicycle.

Section 2. The Chief of Police of the City of Xyz, shall be and is hereby required to carefully file and preserve said applications set out in Section 1, and to keep a register of all bicycles for which said metal identification tags and cards are issued, which register shall contain the name of the owner or person in charge or control of such bicycle or bicycles, the make and factory number of the bicycle, and the number of the identification tag, and such other memoranda as may be, in the discretion of said Chief of Police, necessary and proper for the carrying out of the purpose of this ordinance.

Section 3. Whenever any person, other than a dealer thereof, sells, trades or transfers any bicycle, he shall endorse upon said identification card a written transfer of the same, naming the person and address to whom the same is transferred, and such transferee shall immediately notify the Chief of Police of such transfer to him, and said Chief of Police shall issue a new identification card in the name of such transferee, which identification card shall bear the original number of the metal identification tag and the number of the original card, and enter upon his register, provided for in Section 2, the name and address of the transferee and purchaser thereof.

Section 4. In the event the said metal identification tag or identification card provided for by this ordinance be lost or stolen or removed from such bicycle, the owner or person in charge or control of such bicycle shall immediately notify the Chief of Police of the City of Xyz, of the loss of same, and the Chief of Police of Xyz, shall, when such owner or person in charge or control of such bicycle, makes proper affidavit of the loss of said metal tag or said card, stating the facts of said loss as nearly as possible, issue to said owner or person in charge or control of such bicycle, upon payment to the Chief of Police, for the use and benefit of the City of Xyz, of not more than fifty (50) cents, a new identification tag or card or both as the case may be, for such bicycle.

Section 5. It is hereby expressly declared to be the duty of each and every owner and person in charge or control of any bicycle to immediately notify the Chief of Police of the City of Xyz, of the loss by theft or otherwise of such bicycle.

Section 6. It shall be the duty of every person, firm or corporation dealing in bicycles in the City of Xyz, either as a busi-

ness or as an occasional buyer and seller of the same, to keep, in a well-bound book, at his place of business, a record of all bicycles bought and sold and rented by him, giving an accurate description of such bicycle and from whom received, together with his address and the factory number thereof and serial number thereof, if any, to whom sold and rented, giving their names and addresses and the number of the identification tag and identification card, if any, together with the date of such transactions, in a plain and legible handwriting, which book shall at all times be open to the inspection of the Chief of Police of the City of Xyz, or any officer designated by said Chief of Police to perform said duty.

Section 7. It is hereby declared to be unlawful, from and after thirty (30) days after the passage and approval and going into effect of this ordinance, for any person, acting either for himself or any other person, to change the factory number on any bicycle and to remove or permit such identification metal tag to be removed from the same, or to use any bicycle without the same being registered as herein provided for and having had issued to him, and placed upon the bicycle, the metal identification tag, or to use any bicycle without the same has thereon displayed, in the place provided for in Section 1 hereof, the metal identification tag, or to fail or refuse to make said application and register the same.

Section 8. The provisions of this ordinance are mandatory and any failure or neglect or refusal or violation of the same is hereby declared a misdemeanor, punishable upon conviction by the Corporation Court of the City of Xyz, by fine in any sum not to exceed Fifty ($50.00) Dollars and not less than One ($1.00) Dollar.

Section 9. Whereas there are a great number of bicycles in use in the City of Xyz, and there is daily a great loss of bicycles by owners thereof by theft and otherwise and there is no sufficient record or means of identifying said lost and stolen bicycles and there is no ordinance providing for a registration of the same so that same can be properly identified and recovered, which creates a public emergency justifying a suspension of the charter ruling requiring that all ordinances be read at two regular meetings of the City Council, the said charter rule is hereby suspended by the consent of the Mayor and the unanimous vote of all Al-

dermen present, and this ordinance shall take effect and be in force from and after its passage and publication.

Passed and approved this 19th day of March, A.D. 1920.

(Signed) —— ——, Mayor

Attest:

—— ——, City Clerk.

O.K.:

—— ——, Asst. City Attorney.

The repeal of a curfew ordinance in a large city was caused as follows: "A civics class in the West High School of ——— learned that the following ordinance was on the city's books:

Sec. 1596. Minors on streets at unreasonable hours prohibited. It shall be unlawful for minor persons under eighteen years of age to be on any of the streets, alleys, or public places in ——— between nine o'clock P.M. and four o'clock A.M., except such minor be attended by some suitable and proper adult person. It shall be unlawful for any parent, guardian, or other person, having the legal care and custody of any minor under eighteen years of age, to allow or permit any such minor to go or be in or upon any of the streets, alleys, or public places in said city within the time hereinbefore prohibited unless such minor be then and there accompanied by a suitable and proper adult person. It shall be the duty of the chief of police, or someone authorized by him, to ring the alarm bell at the fire station at nine o'clock each night, or to cause some other sufficient signal to be given.

"The students realized that the ordinance was not enforced, and suggested various reasons why it was unwise to attempt enforcement. As a result of this discussion, the class decided to conduct a hearing on the question of amending or repealing the ordinance. Five students were chosen to represent the board of commissioners; two students were appointed to draw a petition asking for the amendment of the ordinance; five students prepared arguments against the ordinance from the point of

view of the boy working after school, of the student using the city library for study in the evening, and of the participants in school activities such as dances, operas, and plays.

"The remainder of the students acted as public-spirited citizens who were attending the hearing, and were ready to take part in the discussion in the capacity of parents, police officials, dance-hall operators, picture-house managers, and the like. At the hearing, the commissioners listened to the arguments and each gave the opinion that he thought the commissioner whom he represented might have on the subject.

"As a result of the hearing the class voted to submit to the real board of commissioners a petition asking for the amendment or repeal of the ordinance. They thought there might be some objections on the part of the different departments, especially that of public safety, and were prepared to defend their petition, if necessary. They found, however, that the commissioners agreed that this ordinance was out of date and that enforcement was unnecessary. No public hearing was needed, and the ordinance was repealed at once." [O'Rourke, L. J., '38, p. 263 f.]

Interest

Government and politics are not exceptions to the general rule that, other things being equal, success will be in positive relation to liking for the work and those who most like to do it will do best at it. This holds equally as between one and another sort of useful work done by rulers.* There is then some loss when persons who take to politics as a business or recreation are turned out to make room for reformers who do it from a sense of duty.

Troland ['28, pp. 453–455] has suggested that the desire to aggrandize oneself, the ego complex, leads men into politics and is specially fostered by politics. Obviously the self-centered and vain will gravitate toward politics more than toward pure

* Of course, if the work is essentially detrimental to welfare, success at it will be failure to serve the public, and the public interest will be to have the person do it who likes it least, other things being equal. But such cases are rare and need not concern us.

science or nursing. But it seems extreme to say of politicians in general, "When he has once identified himself with a particular political party or issue, these things become stimuli to his ego complex, and their fortunes throughout the country or the world affect his own happiness in a forcible manner. He praises his own group, regardless of their personal qualifications, and denounces his opponents systematically, on general egotistical principles, by any means which may come associatively to his mind." [Troland, '28, p. 453 f.]

Good Will

Genuine kindness and a sense of the brotherhood of man are probably more useful in those who work for or against man directly than in those who do so indirectly by way of growing crops, mining ores, manufacturing clothing and shelter, or distributing commodities. But the difference can easily be exaggerated. On the one hand, competent work with things is as truly welfare work as work with people. On the other hand good intentions and friendliness are no excuse for making silly laws or for slipshod conduct of public business.

Sanity

Abnormalities bordering on paranoia and monomania have not prejudiced the populace against leaders in religion and government. Nor have abnormalities in the form of trances and semi-hallucinations of vision and hearing. The probability that a person who has abnormalities of the second sort will be revered seems to be decreasing, and a contemptuous treatment of him as a "nut" increasing. One cannot be so confident that this is true for the first sort. Men in general cannot be expected to distinguish the desirable self-confidence which has its roots in competence and courage from the paranoid self-confidence which is caused by disease or defect. They should, however, learn to measure men in government and everywhere else by their achievements, not by their promises. This simple rule will reduce the danger of semi-insane leadership and be otherwise advantageous.

Government by Experts

There is a popular aversion to these words, and perhaps also to the facts they signify. These are: (1) government by persons expert in the art of governing, (2) government by experts in the science of government, and (3) government by persons expert in engineering, economics, business, housing, education, medicine, sociology, psychology, or something else which is not government.

An aversion to government by experts in the art of governing is deplorable. So is an aversion to government by experts in the science of government. Both are on a level with human aversions to education, medical treatment, nursing, and sanitation by experts. If and when there are genuine experts in the art or science of government, the more we let them govern us, the better. The expert in the science of government may make certain mistakes in practicing the art. For example, he may apply his science with too little regard for particular conditions and circumstances. But this will not be due to his expertness in the science, which is from every point of view desirable. The aversion to genuine expertness is a silly prejudice explainable psychologically but none the less deplorable.

One may ask, however, whether there are recognizable experts in the art or the science of government in the sense that there are in the arts of electrical engineering and surgery and the physical and biological sciences upon which these rest. The answer is, I think, that there are such, but that the public knows very little about them and does not easily distinguish them from mediocrities, or even from quacks. Moreover the spread between the knowledge and judgment of an intelligent man of affairs and the knowledge and judgment of even the most expert specialists in government (or in psychology, or sociology, or education) is much less than exists in the case of physics, chemistry, geology, zoology, or botany. An intelligent man of affairs who had never attended college could, for example probably pass in the examinations given in first-year courses in political science (and in social psychology, or sociology, or education, if technical terms were avoided wherever possible), but not in first-year courses in any physical or biological science. Such an intelli-

gent man of affairs could understand a good bit of what was said at a meeting of experts in political science, but nothing at a meeting of chemists. There is a gulf between, but it is not nearly so wide or deep in the former case.

Much the same is true in the case of the aversion to government by expert engineers, economists, architects, biologists, psychologists, and the like. Some governmental problems will be answered best by such experts, and some public affairs will be carried on best by them. Their status now varies from great power (as in the case of some city engineers and heads of health departments) to subordination to a political board. Not only should they be given power where they are admittedly competent, but their opinions on general matters should be more available. A board made up entirely of lawyers, professional politicians, and men of affairs is, for the world of today, really a rather one-sided aggregation. It is likely to be improved by the addition of some scientists and engineers. As fast as the sciences of man attain settled bodies of knowledge they should be represented.*

Government by Men of Affairs

Scholars, men of science, and engineers are, as a rule, somewhat puzzled by the power and esteem given in the United States to men of affairs, commonly lawyers, politicians, or business men who, on the surface at least, do not seem to have corresponding knowledge, intelligence, and skill. Exaggerating

* It is interesting that nearly sixty years ago a man of science who was also a man of recognized good sense, T. C. Mendenhall, recommended the deliberate addition of a few men of science to legislative bodies. "The computation of the trajectory of a planet may be an easier task than forecasting the true policy of a great republic, but those qualities of the human intellect which have made the first possible should not be allowed to remain idle. The presence of one or two men of science in each branch of the Congress would be of decided advantage to the whole country." President Miller, who quotes this, adds "We do not recall that the voting public has ever sent a senator or representative to Congress primarily because he was a profound scientist. In contrast, it long has been and is now the custom of the electorate of Great Britain to send representatives to the British Parliament solely because they are eminent men of science." ['36, p. 303]

somewhat, it may be said that the technical men in a business consider themselves abler than the high executives, that the professors in a university consider themselves abler than its trustees, that the editors of newspapers consider themselves abler than the men of affairs who own the newspapers. Indeed many of the high executives, trustees, and owners would promptly agree, and in turn wonder why they were giving orders to these intellectuals, who know so much and think so fast. If their salaries were not five or six times as high they might actually feel a little in awe of them!

Why are men of affairs given so much power by the owners of businesses and by the public? Why do stockholders and voters put so much trust in them? Why would even a professional group choosing somebody to manage a large enterprise consider not the ablest persons in the profession but the ones who most resembled a successful man of affairs? As government executives in charge of public affairs, are they really so much better than politician-legislators on the one hand and experts in the sciences and the art of government on the other?

A few words seem in order concerning the psychology of these men, and their fitness to rule. The paragraph above is not true of some of them, men of great talents who could have beaten the professors and editors at their own game, who add to high intelligence managerial ability, versatility, and personal charm. There are enough of these to give intellectual reputability to the class as a whole in the minds of the public. The public would think of even the least intellectual of them as having brains enough, but not working them so hard or displaying them so much as men of science or letters do. And that may be true. Men of affairs do not often think for thought's sake; nor do they strain for originality. They are not fascinated by ideas; having and using them only as will be profitable, and considering it somewhat eccentric if not indecent to neglect sports and sociability for erudition. This policy may keep their minds more fit for action than the steady toil of the scholar or engineer or surgeon. They are interested in people, and have much knowledge of a large circle of friends and a very large circle

of acquaintances. They learn from persons rather than from books. They are better practical psychologists than the teachers of psychology, and better politicians than the district party bosses. They acquire from their own experiences, from observation, and from conversation superior judgment concerning what can be done in such situations as they deal with. They may reject a proposal year after year because for sub-conscious reasons they think the time is not ripe and then, to the surprise of the originator, put it into action. They thus often seem to both scientists and reformers to have wasted precious years, but they may have been right. They are not eager to keep up with the experts so long as they are in the lead among men of affairs. They tend to be conciliators and compromisers when they cannot be autocrats. They do not whine or sulk; they do not quarrel needlessly. They prevent others from doing so. They exemplify the Greek ideal of "Nothing to excess," have notably good manners, properly adapted to superiors, equals, and inferiors, are gentlemen rather than Christians, and have the talent of seeming to do much for others while in reality getting others to do much more for them. They are not recognizably the descendants of Frazer's original leader, the tribal shaman or wise man, dispenser of magic and master of events. But they do resemble somewhat the nobility and the church magnates of the middle ages.

Supposing this hypothetical analysis of men of affairs (for which, I confess, there is little or no scientific evidence) to be somewhere near the truth, we can see why government should be so commonly entrusted to them. They are men of ability *with all offensive characteristics minimized;* they can get on with political bosses, accepting them as necessary conditions of "What can be done"; they can work in an organization; they refuse to be overworked.

As things now are, five experts and one man of affairs to keep them at peace and happy and protect them from outside interference, even if he never contributes a single idea, probably make a much better team than six experts. But too large a percentage of men of affairs is ineffective and expensive.

Government by Professional Politicians

It is common to scorn the man who makes his living out of politics as an elected or appointed officer, or as a paid party worker, or as an honest boss taking care of the citizens of his district and being repaid legally in one way or another. Leaving out of account illegal gains by bosses or others, this scorn by the high-minded seems undeserved. Is it not often psychologically an excuse for political inertia and ineptitude, the childish 'sour grapes' reaction? Is it not often a defense of the "upper classes" or technical "gentlemen" when they are beaten in some activity. "We are amateurs; we cannot be expected to do as well as those who are paid?" Is not the rest of it mostly a matter not of essentials, but of affiliations? The men who make their living out of politics may be more deserving of scorn than the men who make their living out of preaching, or engineering, or teaching political science by reason of being duller or more vicious or lazier, but not because they make their living out of politics. The world being what it is and they being what they are, it seems probable that they do more good and less harm by working at politics than at preaching, engineering, or teaching political science. Is not part of the scorn due to the fact that the pay is so small that the high-minded who have also very high incomes (say over $5000 per year) assume that only inferior persons would consider it a major part of a living? Should we not scorn rather the public which pays its officers so little? *

The important questions are whether politics in the narrow sense should be a recognized occupation or only a "side line," and whether it should be treated as (1) in the class of "gentlemanly" occupations like the diplomatic service and unpaid trusteeships, or (2) in the regular professions like the law, ministry, medicine, teaching and engineering, or (3) in what may be called the "public affairs" group represented by social work, the management of privately endowed schools, hospitals, museums, etc., and the less narrowly political work of government.

* It should be noted parenthetically that the majority of voters in a state think that their assemblymen are well paid, and that the majority of voters of the nation think that a congressman receives a princely salary.

A realistic political science recognizes politics in the narrow sense as a full-time occupation, and puts it for the present in the third class. The only special training for it now is by apprenticeship, but possibly institutions like the National Institute of Public Affairs recently established by a student of the social sciences and a former congressman, Dr. F. M. Davenport, may develop systematic training for "practical" politicians.

Sex

There are two occupations for which women seem specially adapted, which they have rarely entered—dentistry and municipal government. I think they have avoided dentistry because it has been too much associated in their minds with tools and machinery and with inflicting rather than preventing or reducing pain. They have only for a decade or two had any chance in municipal government. Sanitation, health, education, recreation, and the care of the unfortunate account for about two thirds of the current expenses of a modern civilized municipality. Except for the work of the police and fire departments and the construction of streets, sewers, etc., the business of a city or town is thus largely a sort of large-scale home-making and education in which women have the advantages of a stronger interest in people and their feelings, a stronger impulse to relieve, comfort and console, and a greater satisfaction in caring for the young.

Age

Freud has made much of the primitive conflicts between the young males and the old for the possession of the females (and, one may add, of food and such shelter as there was). In the baboons such conflicts are real. How much they amount to and how they are resolved in the chimpanzees and gorillas is not known. In most primitive and modern social groups the old certainly have much more share in government than they could maintain by force, and probably have much more than they could maintain by guile. Children form the habit of obeying their elders, and this is by no means annihilated by the rebellions of adolescence. Communities form the custom of

obeying the old, who were in early days the repositories of knowledge and who even now have an advantage in amount of experience. They also, in both feudal and capitalistic economies, hold very disproportionate shares of titular status and wealth. Not only as minors, but until well on toward forty, men are ruled by their elders. Certain consequences of this are stated by Dicey: "Law-making in England is the work of men well advanced in life; the politicians who guide the House of Commons, to say nothing of the peers who lead the House of Lords, are few of them below thirty, and most of them are above forty years of age. They have formed or picked up their convictions, and, what is of more consequence, their prepossessions, in early manhood, which is the one period of life when men are easily impressed with new ideas. Hence English legislators retain the prejudices or modes of thinking which they acquired in their youth; and when, late in life, they take a share in actual legislation, they legislate in accordance with the doctrines which were current, either generally or in the society to which the lawgivers belonged, in the days of their early manhood." ['20, p. 34] Dicey's statement requires amendment in two respects. The doctrine that the ability to learn declines very rapidly after the late teens and early twenties has been discarded on the basis of careful psychological observations and experiments which prove that the decline from 25 to 45 is very slow, about 1 percent per year, and indicate that the decline from 45 on is not much faster. Persons from 40 to 60 or later can learn. How much they do learn is determined more by other factors than by the status of the ability itself. The doctrine that "early manhood . . . is the one period of life when men are easily impressed by new ideas" neglects the fact that habits of self-indulgence and self-control in certain matters may be begun in very early infancy, that the structure of language which decides in part the very ways in which we think is learned from two to six, and that many habits of responses to father, mother, friends, coercion, affection, sex, money, work and other fundamentals may be established before puberty. However, the period of early manhood, say from 18 to 28, is the time when individuals do usually get ideas in advance of or contrary to the habits and customs of the family and

neighborhood, if they ever get such. In my opinion what a person sees, hears, thinks, does, and feels in these years is much more important in general than his mental life from birth to age eight. This will be denied by all Freudians and many others.

Psychology recommends that the young (persons from 40 down to 25, or even to 20) should be used more in government. It has several reasons, two of which may be noted here. Good government in the future should be less a matter of controlling and palliating mischief and folly and more a matter of constructive invention and experimentation. This needs an infusion of the young. The best cure and preventive for rash and foolish experimentation is not for the conservative old to defend the *status quo,* but for them to encourage the ablest and best to make scientific and sensible experiments. The second reason for employing younger men is that the general drift of the facts of biology and psychology is toward attaching more importance to native ability and less to prolonged training, in both private and public administration. Indeed, if we can be sure that we have found the ablest score of men of age thirty for *any* line of work, we may safely promote them in that line as fast as is tolerable to the rest of the organization. Psychology gives some help in finding the ablest.

Personal Impressiveness

Size, strength, oratorical power (including now a good radio voice), the appearance of health, courage, determination, frankness, honesty, and benevolence, and other elements of physique and expression are potent in attaining office, and in winning public approval. This is unfortunate. If we were wise, they would have almost as much influence as the flowers that bloom in the spring tra la. For they have almost nothing to do with the case. People should learn to judge rulers by their rule, not by their appearance.

A few minor matters concerning the selection of rulers may be noted. Successful military leaders can rather easily become rulers by popular choice or by force. They and their troops may be glad to settle down, and it is prudent to bribe them to do so. "A heroic age, happily for society, cannot last long; it

has about it while it does last a sheen of passing and pathetic splendour such as that which lights up the figure of Achilles, but it is bound to fade and pass. A heroic *society* is almost a contradiction in terms. Heroism is for individuals. If a society is to go on at all it must strike its roots deep in some soil, native or alien. The bands of adventurers must disband and go home, or settle anew on the land they have conquered. They must beat their swords into plowshares and their spears into pruning-hooks. Their gallant, glorious leader must become a sober, home-keeping, law-giving and law-abiding king; his followers must abate their individuality and make it subserve a common social purpose." [Harrison, J. E., '13, p. 182 f.] The last sentences are even truer of a modern general with his mechanized forces. Successful military men have great energy and much managerial ability. They may also be fairly impartial after their own wants are satisfied, and favor the deserving rather than the attractive, especially since they have few or no political debts to pay. However, the way to rule an army is not the way to rule a nation.

Sensitiveness to slander, ingratitude and the like will make life miserable for a ruler and will probably impair his usefulness. Sensitiveness is, however, positively correlated with intelligence and with good will toward men, so that the best solution is not to select against it, but to have the ruler learn to free himself from it so far as his rule is concerned. This is hard to accomplish, and the combination of great ability with a certain masterful self-satisfaction and insensitiveness is favorable in rulers. The Roman patricians seem to me to have had this combination.

The phlegmatic rather than the nervous temperament is probably favorable. There have, of course, been many successful rulers who, though very nervous, learned to manage themselves in the interest of happiness and efficiency. But this is hard. Graham Wallas gives an instructive description of the collapse of one who fails to do so: "A young labor politician is expected to live in more than American conditions of intimate publicity. Having, perhaps, just left the working bench, and having to adjust his nerves and his bodily health to the difficult requirements of mental work, he is expected to receive every caller at

any hour of the day or night with the same hearty good will, and to be always ready to share or excite the enthusiasm of his followers. After a year or two, in the case of a man of sensitive nervous organization, the task is found to be impossible. The signs of nervous fatigue are at first accepted by him and his friends as proofs of his sincerity. He begins to suffer from the curate's disease, the bright-eyed, hysterical condition in which a man talks all day long to a succession of sympathetic hearers about his own overwork, and drifts into actual ill-health, though he is not making an hour's continuous exertion in the day. I knew a young agitator in that state who thought that he could not make a propagandist speech unless the deeply admiring pitman, in whose cottage he was staying, played the Marseillaise on a harmonium before he started. Often such a man takes to drink. In any case he is liable, as the East End clergymen who try to live the same life are liable, to the most pitiable forms of moral collapse." ['08, '21, p. 51 f.]

METHODS OF SELECTING RULERS

The great bulk of people do not wish to rule. They will not on the average give much time or energy or thought to the welfare of the concentric community circles small and great in which they live. They tend to give up their political powers, as they have so often done in times past. "So in the lesser Assemblies of the *Gau* or the Hundred, the judicial functions which had once belonged to the whole Assembly came gradually to be vested in a select body which grew up through the sheer unwillingness of the general mass of the freemen to attend and exercise their rights in their own persons." [Freeman, '73, p. 221] They let the bosses rule rather than trouble to attend the primaries, find out what is happening, and influence the course of events political. When a totalitarian state replaces a democracy so that their votes are ineffective, many of them vote as happily as before.

If there is a party system with candidates and issues dramatically presented so that the selection of rulers becomes a contest and a game, the people will take part in it.

SELECTION BY MAJORITIES

The opinion of an unweighted majority, each person counting equally with any other, will be worse than the opinion by any reasonable system of weights. This is axiomatic whatever the choice may be.

Weighting is already accepted in principle and used, certain intellectual and moral defects depriving persons of their votes. One reasonable form of weighting is more democratic than universal suffrage for adults, namely to weight parents' votes in some relation to the number of their children. Surely a couple with four children have more to gain or lose from government than a childless couple of equal age. The notion that weighting if used would be limited to differences in intelligence and morality is misleading, though these are doubtless the two most important differences. Sexagenarians should have less weight than men of thirty unless they are found to be wiser and more impartial.

The selection of rulers of large political units is usually partly on the basis of the policies and programs which they are pledged to support. Consequently I note certain facts concerning majority judgments on policies and programs. Contrary to common opinion, the unweighted opinion of a population is especially inferior to any reasonable weighting of it when the question concerns some general policy such as state rights, government ownership, or preparedness for war. On a definite particular question such as votes for women, men may think of the women they know and decide in view of at least some of the relevant facts.

The doctrine that on broad questions of policy the great mass of men will have a sound intuition, possibly one safer to trust than the opinions of the specially intelligent or specially informed is, however, still put forward by many leaders, though not, I think, by many leaders in political science. Boas has defended the voice of the urban people on the ground that they are less hampered by tradition, and more catholic in their wants and ideals than the more intelligent and better educated.

"It is therefore not surprising that the masses of a city popu-

lation, whose attachment to the past is comparatively slight, respond more quickly and more energetically to the urgent demands of the hour than the educated classes, and that the ethical ideals of the best among them are human ideals, not those of a segregated class. For this reason I should always be more inclined to accept, in regard to fundamental human problems, the judgment of the masses rather than the judgment of the intellectuals, which is much more certain to be warped by unconscious control of traditional ideas. I do not mean to say that the judgment of the masses would be acceptable in regard to every problem of human life, because there are many which, by their technical nature, are beyond their understanding; nor do I believe that the details of the right solution of a problem can always be found by the masses; but I feel strongly that the problem itself, as felt by them, and the ideal that they want to see realized, is a safer guide for our conduct than the ideal of the intellectual group that stand under the ban of an historical tradition that dulls their feeling for the needs of the day." ['28, p. 195 f.]

It is significant that Boas says "the ethical ideals of the best among them" instead of "their ethical ideals."

Psychology finds little kinship between *vox populi* and *vox dei*. It would justify majority decisions, if at all, on the grounds that they were convenient to obtain, commanded respect and allegiance in a country where they were customary, and were an insurance against various pernicious sorts of oligarchy.

The decisions of unweighted majorities about persons whom them know well, as in elections within small clubs, shops, churches, boards of directors, and neighborhoods, though still inferior to decisions with any reasonable allotment of weights, are good enough for most practical purposes. Roughly the smaller the political unit the closer the correlation between the majority selection and the best selection. In larger elections it would be a psychological improvement if it were customary to publicize the life histories of candidates rather than their faces and voices. Purveyors of medical drugs are compelled to relate on the bottle certain facts about what it contains, so that the patient may, if he will, know something about what he

is taking. Purveyors of political drugs have to do somewhat the same in the case of constitutional amendments and the like but not in the case of persons. A candidate's face and voice are roughly like the color and smell of what is in the bottle.

Selection by a Governing Class

In all large political units and in most small ones selection is by a governing class. This may be the great Whig or conservative families of nineteenth-century England, the party organizations of the United States, the inner circle of the Communists in Russia, the "solid men of the town," or the local boss and his henchmen. It may be a nascent or would-be governing class such as a group of zealous reformers. Almost never does any large electorate survey the field and announce that it chooses A, or that it nominates A, B, and C. Governing classes select the candidates as well as influence the votes on them. They naturally select them from their own membership, even if they are largely moved by a genuine interest in public welfare. Except by an almost super-human objectivity a governing class cannot think that it is unfit to govern. Selection of rulers by a class of this sort is then selection of, as well as by, the class, even if not for it. Usually it is of, by, and for the class, within the limits of public tolerance.

Until very recently the governing classes, even in democracies with universal and equal suffrage, were more or less coincident with the so-called upper classes. The upper classes have not been studied by psychologists and have received very little attention in this volume. They have made notable contributions to science, literature and the arts. It is proper that a sociologist should describe them, and we may listen to Professor Sorokin:

"Besides . . . intellectual differences it is likely that there are other psychological differences between the upper and the lower classes. The more important among them seems to be as follows: except during the period of decay, *the upper strata are composed of persons possessed of strong ambitions, bold and adventurous characters, with inventive minds, with harsh and non-sentimental natures, with a sort of cynicism and, finally, with a will for domination and power.* These terms are not quite

definite but are used on account of the absence of any better ones. The reasons for these statements, in brief, are as follows: In order to be a successful ruler or to become a boss or a captain of finance, or a great inventor and reformer, intellect alone is not sufficient. It is necessary also to have a corresponding character. A man without a persistent character, in spite of his talent, cannot become either a great scientist, or money maker, or ruler, or inventor, or leader generally. Except, perhaps, in the case of poetry, all these activities demand a great deal of stubbornness, persistency, and determination as prerequisites to success. Soft characters who cannot work steadily in their own line rarely achieve prominence, in spite of intellect. For the same reason a climber, whether in the field of government, or money making, or conquest, or colonization, or science, or arts, cannot be a man of routine. Either in his actions or in his theories he must care to find new ways and to go along them in spite of opposition and difficulties. In this sense he must be an adventurer, and must have a boldness in venturing what timid men do not dare to do. A sentimental man who is very sensitive and compassionate toward the sufferings of other men has less chance to climb or to keep his power than an identical man free from such sentimentality. Ruling or money making; conquest or pioneering; building of political empires or empires of business; spreading a religion by bomb, sword, violence; or performing the acts of severe justice; revolutionary propaganda or efficient keeping of social order; these and other functions of the upper strata demand for successful performance a great deal of severity, hardness and insensitiveness toward the sufferings of other men. It is in the nature of these functions. A sincere diplomat would be a failure. An entirely frank captain of industry or strategist is the man who ruins his own business or the whole army. An honest man who makes no brilliant promises is one who rarely can obtain any political success. Hence, insincerity, cynicism, manipulation of ideas and convictions are necessary prerequisites for successful climbing through many channels.

"When the aristocracy of a society begins to decay, these traits begin to disappear within the upper strata. They become

timid, human, soft and sincere. If the numerous humanitarians of the present moment may be believed, these traits are those which ought to belong to the upper strata. Perhaps they should. But, fortunately or unfortunately, they belong to the upper strata only in the period of their sinking and never in the period of ascending or safe domination. And the longer an aristocracy has been free from them the longer it has been able to keep its power. As soon as it becomes humanitarian and honest and meek, it is doomed to be overthrown and to be superseded by the bold and harsh and cynical newcomers. The same may be said of the aristocracy of wealth. The 'humanitarian offspring' of the stern founders of a business empire can only squander the money of their fathers, and enjoy life in humanitarian idleness. They are what G. Sorel rightly styles 'degenerated capitalists.' The above is very well summed up by Napoleon in his statement: 'When the people say that the king is kind, this means that he is a poor ruler.' G. Sorel, V. Pareto, R. Michels, N. Machiavelli, and many others well understood and successfully proved it.

> The permeation of a dominant class by humanitarian ideas, which led that class to doubt its own moral rights to existence, demoralizes its members, makes them inapt for defence. No social struggle in history has ever been permanently won unless the vanquished has as a preliminary measure been morally weakened.

Such has been the real situation." ['27, p. 308 f.]

If this characterization is essentially true one moral would seem to be that if the able and good wish to rule the world to its advantage they must not only spend the time and trouble necessary to exert pressure within the real government by serving people as the bosses serve them and directing selections and elections through a "machine," but also must conduct a "strong" government, using ruthlessly whatever means the end justifies.

Freeman states as a principle of government that an upper-class rule according to the customs of the class reduces the variability of the rulers. Taking the patricians of Rome as an example, he says, "Such a system tended to dwarf the powers of men of the very highest order; but it tended at once to raise

and to regulate the powers of all but the very highest class. It checked the growth of heroes and of exceptionally great men, but it fostered the growth of a succession of men who were great enough for their own position, but not too great." ['73, p. 267] A ruling class is in so far forth less risky than military tyrants, attractive demagogues, or other upstart dictators.

The emergence of labor leaders as a ruling class is of obvious importance, but little is known about their psychology. Nor am I at all satisfied with what little seems to be known. They seem to be essentially reformers. They are rarely leaders in craftsmanship. Such seem rather to become foremen, shop managers, inventors, or the like. They are rarely natural politicians who lead labor primarily because they are politicians and secondarily because they are working men. Such are likely to work for the local boss, get some political job, and operate along regular party lines. It is true that in Europe political parties do seek now to insert their politicians into labor unions to control them, and that the Communist party does so in the United States. But so far very few labor leaders are of that sort. Many of them have done very little work at the occupation whose laborers they lead. (The great trio, Lenin, Trotsky and Stalin, did not, I think, average five years of manual or clerical work. John L. Lewis at 29 was legislative agent of the United Mine Workers of America. William Green at 27 was sub-district president of the same organization.) They like to talk much more than the average workingman does. Some of them seem like the volunteer preachers of early non-conformist sects in England and of Methodism in America. Others, though still agitators and reformers, are adventurous, rovers, "tough guys," like a Methodist "local preacher" only in the possession of a "message" and the craving for an audience. A few (I think, a very few) may be of the despicable sort common in Lasswell's collection of agitators ['30] who feather their own nests at the expense of their families, friends and clients, maintaining their self respect by the conviction that they are saving the world or the workingman. As the work of attracting workers into the unions gives way to the work of collective bargaining, the reformer becomes more of a business man, a sort of com-

mission-merchant selling labor. As the work of leading in major conflicts such as strikes gives way to the handling of minor conflicts, the prevention of strikes until conditions are favorable, and the prevention of action which kills or incapacitates the goose that lays the golden eggs by putting the employer out of business permanently or for the length of a shut-down, the labor leader becomes less of a warrior and more of a lawyer. Young reformers can make excellent business men and lawyers in middle age. The ablest of labor leaders, for example Ramsay MacDonald and Samuel Gompers, rank very high in knowledge, intelligence, and managerial ability, but not, perhaps, so high as the ablest among business and professional men. Their intelligence operates more after the pattern of theology than of science. They are doctrinaires oftener than investigators. It is my impression that the drop in quality from the top leaders to those of lower rank is greater than in the professions.

In government, whether as a party, as a bloc, or as observers and critics of all parties and of each piece of legislation, labor leaders are supposed to be working for the interests of laborers. It is an interesting bit of popular psychology that they can announce this without being accused of sacrificing the country or debauching the government. This lends an engaging air of frankness to their operations and enables them to keep free from the cant and indirection to which employers as a class are tempted to resort, and to which they have resorted in times past.

This description has no warrant in statistical investigations or psychological tests, but I have found nothing authoritative to replace it. Time and place have made and will make modifications of it necessary even if it is true in a general way. If the genes of a Ramsay MacDonald were born to parents of the same status as his in New England today he would probably go through Harvard on scholarships and become a college professor. If the genes of John L. Lewis had been born in Cromwell's time he might well have risen from the ranks to be a great military leader.

Conclusions concerning the actual contribution of labor leaders to welfare by their control of government seem as insecure as

conclusions about their mental characteristics. Labor leaders as a ruling class in England and in Germany did not achieve notable success for either labor or the general welfare, but perhaps no government would have done better at the time. In the Scandinavian countries they are reputed to have done very well. However, these countries had the advantages of neutrality during the World War; and Sweden, at least, has been taking a profit from the preparations for future war.

In a study, as yet unpublished, of the sponsors of federal laws, by Dr. Norman Small, the record of the American Federation of Labor was not demonstrably better or worse than that of the employers organization, the National Chamber of Commerce.

Selection by Blocs

"Blocs" or "pressure groups" operating as parties, or as forces aiding, threatening and in all sorts of ways influencing parties, platforms and candidates, are typical of present-day democracies. Kent lists those which are the most important for our national government as follows:

"The Anti-Saloon League
The Association Against Prohibition
The American Farm Bureau
The newspapers
The National Civil Service Reform Association
Organized labor
The American Legion
The anti-soldier bonus element
The railroads
The Ku Klux Klan
The National Chamber of Commerce
The Nonpartisan League of Nations Association
The League of Women Voters

"These are merely the better known and stronger of the groups. There are many times this number, and they differ according to the locality. Almost every state has a distinctive group of one sort or another that makes local issues. Most of

those given above make national issues, and the list is by no means a complete one." ['35, p. 258]

Selection by blocs has the psychological demerit of any system which is mainly negative. A candidate who has never said or done anything offensive to any of these blocs is likely to be lacking in originality, active interest in welfare, and courage. His chief merit is likely to be caution. He is almost certain to have more regard for persons than for facts, which may in some ways be a merit in a ruler, but has the great demerit of leading him always to try to please people rather than benefit them. He is like a surgeon who relies on morphine, not daring to use the knife.

Selection by Trustees for the Public

This heading will excite the derision of all practical politicians and many experts in political science. Will the public elect them? If so, in what respect will they be better than the United States Senate? How can they have any real power over party nominations or official appointments? If they have not, why should any party or appointing authority pay any heed to them? Will they not be subservient to whoever appoints them and supports them financially? Will they not be so restricted by their training and affiliations as to give nothing much better than what voters now receive from various well-meaning organizations? These and other questions make the plan seem as futile as it is grandiose. But it may deserve consideration, especially since such trustees for the public might be helpful in many other ways than by recommendations of candidates.

Such boards of trustees might be established for cities, states, and nations. Consider the least promising case of a national board.

Let it be constituted by anybody, by itself, by a Gallup census of opinion, by a score of men chosen by lot from two hundred men of good sense. Let it consist of a rather large panel from which groups of three, five, ten or more could be drawn for any particular task, the entire panel to have some such membership as the following:—

1. All past presidents of the United States, to serve for ten years.
2. All past presidents of the American Association for the Advancement of Science, to serve for five years.
3. All Nobel Prize winners, to serve for ten years.
4. All past presidents of the American Federation of Labor, to serve for five years, or, if there is no living ex-president, two representatives appointed by the president of the Federation.
5. The same representation for the Committee for Industrial Organization.
6. All past secretaries of the Department of Agriculture, to serve for ten years.
7. Four men chosen by lot from past ambassadors to England, France, Germany, Italy, Russia, China, and Japan, to serve five years.
8. A member to be appointed by the General Staff of the Army.
9. A member to be appointed by the corresponding body of the Navy.
10. A member to be appointed by the Federal Reserve Board.

The persons appointed in Nos. 8, 9, and 10 to be under 50 at the time of appointment and to serve five years.

11. A member appointed by the President of the Carnegie Corporation.
12. A member appointed by the President of the Rockefeller Foundation.
13. A member appointed by the council of the American Bar Association.
14. A member appointed by the council of the American Medical Association.
15. A member appointed by the council of the National Education Association.
16. A member appointed by the council of the Engineering Societies.
17. A member appointed by the Social Science Research Council.
18. A member appointed by the Presidents of the six state universities spending the largest sums for teachers' salaries, in rotation.

19. A member appointed by the Presidents of other state universities, in rotation.
20. A member appointed by the Presidents of the six private universities spending the largest sums for teachers' salaries, in rotation.

The persons appointed in Nos. 11 to 20 to be under 40 at the time of appointment, and to serve for five years.

All members are automatically retired at age 70, but the group may each year reelect or reinstate one member of those so retired to serve till age 75. The essentials of the membership should be intelligence and impartiality, not a balanced representation of "interests."

Let it be financed by a permanent endowment held by some suitable agent, contributed by the subscriptions from any individuals or groups. Probably the philanthropic foundations would have to assume much of this load.

The members should be paid about $15,000 each at the present value of the dollar, and approximately an equal sum should be allowed for a staff which secured such information as they needed. They should be expected to work full time.* They should study and think much, and talk little. Their operations should be a mixture of those of a court and of a group of scientific or business experts.

The recommendations of such a group would certainly be news. They would be much more impressive than the recommendations of the worthy but little-known associations to promote good government. If neither the party machines nor the voters paid any attention to their recommendations the money would still not be wasted. It would be worth a million dollars a year to have that fact demonstrated to the intelligent people of the country.

* Selection of candidates to be recommended to political parties for nomination and to voters for election would be only one of their duties.

Chapter 33

CITIZENS

The general facts of chapters 6 and 11 and the particular facts of history show that people with few exceptions are indifferent to public affairs. They like to have their way, but not to do the work of ruling. They dislike being frustrated and coerced directly, but neglect the indirect limitations and compulsions by institutions to which they are habituated. They want to eat, make love, have company, and be entertained. Public affairs are of widespread interest as entertainment in their dramatic and personal aspects. Roosevelt, Hitler, and Mussolini today, upon whose actions the lives and happiness of millions depend, are more like the heroes and villains seen on the stage than like our parents and employers.

There are, however, two notable exceptions to popular indifference. By direct taxation, conscription, the building of a road that we see and use, and the like, government does make itself felt as a reality. Also there is an increasing tendency to attribute to the government troubles which previous generations attributed to the wrath of God or gods, or for which they sought no cause at all. There are many minor exceptions. There are vicious men who dislike the governmental activities, and agents that hinder them in robbery, murder, rape, wife-beating, drug-peddling and the like, and punish them therefor. Some of these take a regular profit from vice and try to secure dishonest government protection. There are unruly men varying from heroes like Robin Hood and Jack London through the merely quarrelsome and violent to the vicious desperado. In times past these were recruited often from the followers of lords who could not continue to support them. Such are essentially opposed to law. They can live under a ruler but not under rules.

On the other hand, there are men to whom solidarity is the *sine qua non* of happiness. "There is the intense desire of many human beings . . . to 'find themselves' in some close community of intense moral life. Even at the cost of wilfully representing the actual heterogeneous State as an ideal homogeneous State, they discover this community, as an object of passionate devotion, in a State or *patria*. Sometimes it is discovered in a group of friends. Sometimes in a family. Sometimes in a city. But wherever it is discovered, there is a passionate conviction, which elevates the man's whole life, that only in society, and this society, does a man attain personality, and that the individual standing by himself for himself is 'a mere abstraction,' something unreal compared with this experience to be found in social life." [Catlin, '30, p. 425 f.] *

There are a few men in whom mastery is so strong that if they do not rule enough at home and in work they will go far to get rule in church or public affairs. Many wild animals will not breed in captivity and it is said that the slaves of Rome did not perpetuate their stock. Whether that intolerance of submission can so disrupt a man's nervous system as to produce this result, is however very doubtful.

We, the people of the United States, are almost without exception the descendants of the lower and middle classes of modern Europe, and these were for the most part the descendants of serfs of the dark ages and early middle ages.** They, in turn, according to Seebohm had made "a step upward out of a once more general slavery." Very little of the blood of feudal lords and ladies is in our veins; our genes are not of their genes. Very few of their genes are anywhere in the world today. There is nothing in this to be ashamed of, and probably very little to regret. The matter is brought up here to emphasize the fact

* It should be noted that some of the persons who fit Catlin's description do not assimilate the "state" to "society," but rather contrast them and in their devotion to society feel opposed to the state which seems to them to sacrifice genuine solidarity to a mechanical and hierarchical rule.

** This is not true of the Irish, Welsh, Western Scots, and some others who may consider themselves as the sons of the free tribesmen of a pastoral economy which antedated the agricultural economy of most of Europe, all kings, or all savages, according to the point of view.

that our government and all the governments of European nations arose (partly by evolution, and partly by revolutions small and great, by persuasion or by force, including reactions and reversals) from governments of, by, and for a noble land-owning class whose habits certainly and whose genes possibly were unlike ours. European history was, until recently, the history of what they did. It also suggests the speculation that modern citizens, by traditions of the cradle, and conceivably to some extent by features of their genes, are readier to submit to bosses, dictators and the like than the independent and bellicose nobility would be if they instead of us had the earth.

Tests of knowledge and judgment about national and international public affairs have been given to students in college and below.* The results have been disappointing to those in charge

* The following are parts of one of the earliest tests of this sort devised by Dr. J. C. Manry about fifteen years ago ['27, pp. 54–65, *passim*]:—
I. DIRECTIONS: Draw a line under the word or phrase that helps to make the statement correct, as shown in the sample.
SAMPLE: The principal article shipped from Melbourne, Australia to Boston is
lumber farm machinery *wool*
Begin here:
1. Under the American constitution, the authority to declare war is vested in
the president the senate congress
the cabinet the secretary of state the secretary of war
2. A modern battleship, like one of the big ones planned in the past three years, costs less than $1,000,000
between ten and twenty millions
between $1,000,000 and $10,000,000
between thirty and fifty millions
between twenty and thirty millions
3. The number of soldiers estimated to have died in the World War is
less than 2,500,000 between 2,500,000 and 5,000,000
between 5,000,000 and 7,500,000 between 7,500,000 and 10,000,000
over 10,000,000
4. The island of Java belongs to
British Empire the Netherlands France
Japan the United States
5. In 1916 the Republican candidate for the presidency was
Roosevelt Hays Lodge Hughes Taft
6. "We favor the granting of independence without unnecessary delay to the 10,500,000 inhabitants of the Philippine Islands." This was one of the planks of the 1920 platform of
both Democratic Party and Republican Party Republican Party
neither Democratic Party nor Republican Party Democratic Party

as showing much less knowledge than they think is desirable for future citizens of the age and status in question. But this is a common and perhaps inevitable complaint. People are ignorant

7. The system of delegating power to the central government and reserving power to the states or provinces is found in the United States and
Australia New Zealand Canada
Union of South Africa
8. The system of reserving power in the central government and delegating power to the states or provinces is found in
Switzerland Canada Australia
9. The commonest method of transporting goods in the interior of China is by
railroads freight wagons motor trucks
wheelbarrows and pack animals
10. The chief industries of the British Isles are
manufacturing and commerce agriculture and mining
fishing and lumbering

II. Go clear through the following list of national governments and mark a cross (X) in the first column opposite each state that has come into existence as a RECOGNIZED NATIONAL UNIT since 1914:
Sample: Jugo-Slavia X

Austria				Latvia			
Azerbaijan				Lithuania			
Belgium				Netherlands			
Czecho-Slovakia				Norway			
Denmark				Poland			
Esthonia				Portugal			
Finland				Russia			
France				Spain			
Germany				Sweden			
Great Britain				Switzerland			
Italy				Ukrainia			

Now go through the above list and mark a cross (X) in the second column opposite each state that now has SUBSTANTIALLY THE SAME political system that prevailed in 1914. *Sample:* United States: X

Finally go through the list and mark a cross (X) in the third column

not only of government and public affairs, but also of economics and business, of history and geography, of science and letters, of art and music, of philosophy and theology, to a degree that

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opposite each state that now has a VERY DIFFERENT political system from that prevailing in 1914.

III. Opposite each of the items of money in the following list, write a number to indicate its rank in exchange value at the present time as compared with the other five items on the list. Thus the coin of highest value will be marked 1, the one of next greatest value at the present time 2, and so on.

SAMPLE: 2 A Japanese yen
1 One dollar (U.S.A.)

Begin here:

.....A German mark	.....An English shilling
.....An Austrian crown	.....A French franc
.....A Russian rouble	.....Fifteen cents (U.S.A.)

IV. On the left is a list of terms referring to international affairs, and on the right is a list of meanings. Put the letter that now stands in front of each explanatory phrase, before the appropriate term. Each phrase fits only one of the terms.

.....Balance of power	A. One who favors an aggressive, domineering foreign policy
.....Bolshevik	
.....Boycott	B. A privileged reactionary; originally a Prussian aristocrat
.....Commune	
.....Democracy	C. A treaty
.....Embargo	D. A final proposition offered by either party to a diplomatic negotiation
.....Jingo	
.....Junker	E. Authority from the League of Nations for the administration of an undeveloped region of the earth
.....Liberum Veto	
.....Mandate	
.....Pacifism	F. Prohibition of departure of ships from specified ports
.....Parliament	
.....Plebiscite	G. Combination to abstain from or prevent specified business or social relations
.....Pogrom	
.....Protocol	H. Vote by universal male suffrage, especially to determine nationality or sovereignty
.....Revolution	
.....Socialist	I. System of international alliances and understandings in which each nation aims to be on the more powerful side in any possible quarrel
.....Soviet	
.....Superman	
.....Ultimatum	
	J. A committee composed by occupational representation for purposes of government

V. On the left of the page is a list of names of places. On the right is a list of descriptive phrases. Put the letter of each place in front of the descriptive phrase that fits it.

A. Basra	.....A place on the coast of China taken from Germany by Japan in 1915
B. Chengtu	
C. Chosen	.....A town in Alaska

shocks the devotees in any of these lines. The political reformer will deny that any of these others can be so important as the knowledge which a citizen needs to understand public affairs. In this denial he more or less assumes that the people should either govern themselves, or at least decide general policies and keep watch over their representatives. But it is clear that they cannot do the former, and it is doubtful whether they should try to do the latter. To a psychologist it seems absurd that we should specialize the productive labor (including the supporting sciences) of the world into ten thousand narrow lines, with great gain for welfare, but should adopt an opposite plan for public business. Even the revered town meeting seems rather a symptom of immaturity in government than the acme of its perfection. The earliest town meetings doubtless decided with aid from the medicine-man where to sow each field, what to do for each disease that invaded the district, who should swap the local surplus of A for some neighboring village's surplus of B, and how to deal with each delinquent and defective. That labor was much better done when divided. The New England town meeting in even its most glorious epoch did badly what is now done much better by specialists and by laws framed and administered by specialists.

The fact that all men have an interest in a certain activity is not necessarily a reason why they should either control it or know about it. What is necessary is that whoever does control it should consult somebody who knows about it and make proper

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D. Colon ..... Industrial district now divided between Germany and Poland
E. Formosa
F. Kamchatka ..... Capital of Uruguay
G. Khartoum ..... Capital of Chile
H. Kiau-chau ..... A possession of the United States recently acquired from Denmark
I. Medina
J. Montevideo ..... City in Mesopotamia at upper end of Persian Gulf
K. Nome
L. Saar Valley ..... City in Arabia, center of pilgrimage for Mohammedans
M. Santiago
N. Sarajevo ..... Capital of Egyptian Sudan
O. Shantung ..... City at Atlantic end of Panama Canal

The remainder of this test is omitted.

use of the knowledge. In a small local government, for example, four important issues are: Who shall teach the children? Who shall care for the sick? How shall citizens be able to communicate with each other and the world outside? How shall the money be raised to pay for certain public services? Is it not foolish to demand that all farmers stop cultivating their fields, all craftsmen drop their tools, and all mothers leave their babies to learn about the prognostication of success in teaching, the advantages and disadvantages of socialized medicine, the legitimacy of the dividends paid by the American Telephone and Telegraph Company, and the effects of a general property tax, sales taxes, income taxes, and the equalization of taxation among communities.

For those to whom reading and talking about such matters is a pleasure, it is a suitable alternative to other leisure-time occupations and obviously better than many of them. When leisure "is used for attending meeting and discussions of public affairs and for the organization of new groups to oppose or promote new ideas" as Delisle Burns says it often is, the use is perhaps more ethical though less healthy than playing games or making music. But why should decent people who earn an honest living by contributing goods and services which the world surely needs be taught that it is their duty to learn to mind public business as well as their own, and be scorned because they are ignorant? Is that not likely to be one more case of the error so frequent in the schemes of enthusiastic reformers, namely, that they punish the able and good by adding to the load of work they are already carrying?

It may be admitted that the public needs some defense lest it "be increasingly at the mercy of the boss, the demagogue, a reckless chain of newspapers, the well-financed propagandists of whatever type. In these latter days the situation has become increasingly serious. The demagogue employs the arts of his classical predecessor, but with the added weapons of modern high-geared machinery and the scientifically manufactured poison gas of propaganda. Organization and social psychology have been made his allies and have greatly increased his already formidable power. The demagogue and the propagandist may

indeed prove to be a greater menace to the genuine interests of democracy and the possibilities of science than the boss and the grafters." [Merriam, C. E., '31, p. 207 f.] But is not the prudent defense against these enemies of the people a group of friends of the people whose word the public can rely upon, such a group as was briefly described at the end of the previous chapter? For each of us to be armed with information enough to detect all lies and inadequacies would require intellects and memories better than many of us have and endowments to free us from all other duties.

Before leaving the topic of public ignorance of public affairs we should note two cases of ignorance which are specially in need of protection by some such agency as the proposed trustees of the people. Not one in twenty of us, probably not one in fifty, can estimate a man's sincerity, dependability, or unselfishness from his looks, voice, and manner. But nineteen out of twenty of us, who would make no claim to knowledge of history, or chemistry, or law, think that we do know human nature. Not one in a hundred of us can observe fifty variable instances of a complex phenomenon and come out at the end with an impartial estimate, unless careful aids to observation and statistical techniques are used. If, for example, I have a hundred assistants each for a month, half men and half women or half Jews and half Gentiles or half twenty years old and half thirty, and at the end of the ten years out of the richness of my experience estimate the relative merits of the two groups, I am likely to make very grave errors. Sir Josiah Stamp estimates or, to use his own word, "suspects" that twenty percent of positive cases often creates "the illusion of a significant majority in mass psychology." ['36, p. 239]. Statistics lie much less often than statisticians, and non-statisticians lie oftenest of all. Not only public opinion but public observation may err enormously.*

* It is worth noting in this connection that opinions about politics and government have been found rather repugnant to change by the ordinary methods of teaching. For example, a college boy is apparently less ready to alter his opinions about the relative merits of the last ten Presidents as the result of a course in government, than to alter his opinions about the relative merits of ten poets as the result of a course in literature. We

There is much that people do not know about government in general and their local and national governments in particular. There is also much that they are so familiar with that they take it for granted, assuming that it has existed and will continue, like the sun and rain, the march of the seasons and the growth of plants. In an American city, lighted streets and sewers are expected like leaves on trees. That a man decently occupied in useful labor will be undisturbed, save by some criminal, that a child will find schools open and teachers to teach him, that the ash-can will be emptied, are expected with little realization of the past efforts and present arrangements which make all this possible. So it was a great surprise to many when during the depression schools were closed for lack of funds.

There are three exceptions to this unthinking treatment of the social order as automatic like the order of nature. One is the case of students who learn about the development and functions of governments, especially local governments. Such chil-

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cannot be sure because the latter shift has not been measured. Table 32 is quoted from the third of L. W. Ferguson's experiments ['36, p. 191]:

TABLE 32

RANKINGS BY DEMOCRATIC-PREJUDICED AND REPUBLICAN-PREJUDICED GROUPS OF STUDENTS

	RANK			
	Republican		Democratic	
	Before Study	After Study	Before Study	After Study
Benjamin Harrison	9	9	9	9
Grover Cleveland	5	5	4	4
William McKinley	7	7	6	7
Theodore Roosevelt	1	2	2	3
William H. Taft	8	8	7.5	8
Woodrow Wilson	2	1	3	1
Warren G. Harding	10	10	10	10
Calvin Coolidge	4	6	7.5	6
Herbert Hoover	3	4	5	5
F. D. Roosevelt	6	3	1	2

dren often have more knowledge of the facts than their parents. The second is the case of tax-payers, who are reminded each year that government takes, uses, and presumably needs their money, and are thereby sometimes stimulated to find out how it is used. This is not so important an exception as it seems to be at first sight. Payers of indirect taxes are often unaware that they are paying them since most governments take pains to hide that fact from them so far as possible. And the attention of payers of income taxes and property taxes is often so concentrated upon the amount of the tax that they learn little about what is done with it. The third exception is sudden, dramatic and much advertised action by government, such as some major operation of construction which appeals to the senses, or some major alteration of custom which appeals to widespread prejudices or is otherwise exciting. As you can boil a frog to death without disturbing him if you do it slowly enough, so a government can deprive men of liberty, the pursuit of happiness, the fruits of their labor, property, hope, and life itself without their being aware of it, if the right means are used and used gradually. But present-day governments are usually in a hurry and usually are confident that their acts will win rather than lose votes. So they annex territory, expel Jews, start a war, make a 5-year plan, enact prohibition, later abandon it, make a magnificent gift of money to the farmers and then a magnificent gift of power to the labor unions. Such acts make men aware that rulers rule. War is of course the act which makes government felt most acutely.

Despite these exceptions, government has been and is to most men and women first an expected order of things and second a spectacle to look at and talk about.

The ignorance about the nature and history of government and the unthinking expectation that certain routines of government will persist as by a law of nature, help explain the rarity of rebellions and the tolerance of government by a class. "It is a constant source of astonishment to hot-headed Radicals that communities with an extended franchise should tolerate government by a superior class. It seems only natural, when power has been placed in the hands of the masses, that they should at once make use of it, particularly when it can be used so greatly in their own

interest. Why any one earning under thirty shillings a week should vote Conservative and submit to the pretensions of a hereditary aristocracy passes their understanding. Logically, this point of view seems reasonable enough, and Periclean Athens seems to give it the confirmation of experience; but in truth it is contradicted both by the warnings of history and by the hard facts of political human nature. History suggests—what many an "advanced" candidate has discovered to his cost—that it takes generations of teaching, not by argument but by suffering, before a people, however politically gifted, can be induced to take the trouble to govern itself. The Athenians took to politics as easily, and were as politically gifted, as any community in history. Yet their acceptance of self-government was tentative and hesitating. It came late, and almost as an afterthought, in the development of their polity. If they could have lived happy and undisturbed under any other form of government, they would as willingly have turned their energies into other channels as the "silent middle-class voter" to-day, or their own easy-going compatriots on the coast of Asia Minor." [Zimmern, '31, p. 139 f.]

Ignorance and unthinking expectations also help to justify the doctrine that government is usually by the initiative of the ruler with, at the most, the consent of the governed. I quote a statement of this doctrine by Lord Eustace Percy, which is so extreme that historians could perhaps find exceptions to it, but which in its essentials seems to fit the facts both of psychology and history: ". . . the motive power of government is, not popular desires, but administrative initiative, and the source of that initiative will always be found in the conviction of the governor that he has a mission and an authority to govern, a mission far more active and an authority far more imposing than can be drawn merely from a study of the wishes of the governed. Popular desires may be explosive enough, but, if 'we want,' as Mrs. Browning and all good democrats have wanted, 'not popular passion to arise and crush, but popular conscience which may covenant for what it knows,' we shall always find that the popular conscience is an intensely conservative thing—conservative, that is to say, in the action which it is prepared positively to

authorize at any given moment, and in its reliance on those who govern to show an originality of which mankind in the mass must always be incapable." ['34, p. 12]

The next quotation sounds less aristocratic and condescending but its estimate of popular initiative is approximately the same:

"In order to understand the attitude of the Federation toward the matter of policy initiation, it is necessary to remember that the trade-union membership of the country in the aggregate is composed of individuals with restricted education, moderate financial resources, and limited time for the consideration of problems other than those affecting their own working conditions. Under present circumstances it is out of the question for the organization to look to the rank and file of the members for novel ideas, or constructive suggestions for meeting new problems. These workers have little time or energy for interesting themselves, if they would, in broad questions of national policy. For this reason the Federation has come to depend to a very considerable extent upon its leaders for creative effort, and the relationship that exists between these leaders and the mass of trade-union members is not so much a relationship that facilitates the mutual exchange of ideas as it is one that calls for creative leadership by the one group and zealous allegiance by the other. At the same time it is to be remembered that a more or less fervent democratic spirit pervades the trade-union movement, and American workers would resent any attempt of the leaders to appear to dictate, however much they dictate in actual practice. The individual membership of the Federation must be made to feel that their intellectual contributions are necessary for the work in hand, and they must be afforded every opportunity for presenting them regardless of their value or practicality." [Childs, H. L., '30, p. 119 f.]

Why then do rulers in democracies call themselves servants and why do they speak so reverently of the wishes of the people? It is partly a customary form of flattery; it is partly a means of keeping themselves in power, which even the ablest and sincerest may feel themselves compelled to use; it is partly a means of increasing popular interest and zeal, it being a recognized tech-

nique in teaching, selling, and other fields of applied psychology to entice a person into making the suggestion himself and reward him by praise, etc. for doing so. "The customer is always right" means that salesmen must deceive him secretly and to his satisfaction. The voters are always right, in a similar sense.

The attitude of the public toward public property is psychological rather than logical. Logically the public should cherish its property, try to increase it, be grateful to those who add to it or to its value, and enjoy it. But psychologically that in which you have only a life interest along with thousands or millions of others is very unlike the house you live in or the stocks from which you draw dividends. The enjoyment a citizen has from sitting in a public park is more like the enjoyment he has from sitting in another man's garden than like that he has in his own. So a valuable franchise to use the public streets may be given away, or *per contra* may be withheld out of dislike for the corporation which seeks to obtain it. Monarchs used to increase crown lands and privileges, but the democratic governments which succeeded them in the United States and France did not strive to add to their capital. The public in this country gave away much of its land to individuals, partly out of generosity to ambitious and needy settlers, partly to "develop" the country and add to the nation's size and strength, partly because it did not think the land was valuable, but partly because it did not think much about its property in land.

The public of the United States has in recent years acquired a vast amount of a new sort of property in the form of the promises of foreign countries to pay, secured as a rule by nothing, and the promises of some of its own citizens to pay, secured more or less by mortgages on their property. The apathy of the public toward the almost certain loss of the former, its failure to feel any appreciable gratitude toward nations like Finland who did pay, and its almost complete indifference to the economic and political problems involved in government loans to individuals are evidence of the very slight heed which the public gives to its property.

The attitude of the American public toward public debt is in

general that it will borrow any amount it can at any time to buy anything it wants. Local communities have to be restrained by state laws from going head over heels in debt. There was much opposition among the people to the World War but not much opposition to borrowing money to carry it on or to pay the soldiers' bonuses. There was some public opposition to the dole, but very little toward borrowing money to pay it. A national referendum on a proposal to borrow five billion dollars in order to raise by 10 percent all family incomes now under $1500 would pass with a rush, unless some genius found a way to make the public see its folly, or to arouse emotional antagonism to it. Even so the borrowing itself would probably not be objectionable to the public. The number of individuals who would borrow if some stranger or large corporation would lend to them without security is probably very large. The restraint of shame prevents many from borrowing from friends and neighbors. When they borrow anonymously as infinitesimal fractions of the public from an undefined group of lenders (they may not even consider that some real people must lend to the government every cent it borrows) almost all restraint is removed. Prudence in incurring debts is not one of the public's virtues.

Neither is honesty in paying them. Little shame or remorse is felt by the peoples of England, France, Germany, or Russia at their unpaid war debts. If any one of these nations discovered a fabulous mine yielding a profit of a billion dollars a year the public would not demand that the proceeds, or half of the proceeds, or a quarter of the proceeds, be spent to pay the war debts. The government might so spend some fraction of it for prudential reasons, but the public would not urge it. As a matter of psychology, why should it? The comminuted responsibility of one of millions who as a group borrowed money for the group to use lacks the dynamic quality of the responsibility which an individual feels for what he did and what he had. The public has no qualms of conscience; it has no fear of punishment. Nor have its members in regard to financial transactions of bygone years. The public may feel sorry that it went to war; it may grieve for its dead; but it is indifferent to money matters. The soul of the public, whatever that may mean, can love and hate, seek glory,

and make sacrifices, but it does not pay its bills. We may admire it, but it is not a good business risk.

Much of what is written by eminent reformers and literary men about the people is very hard for me to believe. They seem often to neglect facts entirely in their eagerness to make a striking point or write a brilliant sentence. How, for example, could so able and honest a man as R. H. Tawney write this? "It is idle to expect that men . . . will trust any system in the control of which they do not share." ['20, p. 151]. Have not men trusted in deities and religions which they had no idea of controlling? Have they not trusted in feudal lords and the king's justice without the least hope of controlling either? Do they not now trust (with poor enough warrant) in managed currencies? Do they not trust (with the best possible warrant) in the solar system which they do not one iota control or have any possibility of controlling?

Just as the early economists were tempted to separate the economic activities of a man too sharply from the rest of his nature, making an "economic man" that hardly existed, and rarely operated as such, so theorists studying man's political activities, are tempted to invent a creature who acts rationally as a conscious cooperator in public business. He started the state by being one of the parties in a "social contract"; he joins his will to other wills to make social forces; he says his say, as do his compeers, like the directors of a corporation, so as to frame a policy. It is, of course, true that man as a citizen is not the same as man as a parent, child, employer, employee, merrymaker, or hypochondriac. Some abstraction is desirable and necessary. But political man is certainly not habitually logical, or cooperative, or conscious of what he is doing, why he is doing it, and what the consequences will probably be. The anthropologists and historians know some things about him; the psychologists and psychiatrists know some things about him; the working politicians and propagandists know some things about him. The political scientist will use whatever is useful of all this knowledge, in his studies of men as rulers and as ruled, and as participators in various ways in the conduct of public business. He will add to it by his own special researches.

PEOPLE AS TAXPAYERS

The people support government activities chiefly by forced labor (as conscripts) and by taxes. Their labor as conscripts may be made pleasant and profitable in various ways in times of peace and may be more satisfying to some of them than what they would have done in freedom. However, if the years of military service were made voluntary the number of volunteers would be far below the present number of conscripts, so that for the great majority the service is psychologically equivalent to a tax. It and the poll tax retained in some states are the most democratic taxes of which the people are conscious. Government monopolies and import duties on salt, tea, matches and other articles of wide and nearly equal consumption are democratic taxes of which people may or may not be conscious. Compulsory service and a poll tax have the merit of making citizens aware that government costs and that persons pay.

Money taxes vary greatly in the sort of persons who pay them and the purposes for which they are used, and consequently in their effect on the ruler-taxpayer relation. Some assessments, often called taxes, are for benefits chiefly to the person who pays, as in assessments on the owners of abutting property to pay for a sidewalk or a sewer. If the work is done honestly and efficiently the payer, if a reasonable person, does not complain that other people than himself and his friends are benefited by the payment. Some taxes, for example those spent scientifically for protection against smallpox, yellow fever, or tuberculosis, are a good investment for almost every resident even though he pays a hundred times what the average man pays. He may also consider his payment as a most beneficent charity. Intelligent and well-informed taxpayers will make no complaint here except against dishonesty and inefficiency. Some taxes produce little or no benefit to most of the payers, less perhaps than to non-payers, but yet are tolerated by many, being in the nature of more or less attractive charities. Such are taxes paid for 4th of July celebrations, municipal golf-courses, or hospitals for incurables. Some taxes are for the self-indulgence or enrichment of rulers or for the more or less ostentatious grandeur of the community and its

rulers. Both were common among Eastern potentates and feudal lords and kings. The latter are common everywhere from the too grand City Hall to the great army used more to nourish national pride than to protect persons and property. Such expenses are akin to those for the palatial offices of some company presidents, the caps and gowns of college professors, the too big and too often renewed automobiles of Smith and Jones.

Expenses for a military force at the disposal of rulers introduce special problems. It seems probable that rich men and others who expect that taxes for national armies are a good investment in protection for their property are in error.

Taxpayers object much more to the enrichment of rulers by graft than to the impoverishment of themselves by the rulers' follies. This I suggest is partly a misplacement of habits. In private dealings we can often keep unharmed by the follies of other men by minding our own business and taking care that they mind theirs, but are more at the mercy of their robberies. But against the folly of a ruler, there is no similar protection. He is minding our business all the time. One economic blunder by him may take from the deserving and give to the undeserving more than ten thousand thieves do in a year. Another may cut the national wealth a thousand times more than all the incendiaries do in a year.

The habits appropriate to the fellow-citizen or man-man relation may be inappropriate to the ruled-ruler relation. Graft by a ruler is bad, mainly because it is a symptom of inferior intellect and morality, of dull and vicious friends, of lack of interest in ruling for ruling's sake, and of low ideals for the nation. The direct money loss to the taxpayers is relatively a very minor matter.

Taxation can be a potent method of reward and punishment, but neither taxpayers nor people in general take much interest in the fact. People who do not drink, or smoke, or use gasoline are in this country rewarded at the expense of those who do, but are little aware of the fact. Henry George's proposal would have rewarded those who tried to use land productively at the expense of those who held it speculatively in the hope that the activities of others in the neighborhood would increase its value.

In most countries, the families whose services are valued lowest in the market are rewarded by the income tax at the expense of those whose services are valued highest in the market.

A tax upon items of vicarious consumption and conspicuous waste is attractive psychologically. Suppose, for example, that there was a progressive tax upon residential property beginning at 2 or 3 rooms per person (exclusive of servants) and increasing by some such scale as the following:

less than 3000 cu. ft. per person, the normal tax on real property
3000 to 3999 cu. ft. per person, 1.25 × the normal tax
4000 to 4999 cu. ft. per person, 1.75 × the normal tax
5000 to 5999 cu. ft. per person 2.75 × the normal tax
6000 to 6999 cu. ft. per person 4.00 × the normal tax
7000 to 7999 cu. ft. per person 5.50 × the normal tax
8000 to 8999 cu. ft. per person 7.25 × the normal tax

This would on the whole reward all families who lived humbly or comfortably but not primarily for display at the expense of those who used their homes largely as an advertisement of their importance.* The latter would not object to the tax so much as people would expect, because the world would know that they were important and wealthy enough not only to pay for grand houses, but also to pay very heavy surtaxes. The sort of person who relates that his son in college costs him so many thousand a year would enjoy telling how big a house tax he has to pay.

All taxes except a few like those mentioned at the beginning of this section are selective, rewarding some persons or classes at the expense of others, though what the exact incidence is in the case of certain indirect taxes cannot be determined easily. Such selective action is of great importance, because the surest means of improving the welfare of a community are to attract to it the able and good and to reward ability and morality.

Public debts are usually a selective tax rewarding relatively the present population at the expense of the future population

* There are, of course, certain difficulties in the use of such a tax, but these do not impair its instructiveness as a sample.

which is taxed to pay off the debt, or, in the case of repudiation, at the expense of the individuals who lent the money.

Rulers naturally prefer indirect taxation to direct, taxation of the powerless to taxation of the powerful, and taxation which is convenient for them to taxation which is inconvenient. Indirect taxation is likely to do more harm than direct but it is not so unpopular. The ruler by the laws of his own nature feels it a duty as well as a pleasure to continue in rule, and so courts the favor of the powerful, once the noble warriors, later the middle classes, and now the poor who have learned to use the power of numbers. The ruler must, as a human being gravitating toward the personally satisfying, favor taxation which saves him from annoyance. Very few men could suffer being awakened every hour during the night, or stricken with the itch for five minutes four times a day, in order to rule better.

As a consequence much of the theory of taxation is a theory of how to get the maximum tax with the least trouble to the government. Tax real estate not because the consequences for welfare are known to be good but because it cannot run away or be hidden. Tax the thrifty not because the consequences are good but because the thrifty can pay. Tax inheritances because people will pay much to the government rather than resign control of their property while they live.

Trustees for the people would make arrangements for taxation very different from those which the interplay of rulers, tax-paying ruled and supposedly taxless ruled now results in.*

THE PEOPLE AS PATRIOTS

Most men desire and enjoy the success of some groups, organizations, or institutions besides their family and familiar friends.

* It can by no means be taken for granted that the abstraction of wealth from the well-to-do for government use by income and inheritance taxes benefits the poor. It depends upon how rulers *versus* the well-to-do and their heirs use wealth. What the effects of these taxes have been upon their welfare (or even upon one single cause of welfare, the national dividend) in England or America is not known, because of the interference of other important forces. I conjecture that income and inheritance taxes have slowed down the increase in the general welfare of the people which was so rapid from about 1850 to 1900, but may have increased and improved their schooling. But this is only a conjecture.

The variation in this respect is, as in other human traits, very great—from the person (not necessarily selfish) who feels very little joy in the successes of his school, team, church, army, etc. to the one who exults in them all. This variation is somewhat independent of the esteem in which the person holds the group, organization, or institution in question; a man may criticize his state or church severely, but yet crave success for it, and even in undertakings of which he does not approve.

Such desires are powerful forces in extending a person's interest beyond ordinary personal consequences to him, and also in arousing or at least supporting prejudices and antagonisms against other communities, nations, churches, races, etc. They are used by propagandists good and bad in diverse ways.

We inquire first which groups, institutions, etc. will become extensions of a person's self with whose fortunes he will, as we say, identify himself, and second why this so-called identification occurs.

If the word belongings could be extended to include not only those things which belong to a person but also those to which he belongs, it would state fairly well the things with which a person may "identify himself" and whose prosperity may give him satisfaction. They are usually things which he feels belong to him in some sense, or to which he feels that he belongs, or which arouse the sense of belonging in both meanings. The latter feature of membership has been emphasized by social psychologists, sometimes to the exclusion of the former feature of proprietorship. A man feels not only that he belongs to the Baptist Church, Democratic Party, and state of Ohio, but also, though more vaguely, that they belong to him. A man tends to enjoy the prosperity of his "belongings," but not of all of them and not in perfect correspondence with the extent of his ownership or the certainty or length or importance of his membership. In fact, neither actual ownership in the slightest degree nor actual membership in any manner is essential. The affiliations may all be ideal. Any Detroiter may feel the possessive and participative interest in the city's baseball team, and much more strongly than in Detroit's government or population.

The prosperity in question is usually of persons or institutions

that pertain to persons, but that also is probably not essential. A sailor may have the enjoyment we are discussing (or something very much like it) at seeing his ship repaired, refitted, and, so to speak, thriving. A returning native may have it at finding the trees along the road larger and more luxuriant and his river running fuller and stronger. Persons are, however, greatly favored cases. A hero, a team, an exploring expedition, an army,—we thrill at their successes much more readily than at the successes of a law, a constitution, or a science. So nations are personified as John Bull and Uncle Sam, and religions are named for their founders rather than their doctrines.

There is one rather queer but important case where the prosperity is the verbally reported prosperity of a thing which is itself almost an unknown quantity to the person. For example, many persons in the first years after the war felt a substantial satisfaction at the triumphs of "democracy" or "republicanism" as king after king was put out of business, though they had little knowledge of what democracy or republicanism was. When men desire the success of "progress" or "social justice" or "liberty" or "socialism" or "feminism" or "true religion" as reported to them by the pulpit or press or school, their desires and satisfactions may be none the less real and potent though these names mean to them little more than a good X, a desirable Y, a Z that all right-thinking persons believe in.

On the whole, though anything from a nation to a tree, and from a prizefighter to the doctrine of foreordination, and from one's tribe or town to one's race or continent, may be the object of solicitude, the actual objects for most men are restricted to certain customary belongings like his community, church, nation, race, heroes, and favorites.

Why does he extend himself to include these, at least when they are successful?

First of all, of course, there may be an element of real benefit to his individual life from their success, in fact or in his opinion. He may more or less clearly think that a victory for his army may save him from slavery or financial penalty, that converts to the Methodist Church may enhance the status of Methodists including himself. As an extreme, though common, case, he may

have bets placed on his hero. All such calculated basis for enthusiasm is however probably only a very small fraction of its causation. Indeed any such calculations are probably as often excuses for the enthusiasm and caused by it as causes of it.

Much more important is the gain to inner self-approval, the "sense of personal worth" as Wendell White calls it. We have seen that men will endure great pain, suffer great deprivations, perhaps even become insane rather than live with the humiliating self-confession of being mean, pitiable failures gnawing at their spiritual vitals. By extending one's self to share in lodge, church, or party, one makes the bodily or personal self that receives such and such wages for such and such work and has such and such friends, etc. a smaller and smaller fraction of one's total interest. As a member of A, an inhabitant of B, a citizen of C, a follower of D, I can unconsciously congratulate myself on their victories. In James Harvey Robinson's words, "Paltry, diffident and discontented 'I' becomes proud and confident 'We.'"

A third cause is the tendency of many persons to attain a certain grandeur by possessing themselves of anything appropriable. If they travel on a ship it becomes their ship. As they go over the countryside the scenery becomes theirs, and they retail its beauties to their companions. Pershing and Foch were their generals; the new King of England becomes their ward.

A fourth cause is a somewhat similar tendency of certain persons to attain the sense (or illusion) of power, or *quasi* power by behaving so far as may be as masters of anything masterable. At a concert they feel themselves guiding the conductor's baton; at a game they send the players to and fro; public servants are their servants; they take credit for the promptness of the trains they travel on, or the rise and fall of stocks they read about. Not even the weather is entirely free from their control. Such *quasi* appropriation and *quasi* mastery are forms of belonging and lead to states of mind in which the success of the object which one has so connected with oneself is gratifying.

A fifth cause is the tendency to take sides in any conflict. This may be in part original; in any case the greater zest of being an interested observer would select the tendency. It is very

prevalent. Having taken sides one is almost necessarily desirous for and gratified by the success of one's side.

Finally there is perhaps a slight tendency for man to view all things as good or bad, avoiding drab neutrality wherever he can, and to view them as good rather than bad, other things being equal. This provides a slight pressure toward enjoying the achievement, victory, glory and the like of one's community, nation, church, race, etc., even if a man is immune to the much more powerful causes described.

The account of causation just given is somewhat uncertain and lame, requiring verification by ingenious and extended observations of the behavior and analyses of the motives of devotees, patriots, "fans," of various types in various circumstances. But we may be confident that there is nothing mystical in the so-called "extension of one's self over" or "identification of oneself with" persons, institutions, creeds, etc.

One important fact remains to be presented. The emotions aroused in a person by the fate of his hero, nation, party, etc. may have large admixtures of the corresponding esthetic emotions. The anxiety we feel for our army in a war may be in part like the anxiety we feel for the heroes in a story or a play; the joy we feel at their rescue or victory may be in part like the joy we feel at the rescue or victory of the fiction. These esthetic emotions differ from the real in subtle but important qualities. They are not the same, only less intense, but are free from certain perturbations and strains, from certain scruples, from certain demands for practical action, and endowed with certain simplicity and manageability. Most important of all, they are normally entertaining, so that those who feel them would not at the time be rid of them, nor later regret having had them. We go again to see the tragedy which, were it the real life of a real friend, we would wish never to witness again.

The physiology of the esthetic terror, pity, joy and pride we ordinarily feel at a play or story is probably unmistakably different from that which we ordinarily feel as responses to realities. But a person may slip from the one sort to the other, as children often do, and he may be possessed by alternations or mixtures

of both. Moreover the emotions aroused by reading or hearing of events known to be true are in many men on many occasions more like the emotions that would be aroused by reading of the same events in fiction than like those that would be aroused by witnessing the same events in reality.

The co-relations of real and esthetic emotions and the relations of both to the thoughts and acts of the person concerned allow him to some extent to shift back and forth and to make various mixtures, so as to increase his satisfactions and reduce his discomforts, especially when he is receiving a verbal account of events. Many things in human behavior toward reports of wars, famines, wrecks and other disasters would be inexplicable if this were not so. Our government and rulers are thus in a very real sense a source of entertainment. The death of a thousand men in battle is deplorable, but also exciting, and, if the other side lost two thousand, glorious.

Finally, there is, by original nature, or training, or both, a feeling of antagonism toward the stranger, the person different in speech, dress, or manners.

The value of patriotism to the world will of course vary greatly with its object. A man may be uplifted by belonging with the brave and free; he may be purified by belonging with the honorable and just. But for the practical purposes of personal comfort anything which seems to the person grand and successful will serve the purpose.

Veblen exposes the irrationalities and bigotries to which national patriotism, "a sense of partisan solidarity in respect of prestige," may lead men, and is leading many men all over the world today:

"The patriotic spirit is a spirit of emulation, evidently, at the same time that it is emulation shot through with a sense of solidarity. It belongs under the general caption of sportsmanship, rather than of workmanship. Now, any enterprise in sportsmanship is bent on an invidious success, which must involve as its major purpose the defeat and humiliation of some competitor, whatever else may be comprised in its aim. ['17, p. 33]

"Patriotism is evidently a spirit of particularism, of aliency and

animosity between contrasted groups of persons; it lives on invidious comparison, and works out in mutual hindrance and jealousy between nations. It commonly goes the length of hindering intercourse and obstructing traffic that would patently serve the material and cultural well-being of both nationalities; and not infrequently, indeed normally, it eventuates in competitive damage to both. ['17, 38 f.]

"Into this culture and technological system of the modern world the patriotic spirit fits like dust in the eyes and sand in the bearings. Its net contribution to the outcome is obscuration, distrust, and retardation at every point where it touches the fortunes of modern mankind. Yet it is forever present in the counsels of the statesmen and in the affections of the common man, and it never ceases to command the regard of all men as the prime attribute of manhood and the final test of the desirable citizen. It is scarcely an exaggeration to say that no other consideration is allowed in abatement of the claims of patriotic loyalty, and that such loyalty will be allowed to cover any multitude of sins." ['17, p. 40]

When Veblen wrote these words (in 1917) liberalism with its doctrines of live and let live among nations still seemed alive, and Veblen's venom seemed too indiscriminate. Another great radical, Bertrand Russell, took a much milder tone though he had suffered much from the violence of patriots:

"Patriotism is a very complex feeling, built up out of primitive instincts and highly intellectual convictions. There is love of home and family and friends, making us peculiarly anxious to preserve our own country from invasion. There is the mild instinctive liking for compatriots as against foreigners. There is pride, which is bound up with the success of the community to which we feel that we belong. There is a belief, suggested by pride but reinforced by history, that one's own nation represents a great tradition and stands for ideals that are important to the human race. But besides all these, there is another element, at once nobler and more open to attack, an element of worship, of willing sacrifice, of joyful merging of the individual life in the life of the nation. This religious element in patriotism is essential to

the strength of the State, since it enlists the best that is in most men on the side of national sacrifice." ['17, p. 55 f.]

We may learn useful lessons from Veblen's criticisms without accepting all of his statements. These are more brilliant than dependable. There could be patriotic feeling on the basis of improvement by a nation over its own past; there could be, and is, rivalry and joy in winning by merit without satisfaction at the incompetence, blunders, or bad luck of competitors. The partisanship of solidarity may be worse than justice but better than individual greed and domination. Sportsmanship may be worse than workmanship, but it is better than brutality.

The useful lessons are that nothing but the truth is entirely safe for man, that he may misuse the holiest social virtues as well as his physical strength, or his animal instincts, and that, as events since Veblen wrote have abundantly shown, rulers will aid and abet such measures to the advantage of themselves or their whims.

The noblest reach of national feeling hitherto was probably among the Athenian Greeks who gloried in their city-state as the home of freedom. "They" says Zimmern "had neither the leisure nor the desire . . . to invent an imperial theory of their own. But Thucydides, writing when most of what was mortal in their work had already crumbled into dust, invented one for them. It sounds absurd and vainglorious, as imperial theories always do, to a critical posterity; yet if the dead could rise from the Cerameicus, or if their grave reliefs could find voices, they would bear out, albeit with modesty, the analysis of their historian. 'We are the leaders of civilization, the pioneers of the human race. Our society and intercourse is the highest blessing man can confer. To be within the circle of our influence is not dependence but a privilege. Not all the wealth of the East can repay the riches we bestow. So we can work on cheerfully, using the means and money that flow in to us, confident that, try as they will, we shall still be creditors. For through effort and suffering and on many a stricken field we have found out the secret of human power, which is the secret of happiness. Men have guessed at it under many names; but we alone have learnt

to know it and to make it at home in our city. And the name we know it by is Freedom, for it has taught us that to serve is to be free. Do you wonder why it is that alone among mankind (will there ever be another nation which can understand what we mean?) we confer our benefits, not on calculations of self-interest, but in the fearless confidence of Freedom?'" ['31, p. 196 f.]

Chapter 34

METHODS OF RULING AND DOING PUBLIC BUSINESS

Psychology cannot take the place of the special concatenation of abilities and interest which makes a successful ruler or administrator of public affairs. But a person with those abilities and interests should do better with than without knowledge of the facts and principles of Part I of this book. This chapter will amplify some and add others which may be of service:

1. Reward is usually better than punishment. It is highly probable that experiments with the public and with persons working at public business would show results comparable to those of Leuba ['30] with children in grade 5. A 5-cent bar of chocolate for doing certain amounts of arithmetical work resulted in a notable increase in output, 52% more than the output with no reward, and the further addition of rivalry, praise, and social recognition raised this gain to 65%. Slave labor under the whip cannot compete with labor under a piece-work and bonus plan. No scientific discovery or useful invention to my knowledge has been made from fear of punishment.

2. Prevention is usually better than cure or palliation. "The problem of politics is less to solve conflicts than to prevent them; less to serve as a safety-valve for social protest than to apply social energy to the abolition of recurrent sources of strain in society. This redefinition of the problem of politics may be called the idea of preventive politics. The politics of prevention draws attention squarely to the central problem of reducing the level of strain and maladaptation in society. In some measure it will proceed by encouraging discussion among all those who are affected by social policy, but this will be subordinated to a comprehensive program, and no longer treated as an especially de-

sirable mode of handling the situation." [Lasswell, '30, p. 197] The ideal in government, as in education and industry, is never to let mistakes occur. This is easy to say but hard to do even in so indifferent and settled a matter as a few school boys learning to read Latin. In public matters of passionate interest to millions, related in complex ways to various economic, social, and religious prejudices of various persons and classes, it is doubtless nearly impossible. But mistakes, disputes, and conflicts requiring settlement by war, courts, arbitration, or even discussion can be reduced. The teachers of the past who heard pupils recite and corrected their mistakes are being replaced by teachers who practice their pupils in errorless work. The physicians of the past who cured diphtheria have given way to physicians who prevent anybody from having it.

3. It is sometimes prudent for government to prevent a greater evil by a less. Many moralists will deny this, and it is doubtless risky treatment. Consider two cases one of which different governments treat very differently, gambling and smoking. Gambling is admittedly bad; the time spent produces only a dangerous excitement and bad habits. But churches, semi-charitable organizations, and some governments sponsor it. Smoking is expensive, dirty, usually annoying to those who don't smoke, and bad for the health. Yet it is permissible, even for the clergy.

The consequences of gambling under state control are bad. The consequences of smoking are bad. Yet I should defend both, the first on grounds of social justice and the other on the ground that it prevents greater evils with worse consequences. This is, of course, a dangerous defense.

We ask the question, "What would the buyers of state lottery tickets do instead if there were no state lotteries?" Many of them would in fact buy tickets in the lotteries of other states and in private lotteries. Others would gamble in whatever ways were made available to them. Some who would not have taken the trouble to find chances to gamble, lacking the convenient state-lotteries, would do nothing instead. Some reformers will here interject that the environment should by law and police be purified of every opportunity to gamble. That is probably impossible,

and in any case not much public money should be spent in eliminating opportunities to gamble until much worse vices have been greatly reduced and much more attention than now has been given to increasing the ability to resist the temptation to gamble.

The crucial fact in the problem is the existence in the original nature of man of certain cravings for adventure, excitement, and success. Their strength varies greatly in individuals, but is considerable in most. These cravings cannot be annihilated. They cannot often be bottled up tight; and if they are, trouble is likely to break out elsewhere.

Gambling has the merit (and demerit) of providing adventure and excitement conveniently and with no need for bodily or mental effort, or for physical or moral courage, and of providing success with no need for ability or labor. It is thus a mental medicine or drug for the good and able in their times of relaxation to a lower plane of living, and for inferior persons at all times.

To the stern moralist this is all demerit. "Better for the coolie mind to vegetate in sodden dullness than to be given the artificial adventure and false success of gambling," he will say, and "Shame on the superior men who use this childish device when they might have healthful adventures and success in proportion to merit, as in athletic games or intellectual discovery. Only an idiot should feel pride at winning by the turn of a card or wheel." We may add to the moralist's arguments that the coolie mind may day-dream about his chance in the lottery when he should attend to his work, and that the superior mind may form the habit of regressing into childish amusements to an extent that is bad for his health.

It may indeed be admitted that unless a state lottery system or one managed by some high-minded board of trustees decreased the amount of time and thought spent on gambling or worse activities below what it now is in the case of those for whom gambling is unhealthy and prejudicial to useful work, the system would hardly be justifiable. The fact that it eliminated dishonesty, prevented individuals from taking a profit by inducing others to gamble, and reduced enormously the economic waste of touts and panderers might not be enough to justify

it. It is, of course, admitted that better ways of satisfying the cravings for adventure, excitement, and success should be persistently sought. I suggest that a substantial percentage of the profits from any lottery be used in research to devise such better ways.

Such a lottery should have weekly drawings in which about one person in a thousand should receive a prize ranging from $25 to $1000, monthly drawings in which about one person in a thousand should receive a prize ranging from $100 to $10,000, and annual drawings in which about one person in ten thousand should receive prizes ranging from $1000 to $100,000. The unit prices should be about ten cents for the weekly chance, fifty cents for the monthly chance, and a dollar for the annual chance. It may be hoped that such a democratic form of gambling would satisfy the cravings of the poor and wean them from what is worse. But this cannot be proved in advance, and, as stated earlier, I decide in its favor on grounds of social justice, as giving the poor as good a chance to gamble as the rich.

In the case of tobacco smoking, we can do better than argue. There is some actual evidence that this petty vice keeps men from worse.

The evidence is a substantial positive correlation between the goodness of life in a community and desirable personal qualities in its population on the one hand and on the other the per capita sales of cigar stores and the percentage of total retail sales belonging to cigar stores. Using the G and P scores described in Chapter 16 and comparing cigar stores with drug stores we find the following correlations for 295 cities:—

G with sales of cigar stores, per capita	.36
G with percentage sales of cigar stores was of total retail sales	.24
P with sales of cigar stores, per capita	.41
P with percentage sales of cigar stores was of total retail sales	.30
G with sales of drug stores, per capita	−.05
G with percentage sales of drugs was of total sales	−.35
P with sales of drug stores, per capita	.08
P with percentage sales of drug stores was of total sales	−.33

4. A reasonable government should consider the facts of nature and the consequences of its acts even more than a person or a business corporation. A person will often be somewhat checked

by others who consider the consequences of his acts to them and try to induce him to act otherwise. A business corporation may be checked in this way, and in its accounting system has certain records coming in month by month of the consequences of its acts. If it acts too foolishly it goes out of business. But the state has extraordinary powers, and less unbiased criticism. Moreover, its acts may establish precedents, and usually change things and men irreversibly, even though the governmental act itself may be reversed. Governments may act with extreme folly and still keep on governing.

It is unwise to force or entice the world to buy machinery to make shoes and expect the world to buy from you as many shoes as ever. The consequences of selling the machinery must include selling fewer shoes unless people are induced to wear more shoes. It is unwise to go to war without considering that attacks by rats infected with typhus and plague and by diseases more subtly carried may be a consequence. Human nature being what it is, such attacks seem highly probable. If the consequences cannot be known, but only predicted with certain amounts of probability, they more than ever deserve careful consideration by government. For the people tend in such cases especially to let passion, prejudice, and temporary comfort have great weight. Probably all efforts of a government to maintain for its nationals a higher standard of living than the average for the world, save by greater natural resources (material and mental), greater capital (material and mental), or more and better directed labor, will have the opposite consequences in the long run.

5. All competent students of political science agree that power should be concentrated.* Psychology adds the further reason that the same knowledge and abilities resident in one head are

* A typical statement is that following from Munro: "It is one of the first principles in the science of politics that governmental authority, to be efficient, must be concentrated. If it is not concentrated in some duly elected official it will be consolidated in someone behind the scenes. The presence of the boss testifies to a flaw in the governmental mechanism. The only way to get rid of him is to lodge sufficient power in the hands of someone else." ['24, p. 49]

necessarily much more effective than when scattered in two or more heads.

6. Though concentrated, its organization should be functional rather than hierarchical. The hierarchical system has three inherent weaknesses listed by Florence as:

"1. Failure to get correct information and to act upon it.
2. Red tape and bureaucracy.
3. Lack of specialized skill of experts." ['33, p. 123 f.]

The hierarchical system was fairly suitable for the management of a cotton factory, a small railroad or an old-time army of infantry, cavalry, and artillery. The persons at each level of the hierarchy could know and do all that those on all lower levels knew and could do, the commander of all being expert at the work of each. The complexity and specialization of modern business, private or public, makes this impossible.

7. Governments should make more use of scientific methods in arriving at their decisions, especially the method of the weighted average. In doubtful cases, a person should as a rule make his decisions after jotting down the facts pro and con, assigning weights to each, and summing the weights. He may include his intuitions and "hunches" with such weight as seems fit. The opinions of other persons pro and con may be included with the more objective facts or kept as a separate account to be combined at the end. The opinions should be weighted according to the intimacy of the person's knowledge, his expertness in the field, and his general good sense. Making such weighted decisions will on the whole save time and reduce strain and worry.

In group decisions the persons should usually cast an informative and secret ballot after the question and the facts at hand have been presented, but before any discussion or the addition of any further facts by the persons present. If the vote is three or more to one, it may be accepted formally, any persons who wish to be recorded as in opposition being given that privilege. Much time will thus be saved. The probability that the decision is in error will be less than the probability that a reversal of it

by the pleas or threats of its opponents will be in error. The psychologist indeed expects that a decision, no matter how close, on the facts before discussion will have certain advantages over a decision after minds have been subjected to the influence of personalities and oratory. These on the whole confuse and minimize the facts.

In group decisions members should be permitted to give proxies to any member, until some more convenient way of giving the most competent in any problem special weight is discovered. In some cases the party leader may be given its members' proxies.

Science tries to attain the most reasonable decisions, the decisions which a wise future will applaud. Parliaments, assemblies, boards of direction or advice, committees, staffs and the like try to do this, but also to reach agreement. They will often tolerate a compromise which is worse than any of the alternatives which it replaces. They will sometimes permit amendments which make the action futile. This may be defensible, but the procedure in reaching agreement should not be marred by opportunities for individuals to stampede the group by oratory, or mislead them by cleverness in debate, or take a profit from their courtesy, or wear them out by pertinacity.

A very common case is that the alternative decisions, acts, plans, or the like, are spread along a linear scale. For example:—How much shall be spent on the navy? What responsibilities shall the federal government assume? What control over business by government shall there be? Graham Wallas pointed out long ago that certain quantitative conceptions could be useful in such cases: "The most exact estimation possible of a political problem may have been contrived when a group of men, differing in origin, education, and mental type, first establish an approximate agreement as to the probable result of a series of possible political alternatives involving, say, increasing or decreasing state interference, and then discover the point where their 'liking' turns into 'disliking.' Man is the measure of man, and he may still be using a quantitative process even though he chooses in each case that method of measurement which is least affected by the imperfection of his powers. But it is just in the cases where numerical calculation is impossible or unsuitable that the

politician is likely to get most help by using consciously quantitative conceptions." ['08, '21, p. 163]

The quantitative treatment of suggested acts in a political difficulty, and of the opinions of persons concerning a political question, when the acts and opinions do not arrange themselves along a single scale, should be of great value to the science and art of politics. Such variations involving n different scales have been little studied by the physical or biological sciences partly because they are relatively rare and partly because they are so irregular in appearance that they repel mathematicians. They may not really be as irregular as they seem. If the nature of an opinion is represented by the location of a square millimeter on a surface and its frequency by the height of a column erected over it, the variety of citizens' opinions concerning, say, their country's foreign policy may turn out to be approximately represented by a bell-shaped solid.

8. Other things being equal, publicity is better than secrecy, being more likely to increase the amount of truth and widen its distribution among those who will make good use of it. A reasonable practice is that of science, which reports its activities freely in such ways that competent scientists all over the world can use them, but that their misuse by greed or folly will be minimized. If something of the sort could be done for public affairs much good might result. Consider the following statement by Hobson:

"The vital importance of publicity for business life is not at all adequately realised. In our discussion of incentives it must take the first place as the indispensable condition of clear thinking and good feeling. How ignorance breeds suspicions which paralyse activity has never been so evident as now. War-passion and its accompanying credulity have helped everywhere to poison human relations, but nowhere more conspicuously than in the business world. No sane human co-operation in trade and industry is possible when essential facts relating to the production and distribution of wealth are hidden or falsified. The conflicts between employer and employed, trade and trade, nation and nation, are everywhere fed by ignorance. 'All cards on the table' is the first condition for mutual confidence and co-opera-

tion where interests are identical, and for pacific and reasonable adjustment where they conflict. The power of a fully informed public opinion as an influence for the prevention of economic abuses, such as profiteering and sweating on the part of employers, ca' canny on the part of workers, has never been tried. For reliable statistics in such vital matters have never been accessible. Suppose that full disclosure of the true assets and the net profits, accompanied, where necessary, by costings of the several processes upon prescribed forms, were made obligatory for all business firms, would not several exceedingly valuable results follow? First, all the loose imputations of 'profiteering' would disappear. If the consumer suspected that he was overcharged for any goods by some ring or combine, the place of this "hold up" and the size of the overcharge would be manifest. If workers made a claim for higher wage-rates than the employers held the trade would bear, the issue would be capable of a clear test. Though in many instances the complexity of the analysis would exceed the intellectual competence or the patience of the majority, there would be skilled and trusted agents and authorities who would expound, and whose accepted exposition would substitute knowledge for mystery. Most educated persons in this country, for example, believe that the critical attack on the present capitalist system by socialists and other "agitators" is unjust and unreasonable, that is to say, they deny that the capitalist and employing classes are plundering the worker and the consumer. Now so long as the conflict is waged in general phrases about profiteering, sweating, surplus value, and monopoly, no issue is possible. But if these phrases could be submitted to the close test of measured fact, a truly 'scientific' analysis of the operations of the industrial system would be obtainable. Skilled accountancy and publication of its results are probably the most immediately urgent of all large reforms." ['22, p. 153 f.]

There are difficulties in these suggestions, in particular the difficulties of getting a scientific account of just what the employed do, and of what nations do. But they deserve consideration. The mere fact that employers, employees, and nations have not hitherto made their doings public is not an argument

against doing so. Publicity is not inherent in the nature of scientific men or representatives of the people, or a custom of very long standing. As late as the time of Isaac Newton men of science felt no obligation to make their doings or findings public.

Among the other things which are so rarely equal are: the fact which is made public, the tone and setting in which it is made public, and the suppression of other facts which in the interest of the truth should be made public along with it. These may turn desirable publicity into that undesirable or questionable publicity which is now commonly called propaganda, or a major part of propaganda.*

"Propaganda is one of the most amazing and significant developments of the past decade. For instance, one organization through its Washington representatives last year, besides publishing a monthly magazine with a huge national distribution, prepared thirty-six special articles for other periodicals and issues 9,025 separate "releases" to newspapers. All of this of course is designed to manufacture and manipulate public sentiment. That has become the great national pastime—and millions play it. The strong organizations such as the American Farm Bureau Federation (which at the moment is the most powerful and effective of all our national lobbies), the Anti-Saloon League, the Association Against Prohibition, the American Federation of Labor, do not rely solely upon propaganda to put their propositions over—they follow the propaganda up by entering actively into politics before election." [Kent, '35 p. 285]

The arts of the advertiser, artist, and literary man are purchasable, and so at the service of government or forces operating on it. They always have been, but the techniques have changed greatly. Honest and unselfish men also use these arts as they always have done when speech was free. Psychology offers no cure for the evils of publicity except to improve people themselves and their laws and customs. Laws against peddling per-

* Propaganda is one of those words like culture, progress, or democratic which means what people take it to mean. As Dr. Doob points out ['35, p. 78], educational efforts by minority groups, or in favor of innovations, are specially likely to be called propaganda. Kent links propaganda and lobbying, because propaganda is now one chief activity of lobbying organizations.

nicious mental drugs against the public interest are theoretically feasible but such censorships have not worked very well. The law of libel is not what psychologists would devise for the purpose, but the lawyers may know best. So long as people care little for truth about public affairs in comparison with flattery, support for their prejudices, and entertainment, publicity will involve harm. But government censorship is much worse.

9. Almost everywhere, as we have seen, predictability is a cause of welfare. It certainly is so in government. The acts of a government should, with very few exceptions, be predictable. Of two governments, one of which had better intentions but vacillated so that it made a hundred good promises of which men expected it to break ten, whereas the other less benevolent but less vacillating made only eighty all of which men knew it would keep, the second might be the more useful.

The ruled should be able to predict that the laws and customs will be maintained, plus a reasonable progressive shift in a certain predictable direction. For business men to know that private property would continue except for a one-percent or two-percent or even a three-percent shift annually toward public ownership of productive instruments would be better than such vacillation as characterized government's relations to business in the middle ages. One of the worst features of the tariffs, quotas, national-barter rules, and the like which were enacted by governments as medicine during the world depression of 1930 and following years was the insecurity they caused concerning what would happen next. Quite regardless of the general merits of the policy, free trade between the states of the United States has been very beneficial by preventing thousands upon thousands of uncertainties. The devices by which states are now nullifying it are against welfare, not only by trying to tax other states for the benefit of one and spending effort in collecting this tax, but also by making producers unable to predict what they will get the next year. Furthermore, the psychological effect of a dozen different irritations of this sort, one a year, is much worse than one such continued for a dozen years.

Predictability is one feature of the goodness of simplicity. Krabbe writes of "the fundamental value of having a single rule,

which is greater than the value attaching to the content of the rule" ['27, p. 81], and uses this dictum to justify the majority principle. His statement is extreme, but certainly has a quantum of truth.

It should be kept in mind that predictability is consistent with change, provided enough is known about the direction of the change. For the actions of a government to be predictable does not require the government to be static or conservative.

10. Predictability is an ideal. Even with careful and thorough planning, any business, private or public, will have to meet many emergencies. Psychology warns against setting up precedents and starting habits in emergencies when a proper balance of emphasis is likely to be lost and satisfaction at doing something may take the place of satisfaction at doing what is right or best. Dicey remarks that "Laws of emergency often surreptitiously introduce or re-introduce into legislation, ideas which would not be accepted if brought before the attention of Parliament or of the nation."

Dicey elsewhere contrasts unfavorably the legislation of Parliament with that of the courts, largely on the ground that so much of the former is emergency legislation: "In the vast majority of instances they each start with the effort to meet some narrow or particular want or grievance. They each of them arrive only slowly and with great effort at some general principle; they are each much governed by precedent; they each, therefore, may in a sense be said to employ the inductive method. But here the advantage lies wholly with the Courts. The Courts of necessity deal with particular cases, but, as one case after another of a similar kind comes before them, they certainly attempt to elicit and determine the general principle on which the decision of all such cases should depend. They attempt to reach logically, and generally succeed in reaching, some general and reasonable rule of decision. Parliament in most instances pays little regard to any general principle whatever, but attempts to meet in the easiest and most off-hand manner some particular grievance or want. Parliament is guided not by considerations of logic, but by the pressure which powerful bodies can bring to bear upon its action. Ordinary parliamentary legislation then can at

best be called only tentative. Even ordinary judicial legislation is logical, the best judicial legislation is scientific." ['20, p. 370]

11. Other things being equal, government should be simple. Man's own creations tend to be too much for him to manage. A small farmer has a greater variety of machinery, insecticides, fertilizers, and other apparatus than a farmer with a thousand slaves in the days of Pharaoh. A battleship requires more specialists probably than an entire medieval city. If a thousand admirals manned it, they could not make it go. The statutes of a state, even after simplification, fill scores of volumes. Pasadena, a city of 75,000 and one of the best in the world, has 3400 ordinances. Manufacturing has met the difficulty more or less by the division and specialization of labor and machinery. Trade is doing the same, the division of labor and the use of office machinery being far beyond what any business man of a century ago could have dreamed of. Manufacturing and trade scrap old machinery when they introduce new, and outmoded forms of labor when they divide it further. Manufacturing, trade, and also science seem to have kept themselves masters of their works more than government. It seems more encumbered with rules and customs, institutions within institutions, *imperia in imperiis*, roundabout approaches and transits, than they. The writer will never forget the harmless-looking old government employees who were examining large volumes in various corners of the State, War, and Navy Building at Washington during the World War. If they knew there was a war they did not show it. Somebody told me that they were working on records of the Civil War; and the volumes were certainly ancient!

But let an expert speak. Lord Eustace Percy says, "Any administrative system must establish a more or less elaborate machinery to carry out its work. Every such system has a tendency to expand; it therefore establishes new machinery, but it seldom scraps old machinery which has worked reasonably well for earlier and more restricted purposes. Every such system, therefore, tends to get entangled in its own machinery; the lag between decision and execution becomes greater and greater; until finally the whole machine sticks. . . . Today there is hardly a country where even an overwhelming parliamentary majority will en-

able the government to pass through the ordinary procedure of the legislature one-half of the measures necessary to bring the law up to date or where the civil servant is not constantly aware of his inability to take administrative action which he knows to be essential to real efficiency. In such circumstances, national executives have everywhere tended, since the war, to live from hand to mouth on what certain German biblical critics have called an 'interim ethic.' And the vested interests which have thus impeded national action are not, for the most part, those of private citizens and corporations. These exist, but they are, at most, stumbling-blocks on which administration may trip, but which do not block its path. The real barricades in the path of administrative action are public statutory institutions. Government is being choked by its own creations." ['34, pp. 6–8, *passim*]

12. The psychology of advertising lays stress upon suitable slogans in influencing men in business. Munro considers the matter important for government also: "Now the selection of a good designation, or symbol, or slogan, is equally important when it comes to placing *ideas* on the market, for you must sell your idea to the country, just as you sell a brand of soap or a breakfast cereal—by the effective and reiterated stamping of a definite impression upon the public mind. Reformers, unhappily, have given little attention to the science of propaganda. When they have had a meritorious idea to plant in the minds of the people they have usually designated it by whatever makeshift of a name happened to be at hand. Civil service reform, for example, is an appellation borrowed from England, where the whole body of permanent governmental employees is known as 'the civil service.' But in America the employees of the government have never been generally known by that name, and hence the term civil service reform has proved to be neither appropriate nor self-explanatory. It has been a dead-weight upon a worthy cause. Of late the attempt has been made to substitute 'merit system,' which is a far better term and one that ought to have been adopted forty years ago; but usage has now hardened the old terminology.

"So with the clumsy phrase 'initiative and referendum.' Popu-

lar lawmaking, or direct legislation, would have been a better marketing name. The movement for the adoption of the Australian ballot, forty years ago, was handicapped by the foreign appellation with which it was linked. The politicians dubbed it 'the kangaroo ballot.' Terms like proportional representation, segregated budget, and excess condemnation are a hold-back to the reforms that they embody. Compare them, for example, with such brief and self-explanatory terms as short ballot, open shop, woman suffrage, and city manager." ['24, p. 22 f.]

William James long ago emphasized the dynamic differences brought to pass simply by putting a thing or act under one concept rather than another and so with one set of mental connections rather than another: ". . . the essential preliminary to every decision is the finding of the right names under which to class the proposed alternatives of conduct. . . . The names—and each name stands for a conception or idea—are our instruments for handling our problems and solving our dilemmas." ['99, p. 166]

Thurman Arnold has exploited the fact in connection with government. I quote from his argument in favor of expenditures which bring dividends of welfare rather than of material goods:

"It is interesting to speculate what might have been the results had we been able to link spending and public works to an adequate sentimental ideology. If we had been able to conquer Chicago, and improve it as a national asset, we might have been more sensible in our operations. It is interesting to compare what we were able to do in the Philippines under the ideals of a humanitarian imperialism. In 1898, at a time when no one was accustomed to big figures, we were able to spend what has been estimated at four hundred million dollars in conquering and improving the Philippines. The humanitarian work done in these islands by the United States is amazing. Disease was reduced, social work carried on, living conditions made better, until the population doubled under the improved conditions. The story of American improvement in the Philippines is a story of heroism and self-sacrifice on the part of pioneers, unselfish in their interests. Yet it would have been psychologically impossible at that time to have spent an equivalent amount of money on our

own poor. The reason was that in the ideology of the time, the spot on the map which represented these islands was considered a national asset. Hence we were not 'spending' the money. We were investing it. Every American felt richer because the Philippines belonged to the United States. There was an asset to balance the debit. The imperialistic ideal coupled with our natural humanitarian impulses permitted us to treat these primitive people better than our own. We were not afraid of ruining their character because we did not think of them as equals who had characters to ruin. Therefore we were able to do many sensible things for the comfort and peace of our little brown brothers, in spite of all the difficulties which this ideal involved us in, in other and quite separate respects. One wishes that it were possible to consider our own country as an asset today. If so, the budget might be balanced by calling expenditures for improvement investments instead of debts. The idea is frequently put into words, but unfortunately it has not the emotional meaning to give us confidence in following it." ['35, p. 111 f.]

It is a little weakening to his argument that the main objective evidence of a gain in welfare is that two Filipinos grew where one grew before. Also the suggestion that a debt is any the less a debt because it is for books and teachers' salaries rather than for bombs and the salaries of spies is confusing. Both are investments, one in education, the other in attack, defense, preparedness, protection or whatever the bombs and spies did. Both are debts to the persons who supplied the wherewithal. But the general argument is instructive. The names we call things by and the concepts under which we place them influence our attitudes toward them.

13. Rulers should talk less. Some people like to talk for much the same reasons that others like to sing, play games, or work with tools. Some like to orate in public for much the same reason that others like to sing, dance, or act in public. The ability to do the latter acceptably is still taken by the multitude as a symptom of ability to govern, as it doubtless was in early times, and is now again to some extent by virtue of the radio. It probably is a better symptom of ability to get a following and win elec-

tions than of ability to make wise decisions and carry on public business. Its correlations with the latter are probably moderate and mostly indirect.

Persons who like to talk to an audience indulge themselves with a good conscience in parliaments, committees, and the like, the tradition being that matters should be discussed orally by such assemblies. The tradition seems to be in part a relic from the days before printing. Zimmern says:

"The nineteenth century had a great veneration for 'the voice of the people,' as if men could all shout together without deafening one another. When it discovered that, under modern conditions, nations cannot meet in council, it sanctified the election of representatives to do the governing for them; and thus transferred its veneration from peoples to Parliaments. The twentieth century is discovering, to its surprise, that the capacity of Parliaments has been over-estimated: that, however well they may shout, they find it difficult to govern. Our modern democrats might have saved themselves this disillusionment if they had cared to listen to the psychologists. Public business is much the same as private; and men are not able to transact business in hordes. Large companies are much the same as small, only more uncomfortable. No one likes to sit for hours listening to other men talking; nor does the situation become very much more tolerable when hundreds of others are listening too. Hence the atmosphere of boredom and languor so conspicuous (as seen from the galleries) in most modern Parliaments as in all large committees, a vision of men striving desperately after the unattainable—to waste none of their own time and yet to follow conscientiously the main thread of the discussion. And hence the ever-increasing tendency to concentrate the real power and the real work in more business-like quarters—in the hands of cabinets and committees and 'civil servants.'" ['31, p. 166 f.]

Cabinets and committees are not immune. Among ten men chosen at random from a legislature or congress of delegates of any sort, there will almost surely be at least two who enjoy talking to the group; among five men there will usually be at least one; the evil is mitigated but not abolished, unless the talkers are definitely repressed by the majority of the group.

Lasswell has pointed out that the method of discussion has been much overrated: "Democratic theorists in particular have hastily assumed that social harmony depends upon discussion, and that discussion depends upon the formal consultation of all those affected by social policies. The time has come to abandon the assumption that the problem of politics is the problem of promoting discussion among all the interests concerned in a given problem. Discussion frequently complicates social difficulties, for the discussion by far-flung interests arouses a psychology of conflict which produces obstructive, fictitious, and irrelevant values." ['30, p. 196 f.]

14. Rulers should study more. Many of them are already studying much. Any conscientious and intelligent man who holds a government job high or low will study his job and learn from its instructive experiences. Many of them are trying to learn from books also, as so many progressive business men are now doing. There are some associations of civil servants for mutual improvement comparable to those of scientists and teachers. Most of them would study more if there were more pecuniary and professional advantages caused by such study, and if there were a larger supply of scientific material bearing on their jobs for them to study. Sweeping theories of government from Aristotle down, though stimulating to many, do not meet the requirements for all. The annual output of demonstrated facts and principles contributing to the science of politics and public administration is not large enough or varied enough to meet the needs of, say, conscientious future legislators, diplomats, city managers, and directors of poor relief.

The number of "laws" about government corresponding to Newton's laws, Ohin's law, Mendel's laws, the laws of gravitation, thermodynamics, or the segregation of the gametes, or pregnant facts like the motion of the earth, the circulation of the blood, and the stability of the I.Q. is not great, and does not increase by many per year. This is so true of all the social sciences and human affairs that John Dewey could say so late as 1936 that "The resource that has not been tried on any large scale in the broad field of human, social relationships is the utilization of organized intelligence, the manifold benefits and values of which

we have substantial evidence of in the narrower fields of science." ['36, p. 464] The statement is extreme; organized scientific observing and thinking is at work with human, social relationships; but the contrast is real. A beautiful illustration of the contrast is furnished by the failure of the Soviet government to study itself.

"We are struck by the fact that among all the thousand and more institutes of scientific research now at work under the intellectual supervision of the Academy of Sciences of the USSR, there seems to be none taking as its sphere the structure and function of the contemporary administrative organs themselves, from the smallest selosoviet up to the All-Union Congress of Soviets; from the humblest industrial artel up to the Commissariat of Heavy Industries; from the village cooperative store up to Centrosoyus; from the least important kolkhos up to the most important sovkhos or the Grain Trust; from the little social circle in the factory club up to such giants of voluntary association as Osoviatikhim and Mopr. If these innumerable and infinitely varied social organisations, each of them having attributes of its own, were biological organisms, belonging to different species and genera, the scientific botanists and zoologists would be swarming to scrutinise, and to register with the utmost particularity, the minutest differences in the form and the method of working that each of them displays; the actual course of development of each kind, and the particular relations that it has to all the other kinds. There is probably as much new knowledge to be acquired—to cite only one example—by such a precise and detailed description of the organisation and working of all the thousand city soviets of the USSR, in comparison with similar precise descriptions of the congresses of soviets of the rayons and oblasts, as there has been in the botanists' precise descriptions of a thousand varieties of wheat, or the aviation engineers' comparative tests of scores of different types of flying machine." [Webb, Sidney and Beatrice, '36, vol. 2, p. 989]

One moral of the contrast between the sciences of managing men and human affairs and the sciences of managing things and animals is that governments should provide for advancing the sciences of man, even more than for advancing the sciences of

matter. The zealous ruler or servant of the people confronted by a case with which he must deal is at a great disadvantage in comparison with the physician in a similar situation. The latter can in a medical library find abundant classified records of similar cases. He studies these as a help in treating the case. Successful practitioners in public administration should be encouraged to report their 'cases,' the treatments, and the outcomes.

15. Governments should provide for scientific experiments in advance of wholesale application. This is of course difficult. "Nations must try many innovations upon a large scale or not at all. . . . Experimentation is not wholly barred, but it is narrowly restricted." [Mitchell, W. C., '35, p. 60] We obviously cannot roll communities through business cycles as we roll steel balls down inclined planes, or transpose two populations as we transpose grafts of tissue. But we may, by sufficient thought and ingenuity, do enormously more than has been done. The states of the United States make all sorts of scientific experiments to suit themselves. Why should not a few states each year submit to a few scientific experiments? Similarly for municipal governments. Many instructive governmental experiments could be carried on in army camps, in our insular possessions, in boarding schools, in C.C.C. camps, even in prisons.

16. Government should move toward a more professional and scientific treatment of its problems. At present something which is demonstrably desirable will be cast aside, regretfully perhaps, by statesmen, with the comment that it is "politically impossible." So the Webbs somewhere relate that Sir Charles Dilke objected to both the majority and minority reports on legislation for the prevention of poverty, that the Bridewell clauses made them "politically impossible." So-called scientific management is apparently "politically impossible." Florence quotes from a law providing that in U. S. Army workshops no appropriations be available "for the salary or pay of any officer, manager, superintendent, foreman or other person having charge of the work of any employee of the United States Government while making or causing to be made, with a stop-watch or other time-measuring device, a time-study of any job or any such employee between the starting and completion thereof or of the movements of any such

employee while engaged upon such work; nor shall any part of the appropriations made in this Bill be available to pay any premium or bonus or cash reward to any employee in addition to his regular wages, except for suggestions resulting in improvements or economy in the operations of any Government plant; and no claim for service performed by any person while violating this proviso shall be allowed." ['24, p. 91]

Why should it be possible to pass legislation which no competent authority approves, waste or even steal public funds, and plunge a nation into a disastrous war, and be "politically impossible" to do so many useful things? Is there not something wrong with governments? Should they not study their own history, compare their progress with that of science and its applied arts, and try to make government an agency for making what is reasonable "politically possible"? The last two questions do not imply that the answers are always Yes. On the contrary, I think that the statesmen are probably often right, that many reasonable acts of government are politically impossible in the sense that they would damage government, that government has to make the best of a rather bad bargain. But I do think that statesmen should ask the questions.

17. A list could be made of managerial maxims recommended from Solomon down to the last book for aspiring executives. President Compton has added two derived by observation and analogy with the laws of thermodynamics: "You cannot get something for nothing," and "If things are left to themselves, they tend toward chaos." ['35, p. 213] Psychology would accept the first, which duplicates one of its maxims, that the mind does not do something for no reason. It would supplement the second by "If human habits are tampered with they will get worse unless the tamperer is very skilful. A well-established habit or custom does degenerate, but rather slowly, like radium."

18. Psychology has little to offer concerning the questions of two-party and multi-party government, minority representation, representation of occupations and other interests rather than of geographical units, the totalitarian state, constitutions, and the like.

It does have a word to say concerning the size of municipali-

ties, nations, and federations as a limiting condition to effective government. There is commonly supposed to be an inverse correlation between size and effective government or private business management after a certain size is reached. There is this much psychological truth in the supposition; namely, that if the chance of finding a fit man to do a one-man job is 9 out of 10, the chance of finding two fit men to do a two-man job is only 81 out of 100, and the chance of finding four fit men to do a four-man job is a bit under 66 out of 100, and so on.* And one weak man in a ten-man organization for a ten-man job is likely to do more harm than he would do in running a job of one tenth the size independently. In the former case he not only does his own work badly but interferes with the work of the nine others. The experts in the organization of private businesses claim that by proper organization and controls they can prevent this, the positive gains of each from the others counterbalancing the harm done. They assume, I think, that the head of the organization will make almost no mistakes in picking his subordinates and equals, and if he does make any will discover them quickly and rectify them. This is asking a great deal of any management and a very great deal of a political management. On the other hand the big enterprise may have established higher standards, calling into play the common human tendency to do, within the limits of one's powers, approximately what is expected of one by the organization and human environment. Moreover, in a very real sense the supervision and management of five heads of armies or departments may be as easy for a superior who knows them and their problems (but not all their techniques) as the supervision and management of five workmen by a foreman or five soldiers by a corporal are.

A psychologist is not so frightened by numbers and complexity in an organization as economists or political scientists are because he has always before him the fact that his own self (or certain ruling patterns in his brain) manages some 3,000,000,000 separate nerve cells, to say nothing of the additional billions in

* Even if the probability that the head and sub-heads of a government will pick a fit man is 99 out of a hundred, the probability that they will pick five hundred fit men is less than 1 out of a hundred.

his face and arms and legs and trunk. Life and learning have organized them in a hierarchical and functional combination which runs fairly well, perhaps better than a village community of cells, like an amoeba, or a city-state of cells like a sea urchin, or a small monarchy like a clam or oyster. The psychologist awaits the facts.

These seem to be rather on the side of the theorists who hold that with proper organization size is no obstacle. Cities like London and New York are governed as well as cities of a hundredth their size. The largest states are not notably worse off than the smallest. The Roman Empire throve for a long while after it had become a giant and may have fallen not because it was so big but because the genes of the Romans were lost or adulterated. We should not then be appalled by the difficulty of governing a world-state or federation. It will probably be easier to maintain it for a hundred years than to establish it.

I quote the prophecy of an eminent anthropologist that unity will come, and by federation, not conquest:

"The federation of nations is the next necessary step in the evolution of mankind.

"It is the expansion of the fundamental idea underlying the organization of the United States, of Switzerland, and of Germany. The weakness of the League of Nations and of the modern peace movement lies in this, that they are not sufficiently clear and radical in their demands, for their logical aim cannot be arbitration of disagreement, or formal outlawing of war. It must be the recognition of common aims of all the nations.

"Such federation of nations is not an Utopian idea, any more than nationalism was a century ago. In fact, the whole development of mankind shows that this condition is destined to come.

"Fundamentally, the nation must be considered a closed society like those previously discussed. The differentiation between citizen and alien is not so intense as in the close primitive horde, but it exists.

"It would be instructive to follow in detail the development of modern nations from tribal units that considered every alien an enemy who must be slain, but we can only imagine the course of the gradual changes that have taken place.

"Human inventions improved. The herd of hunters and food-gatherers learned the art of better providing for their needs. They stored up food and thus provided for the future. With the greater regularity of the food supply and a decreased frequency of periods of starvation the number of members of the community increased. Weaker hordes, which still followed the older methods of hunting and food gathering, were exterminated, or, profiting by the experience of their neighbors, acquired new arts and also increased in numbers. Thus the groups that felt a solidarity among themselves became larger and by the extermination of small, isolated hordes, that remained in more primitive conditions, the total number of groups that stood opposed to one another became gradually less.

"It is impossible to trace with any degree of certainty the steps by which the homogeneous groups became diversified and lost their unity, or by which the opposing groups came into closer contact. We may imagine that the widows and daughters of the slain, who became a welcome prey of the victors, established in time kindlier relations between their new masters and their kin; we may imagine that the economic advantages of peacefully acquiring the coveted property of neighbors rather than taking it by main force added their share to establishing kindlier relations; we may attribute an important influence to the weakening of old bonds of unity due to the gradual dispersion of the increasing number of members of the community. No matter how the next steps in political development happened, we see that, with increasing economic complexity, the hostility between the groups becomes less. If it was right before to slay every one outside of the small horde, we find now tribes that have a limited community of interests, that under normal conditions live at peace, although enmities may spring up at slight provocation. The group that lives normally at peace has much increased in size, and, while the feeling of solidarity may have decreased, its scope has become immensely wider.

"This process of enlargement of political units and the reduction of the number of those that were naturally at war with one another began in the earliest times, and has continued without interruption, almost always in the same direction. Even though

hostilities have broken out frequently between parts of what had come to be a large political unit, the tendency for unification has in the long run been more powerful than that of disintegration. We see the powers at work in antiquity, when the urban states of Greece and of Italy were gradually welded into larger wholes; we see it again at work after the breaking up of ancient society in the development of new states from the fragments of the old ones; and later on in the disappearance of the small feudal states.

"In the nations of our days we find the greatest numbers of people united in political units that the world has seen. In these war is excluded, because all members are subject to the same law, and excessive strains in the community, that lead to internal bloodshed, have decreased in frequency, although perhaps not in violence, as long as the whole masses of the people in a nation enjoy somewhat equal advantages." [Boas, '28, p. 93 f.]

Chapter 35

NOTES ON THE AIMS OF GOVERNMENT

COOPERATION *versus* ANTAGONISM OF GOVERNMENTS

It is generally admitted that a person should seek the welfare of others, not merely his own. But it is generally assumed that a government should seek the welfare of its own citizens with little or no care for the welfare of others. There are certain benevolent or pseudo-benevolent conventions, such as to protect the lives of aliens who are traveling through or resident in the area governed, or to cooperate against certain diseases. But the general ethics of the conduct of national governments toward one another and toward the citizens of each other is competitive within the rules of international law, and in accord with the precept of *caveat alter,* or each for himself. Somewhat the same is true between local governments within a nation.

The fallacy that the advantage of one is the disadvantage of another in a bargain has been almost universal in national governments. Economists and business men of the intellectual caliber of members of national legislatures understand that on the contrary the most profitable contracts are those which are equally profitable or nearly so for both parties. But few legislators and diplomats, and extremely few voters, understand this. In the entertainment furnished by governments in the press and radio, one's own government plays the part of hero, and there usually must be a villain. The obvious truths that each nation cannot be the best and that a useful adaptation to reality will be for the citizens of any nation to know the real merits of all and to love and support their own without ignorance and error are hidden by governments. These psychological facts, together with those described earlier concerning patriotism and affiliated states of

mind, hinder free national enterprise, and prevent cooperation even when it is demonstrably to the advantage of all the nations concerned.

Just as there are good men and bad men so there are good nations and less good nations. Truth-telling about nations, freedom of national enterprise, and cooperation for the advantage of the world do not mean treating all nations alike or cooperating with the bad in them, or disregarding any relevant differences between them. They do not mean that intelligent nations shall pay bonuses to dull, or that industrious nations shall support idle, or that sane nations shall nurse insane. Those are matters of international charity, and need not become matters of practical politics until charity at home has reached a higher level. The enlightenment of national interest *is* a matter of practical politics. A nation should learn not to lie about other nations, or try to cheat them, or work against them for no good reason, just as it should learn not to waste its own substance or ruin its own health.

It should learn not to lie about itself to itself. The fact that "You cannot indict a whole nation" should not prevent a nation from pleading guilty. "Each nation, too, has its own defects, and it must come to recognize these defects instead of glossing them over with what the psychologist calls 'defence mechanisms'; Germany, for example, hiding its brutality by its love of culture, France its emotional reactions by its love of logic, England its distrust of systematic thinking and doing by its love of liberty of thought and action." [Myers, C. S., '37, p. 151]

Morality (and also common sense) asks more than enlightened national interest. Both ask that a government should at least realize that it lives in a world from any quarter of which beneficent discoveries of physical or social science may come, literally within a minute's time, and dangerous diseases within a few days; a world where political, economic and social strains and explosions may now cross oceans. They ask that a government should study this world in the care of which it must share, learn who is in it now, who is being born, how they are fed and clothed, what they want, what they need, what their laws and customs are, what they will do with the spread of science and

technology. They ask that a government should mind its own business well, know enough about the business and feelings of other nations to keep from needlessly interfering with the one or irritating the other, and do its share in world welfare work.*

THE PRODUCTION, ATTRACTION, AND UTILIZATION OF SUPERIOR PERSONS

It is a most beneficent policy for government to increase the birth rate among its best citizens, and is a most enlightened policy of national interest to attract the carriers of superior genes from other nations.

The addition of even a few persons of great ability to the world's population is a great help toward the good life for all. The benefits of their work in science, invention, and the fine arts are obvious. They already have done much for us in government, business, morals, religion and other fields commonly regarded as outside of science, and would do much more if we would let them and would follow their wisdom instead of our inclinations.

It would have been an extremely good bargain for the feeble-minded of Seguin's time to have gone without certain satisfactions, as by abstaining from butter or meat, to support him, and induce him to have more children. It would have been a kindness to syphilitics to have taxed them to support the researches of Metchnikoff, Roux, Schaudinn, Wassermann, Paul Ehrlich, Levaditi and others. The gain from the work of able men in this single special line of pathology would justify a payment of a hundred million dollars to provide for the birth and training of two thousand or more sons and daughters of gifted men of science, on the chance that one of them might succeed in discovering a means of preventive immunization against syphilis.**

The movement of a person of great ability to a country where

* Some extreme socialists would not only put the property of a nation's citizens into a common fund, but would put that fund at the disposal of all the world's inhabitants, taking from the United States according to its ability and giving to Central Africa according to its need. But this logical extension from nation to world is not often mentioned.

** The suggestion may seem strange to many, but would it not be an act of "social justice" to tax syphilitics to provide this?

his work will be more productive and happier is an advantage to the world. The advantage to the country to which he goes is likely to be above the advantage to the rest of the world, and very much above the advantage to the country from which he comes. A nation which, by luck, by merit, or by both, attracts the able and good to become its citizens will improve its life greatly. In proportion as its people and government favor their activities, it will improve its life still more. A policy of enlightened national interest, even if modified somewhat in favor of the welfare of the world, would tend to move the ablest and best from inferior nations to superior nations except in so far as an inferior nation was wise enough to attain superiority in the one respect of offering a specially good life to the able and good. It is fairly easy to do this temporarily, but for an inferior nation to make permanent residents and citizens out of the able and good whom it attracts temporarily by offers of money and power is much harder.

The general arguments for free trade in commodities apply to free trade in persons and their genes. The attitude of a nation toward the importation of superior persons is likely to be indifference. A few persons in the receiving nation who fear that the immigrants will take away their jobs or reduce their incomes (both pecuniary and "psychic") may object. A few persons in the sending nation who realize the national loss, or the loss to them, from the diminished local supply of ability, may object. But the objections in the receiving nation have been mainly to the importation of persons who are inferior or are thought to be or to the importation of workingmen who will work for less pay than the residents. There have been few objections in the sending nations to exporting workingmen and peasants who would send back money.

The attitudes toward the trade in persons may change greatly, first because of the declines in the birth-rate and second because of the growing knowledge about human genes as natural assets like coal and copper, and natural liabilities like earthquakes and hurricanes. Such movements as the immigration into Holland, Switzerland, and the United States of the able and good who were persecuted for their religion or politics in other countries,

or the immigration of weavers into England under Edward III and again under Elizabeth, will then be less likely to occur. In fact there may come a time when no prudent nation will export its superior persons or import inferior persons except for reasons of great weight. It will export commodities instead of the former, and import machines to do the unskilled labor instead of the latter.

THE UTILIZATION OF PERSONS OF SUPERIOR ABILITY

Government has a bad record for its treatment of the persons who have done most for welfare. Monarchs, oligarchies, and democracies alike have overdone the punishment of bad men in comparison with the reward of good, and democracies have perhaps been worst. "Parliaments will vote huge sums to successful generals, but never a penny to a great scholar or sculptor, poet or painter; for purely intellectual achievements are not as yet regarded as services to the State." [Pollard, '07, p. 69] In the depression of the '30's according to a fairly impartial witness "the United States federal government and many state governments instituted retrenchment policies whose first victims were the publicly supported research centers." [Gray, '37, p. 4]

The American Association for the Advancement of Science in December 1934 submitted a memorandum to the President and the Congress of the United States which included the following:

"Development and application of science have been basic to the economic and social progress of nations, making possible such movements as universal education, abolition of child labor and slavery, emancipation of women, insurance and pensions, moderate hours of labor and great improvement in the standards of health, comfort and satisfaction in living.

"Scientific developments have not only conferred general benefits, but in particular have been largely effective in leading to recovery from previous depressions—as the railroad industry following the depression of 1870, the electric industry following that of 1896 and the automobile industry following that of 1907.

"Scientific research is a productive investment proven by experience to yield a high rate of return, as illustrated by the saving of $2,000,000,000 per year from the Bessemer steel process

and of over $1,000,000 per day from the modern incandescent lamp, and as illustrated also by the entire chemical, electrical, communication, transportation and metallurgical industries and by the enormous employment in such industries.

"Progressive foreign nations have recognized the importance of maintaining their scientific strength at a high productive level and have provided for this maintenance by allocation of funds to support scientific work on a national scale.

"There now exists in America a situation demanding as never before an intelligent use of our national resources.

"There are manifold problems in health, safety, agriculture, better use of resources, development of new products and processes whose social value and urgent need are unquestioned but whose solution is being seriously hampered by lack of funds for research, which have been greatly curtailed at this time when properly directed scientific work is more than ever needed.

"The great national planning program, which is now under consideration for the use of our physical resources of soil, minerals and crops, will be seriously deficient unless it includes provisions for utilizing the scientific resources of the country for creative work."

Nobody denied any of these statements but no favorable action was taken, to my knowledge.

Governments are no kinder to art and scholarship than to science, and seem on the whole to treat great managerial ability primarily as a source of money by taxation, by party contributions, or by more illicit appeals. The rulers of today act as if they thought small business men were better than big. Perhaps they really do think so.

Governments have the opportunity to set an example of reasonableness, logic and scientific method, and in some directions have done so. The treatment of the poor, the rich, doctors, farmers, workingmen, and conquered nations by governments past and present would not be chosen by anybody as examples of reasonableness, logic, and scientific method. But government maps are good maps; government tests in a Bureau of Standards or its equivalent are in many ways model tests; public schools have not been outdone by private schools; government farms

have often taught all farmers. They can be of great service in this way. For example, a government can do a great service by setting rates for all its employees in real wages instead of dollar wages.* If the wage of every postman and policeman and public-school teacher varied even only approximately with the purchasing power of money, there would not only be that much gain in justice, but all people would be impressed by certain facts of the utmost economic and political importance. There would not be much expense in doing this to a fair approximation. If private businesses tried to do it they would probably be accused of trying to make money at the expense of their employees. Philanthropic institutions cannot do it easily because their incomes are so largely fixed.

To take another instance, a government could present impartial accounts of the consequences of its various acts and expenditures. The federal government could report what the consequences of tariffs, crop controls, white-slave acts and other legislation have been. A city government could present a statement not only of what it had spent for its schools, police, and health officers, but also of how the children had developed, how much crime and accident rates had been lowered, and what the gains in health had been. Even though the account often says that what the consequences of a certain piece of legislation or expenditure have been cannot be estimated, it will still be a valuable example for individuals, churches, schools, charity organizations, and private businesses. All of them need to keep more adequate and less biased accounts of the consequences of their acts and expenditures.

Governments could be model traders and employers. How can we expect labor unions to keep their promises if governments break theirs? How can we expect employers to leave their employees free to vote as they like when the city government puts pressure on its employees to support it? How can we expect advertisers to tell the whole truth about their commodities if governments never confess to having made mistakes?

Governments could be models by accepting unchangeable

* Something like this is done now by some European governments, by systems of allowances for changes in the "cost of living."

facts and adapting their acts to these instead of claiming to change them. Just what percentage of campaign promises make this error is not known, but it is large. The reverse error of accepting as inevitable conditions which are remediable by giving birth to better people and providing them with better institutions and customs was once the more frequent and is in some respects worse. It is not now so common, but governmental thinking should, of course, eschew it also. If governments would cooperate to draw up a list of what cannot be done by man and what can, and operate accordingly, their example would be of great value to moralists, reformers, preachers, educators, business men, labor leaders, and many others. A very large number of these believe, for example, that men can eat all the food that they can produce, that they can eat as much if they ride in cars as if they walk, and that a person's intelligence can be enormously improved by training; others believe that criminals and idiots are as inevitable as earthquakes, and that war between nations always will be because it always has been. Still others are befogged in a confused sense that almost anything may happen in this world, you cannot tell what.

PEACE

Common sense tells us that only a stupid or malevolent government would want war today, when no conquest can be worth the price. But common sense forgets that a government may keep itself in power by assertions which it can in an extremity justify only by war, and that a government or the party behind it may sincerely argue that an extension of its dominion will be a blessing to the world, a glorious gift to the future from the blood of its martyrs and the bankruptcy of its country. Common sense assumes that governments accept in theory, if not in practise, the humanitarian liberalism which the religion, science, and literature of the nineteenth century accepted as a human goal. But this is probably an exaggeration. At all events governments either do not want to keep out of war or do not know how to. Civilized peoples probably do want on the whole to keep out of war, but do not know how to, and are easily misled into it by propaganda.

Psychology offers a few crumbs of fact which may help a little to keep the peace of the world:

I. The inborn belligerent tendencies in the human animal, the "fighting instincts," have very little to do with modern wars between states. They lead to such specialized matters of face-to-face behavior as the following:

"(1) To the situation, 'being interfered with in any bodily movements which the individual is impelled by its own constitution to make, the interference consisting in holding the individual,' the little child makes instinctively responses of stiffening, writhing and throwing back the head and shoulders. These are supplemented or replaced by kicking, pushing, slapping, scratching and biting in the older. This tendency, if it exists, may be called the instinct of escape from restraint.

"(2) To a similar situation, with the difference that the interference is by getting in the way or shoving, the responses are:—dodging around, pushing with hands or body, hitting, pulling and (though, I think, much less often) slapping, kicking and biting. This may be called the instinct of overcoming a moving obstacle. . . .

"(3) To the situation 'being seized, slapped, chased or bitten (by any object), the escape-movements having been ineffective or inhibited for any reason,' the fighting movements or the paralysis of terror may be the response. When the former occurs, the total complex may be called the instinct of counterattack.

"To the particular situations that arise when attack provokes counterattack, there are, I believe, particular responses. If A clings to B, trying to throw him down or bite him, B will, by original nature, more often try to push A away or throw him down than to hit or bite him. If A rushes at B, slapping, scratching and kicking, B will, by original nature, more often hit and kick at A than try to push him away or throw him down. I believe that there is a basis in original nature for the distinction in sport between the fight with fists, which I judge to be a refinement (inappropriate as the word may seem) of the 'slap, scratch, poke' fighting, and the wrestling-match, which I judge to be a refinement of the 'push, pull, throw down, jump upon' fighting.

When A and B are both down, the response is an effort to get on top. When A is beaten, it is originally satisfying to B to sit on him (or it), to stand exulting beside him (or it), and to remain unsatisfied . . . until A has given signs of general submissiveness. Many other specialized original tendencies, such as to remove things from different parts of the body in different ways, and to duck the head and lift up the arm, bent at the elbow, in response to the situation, 'an object coming toward the head rapidly,' appear in the course of a fight.

"(4) To the situation 'sudden pain' the response is attack upon any moving object near at hand. This may be called the instinct of irrational response to pain. This fact, common in everyone's experience, may of course be interpreted as an acquired habit of response by analogy, but it seems to the writer that it is a true and beautiful case of nature's very vague, imperfect adaptations, which only on the whole and in a state of nature are useful. When a loving child with indigestion beats its mother who is trying to rock it to sleep (though it would protest still more if not rocked), or when a benevolent master punches the servant who is lifting his gouty foot, the contrary habits seem too strong to be overcome by the force of mere analogy. . . .

"(5) To the situation, 'an animal of the same species toward whom one has not taken the attitude of submission and who does not take it toward him' the human male responds by threatening movements, shoving the person away, and if these fail to produce the attitude of submission, by either submission or further attack. The encounter is closed by the submission of either party, which may take place at any point. This tendency may be called the instinct of combat in rivalry.

"(6) Either as habits of analogy developing from these specialized tendencies, or as an equally original but vaguer tendency in addition to them, the following behavior occurs:—

"To the situation—'being for some length of time thwarted in any instinctive response by any thing,' especially if the thwarting continues after one has done various things to evade it, the response-group of pushing, kicking, hitting, etc., is made, the attack continuing until the situation is so altered as to produce

instinctively other responses, such as fulfilling the original activity, hunting, mangling, triumphing over, or fleeing from, the thwarting thing." [Thorndike, '13 B, pp. 68–73, *passim*]

The same irrelevance to modern war holds good of the hunting instinct, which seems to produce approximately the following behavior:

"To 'a small escaping object,' man, especially if hungry, responds, apart from training, by pursuit, being satisfied when he draws nearer to it. When within pouncing distance, he pounces upon it, grasping at it. If it is not seized he is annoyed. If it is seized, he examines, manipulates and dismembers it, unless some contrary tendency is brought into action by its sliminess, sting or the like. To 'an object of moderate size and not of offensive mien moving away from or past him' man originally responds much as noted above, save that in seizing the object chased, he is likely to throw himself upon it, bear it to the ground, choke and maul it until it is completely subdued, giving then a cry of triumph. . . .

"The responses of cautious approach, of fighting, of avoidance and of protective behavior may be mingled in all sorts of ways with the hunting responses in accordance with variations in the size of the animal, the offensiveness of its mien, and the struggle it makes when seized, and in accordance with its alternations from flight to resistance or attack.

"The presence of this tendency in man's nature under the conditions of civilized life gets him little food and much trouble. There being no wild animals to pursue, catch and torment into submission or death, household pets, young and timid children, or even aunts, governesses or nurse-maids, if sufficiently yielding, provoke the responses from the young. The older indulge the propensity at great cost of time and money in hunting beasts, or at still greater cost of manhood in hounding Quakers, abolitionists, Jews, Chinamen, scabs, prophets, or suffragettes of the non-militant variety. Teasing, bullying, cruelty, are thus in part the results of one of nature's means of providing self and family with food; and what grew up as a pillar of human self-support has become so extravagant a luxury as to be almost a vice." [Ibid., p. 52 f.]

A person strongly moved by these proclivities would find less gratification in a year as a modern soldier than in an hour or two a week playing football or "rough-housing" in play or earnest.

"The naive psychology that human nature does not change and inevitably leads to war is flatly contradicted by expert psychological opinion. Ninety-two percent of some four hundred American psychologists answered with an unequivocal 'No' Dr. John M. Fletcher's question: 'Do you hold that there are present in human nature ineradicable instinctive factors that make war between nations inevitable?' Only three percent answered 'Yes.'" [Andrews, '38, p. 158]

Whatever it is in the human genes that keeps a million men hiding in trenches, working machine guns, and wearing gas masks, is mostly *not* what causes ordinary fighting and hunting in boys.

II. Mutual acquaintance between nations is not a preventive of war. It was plausible to argue that if two nations knew each other better they would be less likely to go to war; and certain facts in anthropology and psychology concerning the "closed society" and the treatment of strangers support this view so far as concerns conflicts like those between one neighborhood and another, town and gown, strikers and scabs. But the facts are against it in the case of wars between nations. Mutual acquaintance in Europe has increased greatly in the last hundred years as a result of literacy, trade, and travel. Wars have not decreased proportionately.

III. Some statesmen and historians look for a fairly sudden change of the world's mind (or minds), whereby war will go out of fashion. So James Harvey Robinson wrote a few years ago: "To judge from the way in which witchcraft, slavery, and active religious persecution disappeared—all ancient and sanctified and seemingly permanent human institutions—the doom of war may possibly be near at hand. At any rate the forces making against war are far more potent than ever before. It may be that we shall need one more lesson. Perhaps if New York, London, Paris, Berlin, and Rome could be shattered by

means now in hand and their peaceful inhabitants suffocated, it might bring the rest of mankind into a chastened frame of mind suitable to an honest reconsideration of the implications of war as now practised." ['37, p. 83] The expectation that another war might bring Europe to a lasting peace if it were disastrous enough does not make sense in psychology. It seems more likely that what was left of Europe would be at the mercy of roving armies like those which ravaged China and "collected the taxes" for a score of years in advance, and of dictators who, in return for order, would do what they pleased.

IV. The orthodox optimistic view is that war can be stopped by an international agreement and court supported by an international police force. Consider the vigorous expression of this view by General O'Ryan: "War is a complex problem, but its complexities are not basic. They lie in the field of human ambitions, traditions and fears. But all progress has been confronted by such obstacles. The institutions of slavery and dueling existed from time immemorial until recently, but the progress of civilization suppressed them. So it will be with war. It is only a question of time. Why wait? I have said that the obstacles to peace are in the field of human ambitions, hatreds and fears. These can not be eliminated by wishful thinking. They can, however, be controlled, and that is all that is necessary. Consider for a moment a typical example. We know that millions of people living today in various European countries are so organized that by the mere push of a button, they can be caused to abandon their families and jobs and, with little or specious understanding of why they do so, march forth to destroy one another by bullet, bomb, and gunfire. Is it not of compelling interest to reflect upon the known fact that these same hostile peoples, or those of them who emigrate to this country, are caused by our laws to live peacefully as neighbors even in our crowded cities? They become peaceful because compelled to do so by law that can be and is enforced. . . . The change results because these people are compelled by our neutral laws to keep the peace, and our laws are backed by organized courts of justice and by a police power adequate to

meet any challenge. There you have the key principle underlying world peace. The truth is that these immigrants had no option about being orderly and peaceful, and it was not long before they recognized this, and their common sense prompted the rest. And so it was with the original states of our Union. Although they are sovereign powers with widely divergent climate, natural resources and economic interests, they were not permitted to make war one against another. The convenant we call the Federal Constitution prohibits it, and the police power behind that covenant is adequate to enforce the prohibition.

"The same principles apply with added force when we consider the maintenance of peace among the nations of the world. If they want peace, they can have it by common agreement in the form of a basic code, covenant or treaty which provides not only for an executive body, a legislative body, and a world court, but also for an international police power adequate to enforce peace." ['38, p. 19 f.]

Psychologically it would seem nearly as easy, and much more advantageous, to get nations to join a federation with much wider power than simply to judge disputes and enforce the decisions. In any case it seems desirable to add certain spectacular features to the organization, whatever its power and duties are. It should be something to which a person could be proud to belong. If psychologists had been consulted about the League of Nations twenty years ago, they would, I think, have recommended that it be given power to hold World Fairs, musical festivals, etc. in one nation after another, to issue money (ostensibly for the convenience of travelers but mainly to make itself known and trusted), to send missions around the world, and to do other things designed to capture the public imagination and make all peoples feel that the League was a grand affair, that it belonged to them, and they to it.

V. There is some doubt about the attitude of peoples toward war. The general view of the experts is that they are strongly against it. Lasswell writes:

"So great are the psychological resistances to war in modern nations that every war must appear to be a war of defence

against a menacing, murderous aggressor. There must be no ambiguity about whom the public is to hate. The war must not be due to a world system of conducting international affairs, nor to the stupidity or malevolence of all governing classes, but to the rapacity of the enemy. Guilt and guilelessness must be assessed geographically, and all the guilt must be on the other side of the frontier. If the propagandist is to mobilize the hate of the people, he must see to it that everything is circulated which establishes the sole responsibility of the enemy. Variations from this theme may be permitted under certain contingencies which we shall undertake to specify, but it must continue to be the leading motif." ['27, p. 47]

This may be correct, but the success of propaganda for war is so much greater than that of propaganda for prohibition, or for disarmament, or for the abolition of child labor, that there is some doubt. The socialists and intellectuals shift so readily to excuses, then to participation, and soon to enthusiasm, that one suspects that the main aversion is to other tribes making war, and especially against us. Perhaps if the "closed society" to which we belong makes war, it ceases to be bestial, murderous, and foolish.

The notions that war is senseless and degrading, that both sides are wrong and that the important thing is not to win a war but to avoid or stop it are so very modern that they exist in few minds, and there only as a thin film covering a feeling established by stories, poetry, history books, and memorial days that war is terrible but glorious and uplifting, and that the important things about a war are who is right and who wins. Adam Smith was not one to be bamboozled by propaganda. He wrote that "The art of war is certainly the noblest of all arts" and meant it. That was in 1776. Can we expect the great mass of Europeans to be much more reasonable in 1936 than one of the most reasonable men in the world was in 1776? It is common to blame the aristocratic militarists of a generation back and the dictators of the present for making war to retain or enhance their power. This may be justifiable, but is it not probable that they retain the romantic view sincerely?

Do not even the most advanced and realistic thinkers retain

a good bit of the romantic prejudice? How should they regard nation B in the following case? A attacks nation B, and B says, "Yes. We will not fight you. We are conquered. We will let you govern us rather than waste our property and kill or maim our citizens and yours. We are too sensible and humane to fight." Would not some of the advanced thinkers damn B with faint praise, and in their heart of hearts scorn it? Most people certainly would. The Czechs in 1938 thought it politic to declare to the world that they were willing to fight but were prevented by England and France.

If the aversion to war were very strong and deep it should have produced aversion to those engaged in it. I have found no evidence of this. Russian boys and girls ranked a soldier (in the Red Army, of course) as thirteenth among forty-five sorts of persons, above a school superintendent and much above a railroad conductor or postman. [Davis, J., '27, Table I] The National Guard in the United States and the corresponding services in England and Scotland are eminently respectable. An officer in the army is still looked up to all over the world, much as he was in the days of Adam Smith.

In this connection it is interesting to note that nearly a generation ago an eminent psychologist suggested that war be made a secondary function of armies, their primary functions being to provide protection within the nation and carry on useful public work. "We should have the best army for defense and improved police forces if all local police were soldiers, one twelfth of their wages being paid by the nation and one month annually being spent in camps and drills. Idling in barracks is a method for the promotion of war, drunkenness and disease. The engineering corps, the health service and the commissiariat are the most important factors in modern warfare. Engineers, health officers, inspectors of food and others employed by the nation, the states and the municipalities should be at the same time officers in the army and those under them enlisted men. A well-organized and efficient army for defense would thus be maintained at comparatively small expense and be an institution for education instead of for demoralization." [Cattell, '12, p. 609 f.]

LIBERTY

Government takes away or prevents certain liberties but makes others possible. On the whole even a rather inferior government adds more than it subtracts, because in our age of mechanisms and power individuals left to themselves interfere with and frustrate one another to an extraordinary degree.

Rulers differ greatly in their proclivity to interfere with their subjects. Some feel it their duty to arrange the affairs of citizens and enjoy doing so. Some are more interested in relieving strains and frustrations, and happier when they have nothing to do. These attitudes may become traditional, so that, for example, German administrators are more restrictive and English more tolerant. An administrator gave as the reason for the successful colonial government by Englishmen the fact that they very often just did nothing. A person of the former sort will set forth as a Utopia something like Cabet's Icaria, of which Mumford writes:

"In the beginning was Icar, the dictator who established the government of Icaria, and out of Icar there sprang a number of bureaux, departments, and committees. Let us follow a typical Icarian through his day, and examine the institutions he comes in contact with.

"Our Icarian is an early riser by necessity, for at 6 A.M. breakfast is served in a restaurant or factory. It is not a capricious breakfast; it is such a breakfast, perhaps, as the guardians of Battle Creek, Michigan, dream of. The food that is served in Icaria is regulated by a committee of scientists; and while everybody has all that is good for him, precisely what is good and in what amounts, someone else has decided in advance. So it is at present in our armies and navies, and to some extent in our cheap lunchrooms, the difference being that there remains, outside Icaria, the possibility of breaking away from the routine and following caprice and appetite without respect for the committee of dietitians.

"When our Icarian has breakfasted, he goes to his work, seven hours in summer, six in winter. He works the same number of hours as every other Icarian, and whether he works in the field

or the workshop, the products of his industry are deposited in public stores. Who is his employer? The State. Who owns all the instruments of production and service, down to the horses and carriages? The State. Who organizes the workers? The State. Who constructs the stores and factories, attends to the cultivation of the ground, has houses built, and makes all the things necessary for clothing, lodging, and transport? The same. In theory, the public is the sole proprietor and director of industry; in practice—Cabet doesn't tell us otherwise and it necessarily follows in a system of national industry—a body of engineers and officials have taken over the dictatorship of Icar and are running the affairs of the community.

"How familiar this Icaria seems to us. Utopia—c'est la guerre!" ['22, p. 154 f.]

Liberties are multifarious and specialized. Restraint on freedom of speech concerning the orthodox religion and government is indifferent to many who would rebel at compulsion to eat at 6 A.M. and work seven hours daily. Lack of opportunity to make love in one way or another is a painful restriction to most men in prisons and armies, but not to most women in nunneries. Restrictions of movement which would be torture to a healthy boy of ten are welcome to his grandfather. The freedom we want is in practice freedom to do particular acts, attain particular results, and be particular sorts of persons.

There is, it is true, a potent and permeating satisfaction in the awareness that for an hour a day or longer one can be quit of all restraints from without and inhibitions from within. If, in addition, health, ability and money give one the sense that all opportunities are at his disposal to be and do whatever his heart's desire may be, euphoria is well-nigh complete. But in most persons in most circumstances these intoxicating spells of pure freedom do and should give way to the pursuit of some particular happiness. It is not an important aim of government to keep persons in such ecstasies.

The verbal descriptions of "liberty" or freedom do not do justice to its particularism and specialization. Even those lifelong workers with realities and details, the Webbs, write: "What, then, do we mean by freedom? It is clearly something

which practically all human beings desire, and the lack of which most people find irksome. . . . It coincides in meaning, we suggest, with 'doing as one chooses.' . . . Those whose intellectual training has been unconsciously based on the hypothesis of a static universe almost inevitably think of freedom as the *absence of restraint;* those who assume that every part of the universe (including minds) is always in motion are apt to think of freedom as the *presence of opportunity* to act as they desire." ['36, vol. 2, p. 1033]

In reality, the chief item in freedom for man is freedom to fill his stomach with food, and this is the first of a long list:—freedom to sleep, freedom to make love, to have one's mate, to nurse one's babies, to adorn one's person, to join with others in work and play, to talk, to dance . . . to be undisturbed in one's home, to possess whatever one can pay for in lawful trade, to demand protection within the law, to worship God in the way of one's fathers, to have opinions of one's own, to say what one honestly thinks to be true, to worship any god one likes in any decent way, to combine with others in revolt against the orthodox religion, etc. No government has made its aim an indiscriminate increase or decrease of liberties of every sort or an indiscriminate allotment, or withdrawal of them from all sorts and conditions of men. No government should.

Exhortations to increase "liberty" are valuable as stimulations to tolerance, but, as Graham Wallas points out concerning Mill's famous essay, a eulogy of "liberty" plus various limiting clauses stated or implied makes a combination of little value as a guide to statesmen. "When the essay appeared, Mill had been for thirty-five years an official of the East India Company; and it is with obvious reference to the government of India that he says, 'We may leave out of consideration those backward states of society. . . . Despotism is a legitimate mode of government in dealing with barbarians. . . . Liberty, as a principle, has no application to any state of things anterior to a time when mankind have become capable of being improved by free and equal discussion. Until then there is nothing for them but implicit obedience to an Akbar or a Charlemagne if they are so fortunate as to find one.' . . . He shows no sympathy with any proposal

for greater liberty for 'young persons below the age which the law may fix as that of manhood or womanhood.' . . . Even more significant is his almost casual statement that a man 'may rightfully be compelled . . . to bear his fair share in the common defense, or in any other joint work necessary to the interest of the society of which he enjoys the protection.' . . . This last exception makes Mill's whole argument almost meaningless. The question of what is 'to the interest' of a society depends on our preference as between different ways of living; Pericles would hold one kind of regulation to be necessary to the interest of society, the Spartan ephors another kind, and Prince Kropotkin a third kind. It is only when Liberty ceases to be 'one very simple principle' subject to unexplained exceptions, and is thought of as a careful quantitative and qualitative coordination between known psychological facts and actual social expedients that any fertile definition of it becomes possible." ['21, p. 171 f.]

The ordinary demands for liberty are made by persons or classes for liberty for themselves, their clients, or those whose interest they have at heart to do or have what their representatives think is desirable. All or most of these liberties now sought are indistinguishable in reality from special privileges.

Liberty for any individual to do what we think he should not do is still given very reluctantly. Mill would have accorded it to educated Benthamites or to earnest and idealistic workingmen, or to demonstrably humanitarian eccentrics, but probably not to anarchists, free-lovers, or fascists. Professional and business men may give it because of a reverence for liberty as a word and principle, but not if the person takes the liberty to be grossly improper, wrong, or foolish (in their opinion). There is no reason why a person should be given liberty which he misuses, we say.

But there is. This freedom increases the variation of ideas and enterprises. For the sake of one such positive contribution otherwise unobtainable, it is good policy to tolerate a hundred errors. These can be eliminated later. Freedom of thought and speech has this creative virtue in a special degree. If only the *preservation* of civilization is in question, freedom can be denied to those thinkers who lack common sense or violate the proprie-

ties. But for the *advancement* of civilization it would be desirable to tolerate much from persons of great ability. As a matter of fact the errors and follies of such persons are relatively few. More than nine out of ten of them today are much above average in common sense, decency and caution, and command the personal respect of intelligent persons who know them. They advance civilization without shocking it. But ability should be free to shock or disgust us.

For this reason, and also because freedom of thought and speech is a factor of safety in a world where governments may be selfish, stupid, and deceitful, freedom of speech is one of the best single tests of virtue in a government. A good government is intelligent enough to attach importance to the advancement of truth, and moral enough to be willing to have the truth about itself told. "If we want truth," said Erasmus, "every man ought to be free to say what he thinks without fear." So a government may well be proud if its citizens can say with Thucydides, "As we manage our public life in accordance with the principle of liberty, so we carry the same spirit into our daily relations with each other. . . . Our public opinion welcomes and honors talent in every branch of achievement, not for any partisan reason but on grounds of excellence alone."

EQUALITY

It has been shown in Chapter 16 that equality in happiness, power, or possessions is a fantastic goal, and that philanthropic and political efforts are much better spent in increasing these than in equalizing them. There is no magic in equality as such; the value of any sort of equalization depends upon its consequences.

Let us examine the consequences of certain sorts of equalization which governments can favor or disfavor. Since governments tend to aggrandize their powers at the expense of the governed, with more or less disregard of the welfare of all, there is some presumption that a movement of equalization of rulers and ruled is better than its opposite.

Since majorities tend to oppress minorities with more or less disregard of the welfare of all, there is a presumption in favor

of raising the power of a minority from zero to something nearer its arithmetical share. In proportion as the majority is made up of the same sorts of persons with the same wants as the minority this is less important. The oppression will then consist only in absorbing the spoils of victory, such as remunerative and honorific posts, but the general legislation and management will be as much in the interest of the minority as the majority. But if the majority is largely farmers and the minority factory workers, or if the majority is largely unskilled and semi-skilled workers and the minority largely skilled workers, clerical workers and professional people, or if any other important difference exists between the majority and minority personnels, the general legislation and management will tend to be unjust to the minority, and some scheme of proportional representation is very important.

Since persons organized into parties, blocs, pressure-groups and the like tend to obtain special privileges at the expense of those not so organized and to do so with more or less disregard of the welfare of all, there is a presumption in favor of legislation in the interest of such unorganized groups as widows, old maids, poets, philosophers, and ultimate consumers. The state may well regard these as its wards to a certain extent.

Since the young through no fault of their own are somewhat at the mercy of adults, the government may reasonably favor their interests. Child-labor laws to prevent employers from having an unfair superiority and compulsory education laws to prevent parents from making bad use of their superiority may thus be useful equalizing forces. Equality of opportunity will be discussed presently.

Future citizens have very few rights by law, which permits lumbermen to use up what grows from the soil, farmers to use up its valuable constituents, and miners to use up whatever lies beneath it. If a government prevents families from improving the world for their offspring by its inheritance taxes and gift taxes, it should reserve at least a part of the wealth which it acquires in such taxes for the welfare of future men. Probably it should reserve all of it for them. A government tends to spend for perishable consumption goods, such as battleships,

doles, and employee's salaries, rather than for more durable goods, such as parks, reservoirs, canals, and dams; and it should deliberately insure its future citizens against this tendency. The trustees of a university would put a gift into permanent endowment rather than distribute it as a bonus to faculty and students to win popularity or tide-over an emergency.

It may be argued that nations specially favored by fortune or by the general advancement of science should distribute their unearned increment among less favored nations. It is probably wise to leave any such equalizations to private philanthropy.

The law and police are probably on the whole an equalizing force. In spite of the fact that in a legal contest between a rich and politically powerful person and a person with one tenth the wealth and political power the former doubtless often has great advantages, the protection to him is probably not ten times as great as to the other. Moreover protection from assault, theft, being run over, and other common dangers from bad men, is certainly very much nearer a ratio of 1 to 1 than of 10 to 1.

The protection against fire, epidemics, and other malign non-human forces given by government is an equalizing force, but one where the greater tax on the rich and powerful is still a good bargain for them (as was pointed out in an earlier chapter). The poor and weak receive what may be called a "poor man's surplus." The same is true of schools, libraries, museums, etc. Men are treated by these, if not with perfect equality, yet with a fairly close approach to it.

Certain professional customs of unequal charge for the same service, which are tolerated by law, have an equalizing force. A rich man who refused to pay $5000 for a major operation because his chauffeur had it performed by the same surgeon for $100 would lose his suit as well as excite public ridicule. Provisions for litigation *in forma pauperis* have a similar result.

These customary adjustments in favor of the poor are often not logical or entirely defensible on economic or moral grounds. They can be attacked from the right or the left! But on the whole they seem to do more good than harm, so that governments may prudently leave them undisturbed.

The encouragement of the birth of persons of high morality,

with or without the prevention of the birth of persons of low morality,* would equalize because the latter do more harm to a hundred persons with incomes under $1000 than to one man with an income of $100,000, and similarly in relation to most forms of non-pecuniary power. The encouragement of the birth of persons of high ability, with or without prevention of the birth of persons of low, would equalize partly for the same reason, but mainly by cutting off from the low end of the population to be equalized. Any scientific measures for improving a nation's genes must either reduce the variability or replace variations downward by equal variations upward. The latter would be better, but can rarely if ever be expected. Scientific eugenics is desirable mainly because of the upward shift in quality, but will have a reduction in disparity as a by-product. It is by far the surest and safest way to obtain and maintain a desirable approach to equality in income, power and happiness.

By any social doctrines held by intelligent men, inequalities are bad in proportion to the lowness of their correlation with abilities possessed and services rendered (other things being equal). Discrimination against atheists, Jews, Catholics, Protestants, Non-conformists, Mormons and other sects is not tolerated now because it is clear that their abilities and services are not much if at all below the general average. If discrimination is maintained it is defended by the doctrine that the sect in question *is* inferior. The same holds true for inequalities based on race, skin-color, or birthplace. The same holds true of birth from noble, titled, or famous parents. If a government favors such families it does so either because it finds them able and serviceable, or because it fears that it might be worse off if it did not, or because they have a value for sentiment and entertainment, which is really a form of service.

There is a fairly widespread feeling that wealth, i.e. pecuniary power, which comes into a person's hands by accident or by the labor and skill of others may reasonably be taken by government and either used for the general welfare or distributed among the unfortunate. The feeling is different for

* The words "with or without" are used because the percentage of persons of low morality would decline in either case.

other forms of power so acquired. Nobody demands that a beautiful woman should be compelled by government to put her beauty to work to buy clothes and jewels to adorn women who are unfortunate in personal appearance; or that a natural athlete should be compelled to use his strength and skill for other players. In the latter cases common sense would realize that the game was not worth the candle, if it was at all disturbed by the inequalities in question. Some moralists are disturbed by them and announce that persons favored by what they call "nature's gifts" of beauty, strength, intelligence, musical talent, etc., should hold them in trust for the common welfare. But they do not state that governments should take action to encourage or compel them to do so, except if and when they have produced material possessions. Along with the feeling about wealth acquired by accident or the labors of others, there is an even stronger feeling about ill-gotten wealth, wealth obtained by deception and sharp dealing within the law.

If wealth got by accident, the labor and skill of others, and by deception and sharp practice could be distributed among the unfortunate by an omniscient court of justice, or by the magic wand of a fairy godmother, or even by some amiable Robin Hood, at a cost of ten percent or less, everybody except some of those mulcted would be pleased. But the cost of an equitable distribution would be enormous. The income of almost every family in the country would have to be investigated. The salary of many a college teacher and social worker comes from gifts some of which come from mines discovered more or less by accident, real estate which absorbed value from the labors of others, and bargains which may have been tainted by deception. Every man employed in the electrical industries owes part of his income to the labor and skill of Faraday, Joseph Henry, and many others. Every man employed in the radio industries owes part of his income to Heaviside. Not only the inheritance of every American child who receives one, but also the wages of every worker more than what he could make in a primeval wilderness picking berries and grubs, may depend in part upon deception and sharp practice practiced against the aborigines. Even if a government adopted a grossly unjust

statute of limitations, reckoning the influence of accidents, others' work, and unfair business only for the last twenty years, the cost of the equalization would be prohibitive.

There is a widespread notion that an equalization against the action of these three forces during the last one, two, or ten generations would subtract very largely from the very rich and add largely to ourselves plus the very poor. This seems to be wishful thinking born of a sense that since the thinker has been able to earn only K units of wealth, anybody who has attained 1000 K or more must have got it otherwise than by honest toil, and nurtured by a comforting mixture of self-esteem, benevolence, and relief in thinking that if the rich gave us our deserts the very poor would be taken care of without sacrifice on our part. It has never been proved or even made probable that the very rich would have to give up a higher percentage than any other group. The doctrine had more probability when Marx wrote *Das Kapital* a century ago. But Marx, who would dearly have loved to do so, could not prove it then. The cases quoted by present believers are rather damaging to the doctrine. A common case is the farmer. Suppose A and B to have had free and clear two farms of 320 acres each, side by side in the wheat belt. When farmer A in 1918 or 1919 sold 320 acres of land to farmer B at prices suited to a world wheat-price of two dollars or more per bushel, farmer A became rich, and if he bought a diversified interest in the nation's business remained fairly rich thereafter. In a few years farmer B, who mortgaged the 640 acres to buy the 320, became poor. This was very rarely an accident, though it may comfort the Bs to think so. If A was made rich by a gift of some persons' labors they surely were not B's labors. There is not the slightest reason to suppose that A was more deceptive and tricky than B in making the trade. On the contrary, the As were more likely to be of the "live-and-let-live," "be content with a reasonable payment for your labor and goods" persuasion, and the Bs to be a bit greedier and more deceptive. If anything relating to the matter was an accident, it was the war-prices for wheat which taxed everybody else to pay both farmers. If anything in the nature of an unearned increment from the labors of others is to be considered,

it is the growth of population, the building of railroads, etc., and the enterprise and endurance of some parent which made a government gift of 160 acres worth many thousand dollars a generation later.

The case of factory workers of the last twenty, thirty, or forty years is more complex, but also fails to show that rich landlords, factory owners, factory managers, or sellers of the factories' products have profited much more from accidents, gifts and sharp bargaining than the workers. There is substantial evidence that the top executives of the biggest industries are underpaid relatively to those of smaller concerns.* There are probably more sharp practices of small employers than of large at the expense of workmen per thousand workmen, as seems to have been the case in the early days of the industrial revolution. Of the great fortunes amassed in the United States few if any have been founded on deception and oppression of factory workers. Great fortunes may have been made in mines and movies by accident, in real estate by the labors of others, in patent foods and medicines by deceiving the consumers, and in various businesses by sharp dealings with competitors, but not by sweatshops, chain gangs, and scab labor.

Governments make use of the erroneous popular doctrine to gain their own ends. They do not equalize against the forces of accident, gifts from others, and unfair business practices in favor of the unfortunate, but against the rich and the heirs of the rich in favor of the government. What the governments do with the wealth may increase the misery of the unfortunate and the poverty of the poor. It may decrease them. Much of the wealth so taken is spent on war or preparations for or against conquest. Some defenders of the poor, for instance Veblen, are sure that this does the poor not one iota of good.

Mr. R. H. Tawney may be taken as an extreme devotee to equality, champion of the poor and unfortunate, and critic of the rich. It seems unlikely that governmental equalization against the rich and the heirs of the rich in favor of the government will reduce the ills of which he complains. He wants to get rid of "capricious inequality and irresponsible power"

* See Thorndike and Beckwith, '37.

and of "external conditions which offer special advantages to some and impose adventitious disabilities upon others," and of the satisfaction of "the less urgent needs of the minority" before "the more urgent needs of the majority are met." ['31, p. 156 f. *passim*]

Certain facts about inheritance taxes may be noted in this connection. As taxes go, they probably rank fairly high in general merit. But they are often justified on false pretences. One pretence is that they automatically right wrongs and benefit the unfortunate. We have just seen how inept they probably are in accomplishing this. Another pretence is that the children of the rich will use the wealth less well or at least no better than average persons or than the poor. This assumes that the correlations between ability, morality, good will, and wisdom in using wealth for welfare (or some reasonable composite score for these) and being the child of a person who has accumulated wealth are negative. What evidence there is is to the contrary. The correlations are, I conjecture, in the neighborhood of +.15. Another pretence is that the knowledge that his wealth may be required of him by government has very minor net consequences for a man's work and contributions for welfare. It is true that this knowledge may make some men work harder, balancing the idleness of those who work less. But it is extremely unlikely that the sentiment of good will toward the public, which on the whole did characterize the rich in, say, the generation before the war, will be maintained. That sentiment was of great value in spite of the paternalistic condescension and conceit which often accompanied it. What the welfare of the world needs from persons who have the ability to amass wealth is that they and their children who inherit the ability shall continue to do so by honest means, and not spend their time and talents in building palaces, hunting animals, giving parties, and less innocently amusing themselves. It is better for them to be at work in Pittsburgh and Chicago managing industry, even if ruthlessly, than to be devoted to a life of ostentatious entertainment. A weakening of good will toward one's country, its people, and its government is sure to turn rich people and their children from productive work to self-indulgence.

The equalization of consumption receives less attention from governments than it deserves. If all had equally good food, clothing, shelter, entertainment, and the like, it would make little difference how unequally wealth was divided so far as most of the stock arguments for equalization are concerned. Yet the frugal rich who cheapen capital for the future often are made to suffer while the luxurious rich go scot free.

The Greeks and Romans did try to equalize consumption. Solon dared even to regulate the clothes of women! I quote from Zimmern:

"One feature we can trace in the work of all these lawgivers—an attempt to restore the unity of the state by restricting the use of wealth. It was the sudden discovery of gold and silver, or rather of what can be bought with gold and silver, which had tempted the aristocracy into injustice. The Sages were wise enough to see that the best way to cure the disease was, so far as possible, to remove the temptation. Hence we find them enjoining, not only moderation of spirit, but sobriety of demeanour and simplicity in outward appearance, and going so far as they dared, and as the independent spirit of their fellow-countrymen allowed, in legislation against luxury. While Lycurgus could put all his Spartans in uniform and prescribe their daily menu and how they were to eat it, Solon went no further than to limit an Athenian girl's trousseau to three dresses, and to forbid hired mourners at funerals or the interment of more than three suits of clothes with the dead. But the aim in both cases was the same—to redress the inequalities of wealth in the state, not merely by making just laws, but by causing the rich to *look* as much like the poor as possible. Men were to feel themselves plain citizens, not nobles or dependents. It was the outward and visible sign of the democracy that was to come. Solon was wise enough to have discovered, two and a half centuries before Aristotle, that it is more important to form good habits than to frame good laws." ['31, p. 131]

In this connection we may consider the decreasing returns of satisfaction and of welfare from the consumption of equal amounts of some commodity or service according to the amount already consumed. A simple case is of the consumption of nour-

ishment. If a hundred persons alike in all else differ in that within the 24 hours past they have consumed from 0 to 30 ounces of bread, the satisfactions and the gains in welfare from the consumption of 1 oz. of bread will vary according to who eats it, from a rather large positive amount for the person at 0 to very small amounts for the person at 30. If there were not enough bread available to give each of the hundred all that he wanted, the sum of satisfaction and of welfare for the hundred would be maximized by favoring the 0 end. This fact has been used by Pigou and many others as an argument for governmental action to favor the wants of those who have had least. If the persons are alike in all else, the argument is sound; but if they differ, it may not be. The wants of a 5-oz. malefactor, though more 'urgent' than those of a 6-oz. benefactor, may deserve less weight. If the hundred were half men and half tigers we would weight the human and tiger satisfactions unequally. The strength of the argument also varies with the nature of the commodity or service. Bread, coffee, tobacco, candy, beer, gin, morphine would not be treated alike. If it is applied to purchasing power in general, it becomes extremely complicated and uncertain. An economist or psychologist who had ten million dollars to give away would have a very bad conscience if he handed it out ten dollars apiece at the doors of the million most miserable hovels in India, China, or America.

In respect of poverty in general the benevolence of a generation ago aimed to provide the fundamentals of bodily comfort—food, clothing, and shelter—and a moderate allowance of concessions to certain habits, by government or otherwise. Modern theory and practice varies from this rough and ready insurance that the most "urgent" needs will be satisfied, in two opposite directions. One is to emphasize prevention rather than relief; preventing certain sorts of persons from being born and certain sorts of habits from being acquired, providing work rather than charity, and work with such resources and tools that the standard of living can be put far above that of the native in Africa or the agricultural laborers of India. All this is done from above, chiefly by science, education, and industrial progress. The other is to give those near the zero end much political and

pecuniary power, trusting that they will use it to help themselves and the general welfare. The former is preferred by those who have the best minds and most knowledge, but they also recognize the importance of having the poor help themselves and take responsibility so far as may be.

Reducing "social" inequalities is more important in Europe than in America, more important to women than to men, to the dull than to the intelligent, and to those who depend upon companions than to those who depend upon impersonal interests. An intellectual American poet or scientist may thus scorn or ridicule attempts to climb the "social" ladder, and regard as trivial any effort of government to equalize nobility and commoner, Daughters of the Revolution and daughters of Erin, Sicily, Lithuania, *et al.* He should not; he is the exception, the eccentric; his sense of personal worth may be independent of his "social" position, but the contrary is true of nineteen people out of twenty, even in the United States. The matter is one of too great complexity to be given adequate treatment here. Only the most important policies of government concerning it can be mentioned. One is to annul any privileges attaching to membership in certain social "classes" or "strata" or "closed societies" when the attachment of the privilege has no utility. Classes dependent upon ancestry, religious denomination, and place of residence are suspect. Another is to facilitate social mobility, especially mobility upward. Another is the provision of equal opportunity to those of equal merit. The last has beneficial results in many other parts of life than companionship and social privileges.

The equalization of opportunity for those equally deserving is admittedly the kernel of government work in counteracting unfair and undesirable preferences and restraints. Public schools treating equal intellects alike, public libraries and museums treating equal powers of appreciation alike, and public health work equalizing the protection against certain diseases for those who take equal precautions, are cases of equalizing toward a better life. We may hope for public workshops and studios where persons of creative ability in the industrial arts and fine arts may have opportunities corresponding to their abilities.

The opportunities to get the truth, to cultivate the impersonal wants, to be good and do good should be given preference. Government may also profitably encourage the advancement of science, for it brings new processes and new industries, in which industrial opportunities tend to be equal for those of equal ability. Equality of opportunity for those equally deserving does not mean that a government will guarantee the same opportunities to the children of its worst as to the children of its best parents. It has to act on probabilities as well as certainties, and does not have the burden of proving inequality of deservingness in such cases. On the other hand equality of opportunity for those equally deserving does not stop with elementary education, or at some specified age. Such opportunities as those of collegiate and professional education, foreign travel, and leisure for creative work should be equal for those who will make equally good use of them for welfare. The essential thing is not the age of the person, but that he should have earned the opportunities which the government provides.

Within a city, state, or nation the distribution of knowledge and skill is perhaps more important for welfare than the distribution of wealth, and the equalization of opportunity to get knowledge for those who can use it equally well is a sound feature of public education.*

There is room for great improvement in this respect.

The general spirit of the United States for the past hundred years has been to make great efforts to increase the amount of education, but to pay relatively little attention to its distribution. The plea of reformers has been for more education regardless of who received it. There has been an indiscriminate urge toward more schools, longer school years, and later compulsory ages. Education of any sort for any person has been recommended as a national investment without much consideration of the differences in safety and income which may attach to the investment in certain boys and girls rather than in others. The mere volume of education has been taken as a measure of

* Much of the rest of this section is quoted from an article by the author in the *School Review*, 1932, vol. 40, pp. 335–345.

idealism, somewhat as the mere volume of gifts to beggars of all sorts used to be taken as a measure of philanthropy and charity.

In so far as any attention has been paid to the question of who were receiving much and who were receiving little education, the general tendency has been to try to equalize the distribution, by aiding backward communities, increasing the number of days schools were in session, delaying the permissible age for leaving school, enforcing attendance laws, and other lines of effort designed to raise the amount for those who were receiving less than others.

The doctrine that equalization of education is beneficent, partly by remedying certain definite accidents and injustices and partly by a mysterious power to advance democracy and social justice, has been very popular. Its influence has been potent not only in the distribution of education so as to give most to those who have least, but also in the efforts of teachers to bring backward pupils up to grade, and in the establishment of special classes for the deficient and dull.

It may be doubted whether either the policy of striving for indiscriminate increase in the volume of education, or the policy of favoring especially those who would otherwise have very little schooling, was ever the best for the general welfare. A very strong argument could have been made at any time in the last half-century for exercising careful discrimination in the distribution of education, giving the most to those who would use it best for the common good. And a fairly strong argument could have been made that those who would use more education best for the common good would be those who already had a great deal of it—for example, promising young students of science who, with more education, might make discoveries of great benefit to the world, or promising young physicians, clergymen, engineers and the like, who, with more education, might serve their communities much better.

However, so long as there were many children who had only a few years of schooling, each of less than a hundred days, the benevolent doctrine of changing distribution so as to favor the least educated was rarely questioned. The prevention of il-

literacy and the extension of education so that all would have at least a thousand days of schooling seemed a wise as well as a humane policy, even if not in the end the wisest.

When the school year was lengthened, and the age of compulsory attendance raised to fourteen or sixteen, and provision made for special classes for the very dull, some thinkers began to consider the interests of the intellectually able pupils and the public's interest in making the most out of its human resources. These thinkers asked, "Who are receiving the most education? Are they the ones who will use it best for the common good?" but they asked these questions usually in such forms as: "Who are going to college? Who should go? Who are proceeding on to high school? Who should?"

When the questions are asked in this form the answer to the first is that the high schools do get a selection that is superior in intellect, and the colleges and professional schools a selection that is still more so. The facts concerning the relation of intelligence to grade reached in the American soldiers of the Great War, the facts revealed by surveys of high-school populations, and the facts shown by the tests of intellect or "scholastic aptitude" which have been more and more widely adopted by colleges since 1920, were, in spite of numerous individual misfits and dubious educational investments, accepted as comforting. Those who were found at the higher levels of schooling were much abler than those who had been eliminated by the way.

But such facts do not prove that the abler were given much more schooling; they may prove only that with the same amount the abler progressed much further. This is in fact what they do mean. Table 33 shows that the more intelligent and scholarly boys left school at as early an age as the dull, that they had a little more schooling because they began school at a younger age, but that they had many more double promotions and fewer failures to be promoted. Abstract intellect correlates −.02 with age at leaving school, .08 with semesters of schooling, and .59 with grade reached. School achievement up to the time of the test correlates .04 with age at leaving, .18 with semesters of schooling, and .71 with grade reached.

Table 34 shows similar facts for 785 boys who were a fair

sampling of all boys in grade 8B in public schools in New York City in 1922. These exclude only the very dull who left school before reaching grade 8B. They too were measured in respect of general abstract intelligence and school achievement when in grade 8B in November, 1922.

The facts are, in general, the same as in the former group, though not as pronounced. The abler pupils reach much higher grades, but stay to only a slightly later age, and are taught only a little longer. Abstract intellect correlates .09 with age at leaving, .19 with semesters of schooling and .43 with grade reached. School achievement up to the time of the test, or about age 14, correlates .06 with age at leaving, .25 with semesters of schooling, and .52 with grade reached.

I have examined the later school careers for the forty boys who had the 40 highest scores of the entire 785 in abstract intellect and early school achievement, and also the school careers of the forty boys who had the lowest 40 records of the 785. The ablest twentieth averaged only four months older than the worst twentieth when they left school. The ablest

TABLE 33

CORRELATIONS BETWEEN THE INTELLIGENCE AND SCHOOL ACHIEVEMENT MANIFESTED AT AGE 14.0 AND THE AMOUNT OF SCHOOLING AND THE GRADE REACHED, IN THE CASE OF THE BOYS AGED 13.0 TO 14.9 IN A CERTAIN SCHOOL. N = 266

	Age at Leaving School	Years of Schooling	Grade Reached
Abstract intelligence (score in certain tests)	−.02	.08	.59
Scholastic aptitude (grade reached at age 14.0)	.04	.18	.71

twentieth had three semesters (i.e. a year and a half) more schooling, of which roughly one year is due to their entering school earlier and a half-year to their staying to an age four months older. The excess due to earlier entrance can hardly be credited to public or parental benevolence to the child, since the economic value of a child's labor from 5½ to 6½ is practically

nil. What this extra year amounts to is that the public takes care of the child for the parents for five hours a day for five days a week.

TABLE 34

CORRELATIONS BETWEEN THE INTELLIGENCE AND SCHOOL ACHIEVEMENT MANIFESTED IN GRADE 8B AND THE AMOUNT OF SCHOOLING AND THE GRADE REACHED, IN THE CASE OF REPRESENTATIVE BOYS IN GRADE 8B IN PUBLIC SCHOOLS IN NEW YORK CITY. N = 785

	Age at Leaving School	Years of Schooling	Grade Reached
Abstract intelligence (score in certain tests).....	.09	.19	.43
Scholastic aptitude (grade reached at age 14.0).....	.06	.25	.52

The high correlations of intelligence and scholastic aptitude with the grade reached at the time of leaving school are due to educational earnings by the boy, not to gifts by the community. The ablest twentieth just mentioned reaches a status four full-year grades in advance of the least able twentieth at an age only four months greater. Their average is high-school graduation; that of the low twentieth is graduation from the eighth grade. Twenty-nine of forty of them graduate from high school; only one of the low forty does. Yet for every boy in the top forty who stayed in school beyond the age of 18 there were ten boys below average ability who did so.

It certainly is not reasonable that the intellectually ablest five percent of boys should be kept in school to an age only four months beyond that to which the least able are kept. Suppose that we had 80 years of schooling to distribute among these 80 boys. Surely it would be wasteful and essentially unjust to give each boy one year more. More schooling of the sort they have had will make the low twentieth very little happier or more useful. But it can be guaranteed that two years more for some of the top twentieth would enrich their individual lives and produce substantial benefits to the community. Indiscriminate advances in the compulsory school age beyond 16 seem, in view of the actual facts, a weak and wasteful procedure.

And what shall we say of laws or customs which systematically and emphatically distribute the most schooling to those least able to get profit by it for themselves or for the community. Are they not intolerably unwise and unjust? Yet they have been very common. Thus a child of a certain age, say 14, is allowed to go to work if he has reached a certain advanced stage, say graduation from Grade 8; but if he has only reached Grade 4 or 5, he must be given more schooling. Of our forty specially able boys, five left school before they were 15; not a one of the dull forty did. We need laws to prevent greedy or perverse parents from depriving gifted children of schooling, not laws to force them to keep in school children who have neither the ability nor the interest to profit thereby.

The distribution of education in certain European countries is more reasonable than in the United States in that there is active discrimination against long years of schooling for the dull, and a deliberate effort to enable the gifted children of poor parents to continue in school. Giving far less schooling, they are more cautious about who receives large shares of it. But the kinds of ability which they favor are restricted, and maintenance allowances are needed if all their able children are to be given the free schooling till 16 which almost everybody can have now in the United States.

In general, a nation's educational resources should be used first to aid young men and women whom nature and nurture have chosen to profit from schooling. Doubtless great ability will often manage to get education outside of schools or to get along without it. But those who can do so much for the world with so little are the very ones who should be given more. In the wars we are incessantly waging against disease, misery, depravity, injustice, and ugliness, we should not provide our best marksmen with the poorest weapons, nor ask our bravest to fight with their naked hands.

Equality of opportunity for those equally deserving may increase the inequality of human achievements and incomes. If quality is improved, that is a minor matter. Needless to say, any governmental action should guard against equalizing down in wealth, knowledge, skill or any other good. Equality gained

at the expense of quality would be a very bad bargain. Care in this is needed because the demands of many people often are not to be better off than they were or would be, but to be better off than somebody else.

Government must plan for great inequalities in its citizens, with positive correlations between desirable qualities. In Duguit's words, "We ought to grant to each person participation in political power varying according to his capacity and the service which he is capable of rendering and does in fact render to society." ['23, p. 221] Society need not regret this. Greater equality is likely to mean a lower average quality. The average being the same, a greater variability has the merits of probably better genetic possibilities by selection from the top, of better present possibilities by encouragement of the superior and discouragement and restraint of the inferior, and of a more enterprising and entertaining national life. Variability in abilities and interests is entirely consistent with mutual respect, cooperation, and zeal for the welfare of a community small or large.

FRATERNITY

Actual fraternity was a potent feature of primitive political life. It is still a potent social bond, though weakened by the smallness of the modern family and the relative decline of the family itself. Figurative fraternity, treating one's fellow townsmen or nationals more or less as brothers, has never been very strong and probably cannot be. Affection, frankness, and the absence of pretence, caution, and efforts to exert an influence, cannot easily be acquired and maintained with hundreds, certainly not with millions. Something approximating the fraternal attitude often appears when men are possessed by a common interest, as in a crowd watching its team, or as in two citizens of the same nation meeting in a foreign land. It is amenable to cultivation, though with limitations. There is some reason to believe that people have an inner need for fraternity so that if deprived of it for some time they will fraternize with unattractive objects picked up on boats or in barrooms.

Fraternity is allied to loyalty, *esprit de corps*, and confidence; it is an asset in almost any organization. So it seems unfortunate

that so much more has been said and done about liberty and equality in government than about fraternity. But the writer has found nothing to quote concerning what governments have done about fraternity as distinct from loyalty and *esprit de corps,* and has no ideas of his own worth reporting.

Chapter 36

THE LAW AND HUMAN NATURE

In the United States alone there are tens of thousands of justices and court officers (not including policemen or detectives), hundreds of thousands of lawyers, and millions of laws, court decisions, and legal records about which lawyers and judges may need to be informed. The knowledge ranges from details of business, such as a paragraph in A's will, to broad principles concerning contracts, trusts, negligence, intent, responsibility and the like, and even to sweeping theories of philosophy concerning the rights and duties of man, the powers of the state, and the welfare of society.

THE FUNCTIONS OF LAW, COURTS, AND LAWYERS

Using the words "the law" for this vast complex of institutions, personnel, and science, it is clear that the most obvious services performed by the law are (1) protection against badness in men and (2) the settlement of disputes. The law does not of course monopolize either of these services. It shares the former with religion and education, the latter with business and non-legal government, and both with the general activities of men in family and community life. But the law is expected especially to protect the good against the bad and to provide reasonable settlements of disputes which private enterprise finds hard to settle. As a matter of protecting against badness in men the law makes great use of punishment, and thus provides gratification to feelings of hate and vengeance toward the persons in question, and a substantial amount of entertainment to some. In a humane and refined civilization, these gratifications are considered of relatively little importance, or even undesirable.

Besides protection against evil and the settlement of disputes,

the law provides information about what the community will not tolerate. Not many persons make much direct use of the law for this purpose. They trust rather to the *mores* learned in the home, church, school, shop and neighborhood, and live in more or less blissful ignorance of what the legal rights and obligations of persons in such and such situations really are. They do not separate their obligations as a member of the community subject to its laws from their obligations as gentleman, lady, Christian, neighbor, et cetera. But occasionally they consult a lawyer to learn whether something which has been done to them or which they plan to do is "legal." Even if they do not, the law works back to strengthen or weaken customs, to influence what lessons about conduct are learned in church and school, what habits are formed in the home and neighborhood, and what is approved and condemned in business. It is thus indirectly informative to all.

Even more important is the power which the law gives us to predict the acts of men and the consequences which their acts will have, and to adjust our thoughts and acts accordingly. First of all, it predicts what the courts will do. Two great justices, Cardozo and Holmes, have emphasized this. Cardozo says:

"I wrote these words before I had seen an interesting article by Dr. John C. H. Wu on the 'Juristic Philosophy of Mr. Justice Holmes.' * My thought, it will be seen, is in close approach to theirs. 'The prophecies of what the courts will do in fact, and nothing more pretentious,' says Holmes, 'are what I mean by the law.' † Dr. Wu develops with acuteness the implications of the statement. 'Law is, thus, a matter of prediction. It does not even consist of the rules already recognized and acted on, as Salmond would define it; ‡ it consists of the rules which the courts will probably recognize or act on. . . . Psychologically, law is a science of prediction *par excellence*. It concerns primarily our future interest; people do not study cases for pleasure, but generally with a view to anticipating what the courts

"* 21 *Mich. L.R.* 523, 530, March 1923."
"† 21 *Mich. L.R.* 530, citing Holmes, *Collected Papers*, p. 173."
"‡ Salmond, *Jurisprudence*, p. 9, 4th ed."

will do when future cases arise. One constantly refers, it is true, to past cases as so many depositaries of the law, but in the last analysis that is done almost always with the intention of showing that there is sufficient ground for believing that the courts will act in such and such a way in the future.' Analysis of right and duty exposes the same core within them. 'For legal purposes,' says Holmes, *Collected Papers* (p. 313), 'a right is only the hypostasis of prophecy—the imagination of a substance supporting the fact that the public force will be brought to bear upon those who do things said to contravene it—just as we talk of the force of gravitation accounting for the conduct of bodies in space.' 'A legal duty so called is nothing but a prediction that if a man does or omits certain things, he will be made to suffer in this or that way by judgment of the court.'" [Cardozo, '31, p. 44 f.]

The law helps us to predict many other things than what the courts will do. A man having made a promise after a certain fashion and the law being as it is, we can predict with high probability that he will keep that promise. Were there no law our prediction would be a matter of knowledge of human nature in general, that man in particular, and the customs of the time and place, and might have a much lower probability. As always, prediction favors control: ". . . the general effect of law is to enlarge man's empire over the outward world of men and things. By family law, the limit of his power to control over the wills of his family is ascertained. By the law of ownership, the limits of his power of control over all persons whatever, in respect of things, are ascertained. By the law of contract, the limit of his power of control over special persons is ascertained. Through the operation of all these laws generally, much of the uncertainty of the future is banished; the capriciousness of the human will and the undulations of human passion are removed out of the calculation, and man can base his projects upon elements possessing an amount of certainty and definiteness which, in the absence of laws of the nature here described, would be wholly impossible." [Sheldon, '85, p. 95]

The law does a vast amount of the world's business. Transfers of real estate, probating and execution of wills, conduct of

receiverships, and many other business matters are by law or by custom in the hands of courts, court officers, or lawyers. Lawyers are busy with agreements as well as with disputes. Some business requires action by some court, and much business is done best and most cheaply in the long run by men with legal training. If all human beings were as angelic as, say, Cardinal Gibbons and Jane Addams and as reasonable as, say, President Eliot and Andrew Carnegie, the law would still have work. If there were no criminals to try and no civil cases of torts or contracts, the law would still have work.

To these valuable services the law adds some which are questionable. It tends on the whole to preserve past customs. This was long its glory. A tribe, a city-state, a village community, or any political or social unit, until a century or two ago, saw few beneficent inventors and did not usually understand the few it did see. It saw many stupid, selfish, and degenerate persons who would violate the ancient customs of behavior toward gods and men, if they could. The prudent people in such a community by ordinary psychological forces expected little from changed customs, putting almost all their hopes upon maintaining or restoring traditional rights and duties, ethics and religion, manners and codes. This view is orthodox as late as Montesquieu, who wrote, "Ancient institutions generally tend to reform the people's ways, and modern ones to corrupt them." Even scientific discoveries and technical inventions of obvious utility were suspected. For a while each of them had to win respect on its own merits and against opposition.

After repeated experience of beneficent physical and biological discoveries and inventions the educated world came to have faith in them and to extend this faith to economic, social, and political changes. It abandons the old faith in time-honored customs of public and private conduct along with its faith in crossbows, spinning-wheels, amulets, blood-letting, and witches. "Precedent, however venerable, must be reinspected before it is accepted. Indeed, the more venerable it is the more suspicious should we become that it is an anachronism, originating in times and under conditions far removed from our own. When reverence for the past encroaches upon our meditations and decisions

we are admitting an ancient but highly dangerous mischief-maker, so far as honest analysis and planning are concerned." [Robinson, J. H., '37, p. 17]

The law has not gone so fast or so far. It maintains a respectful, and even reverential, attitude toward past decisions. It does not often bring forward radical suggestions for changes in itself. Bentham, who did do just that, has not been honored by the law as a patron saint. It does not often search in the other sciences for materials to improve itself. It does authorize changes when these are made discreetly by eminent jurists in whom it has confidence. But in general it is conservative and uses its powers of interpreting laws and of declaring them unconstitutional in favor of rather than against past customs.

This is objectionable and irritating to many critics. A contemporary philosopher, Morris Raphael Cohen, and a contemporary psychologist, Edward S. Robinson, who have given special attention to the law, agree in lamenting this characteristic in it.* They are very able and honest thinkers, and are probably right. But some facts in defense of the law's tendency to preserve past customs will be presented later in this chapter.

Another questionable service of the law has been its unconscious propaganda in favor of the notion that somewhere behind all the judges and lawyers and law-books there is a majestic being, THE LAW, a spirit of reason, a natural force, or a God. I think that up to now this has done more good than harm, but to some realistic critics it is almost nauseating. For good or for ill this notion has been thoroughly instilled into conventional thinking about the law. The common man has great respect for the law, not more, in my opinion, than it deserves on a realistic evaluation of its actual achievements for welfare, but much more than the common man would give to it if he considered simply the judges, lawyers, and laws that he knew. He respects it largely for something which he thinks exists apart from them. To him, in Arnold's words, "'Law' represents the belief that there must be something behind and above government without which it cannot have permanence or respect." ['35, p. 44]

* See Cohen, M. R., '33, *Law and the Social Order*, and Robinson, E. S., '35, *Law and the Lawyers*.

To him, even a questionable law, once it is passed, becomes sanctified by assimilation into the body of "the Law." "A law-loving people may criticize, if they have the opportunity, a newly proposed law to any possible extent. But when once it is enacted, they will not only cheerfully obey it, but, by a peculiar action of the imagination will unconsciously attribute to it a quasi-mysterious origin, and banish all memory of the competing views of expediency amidst which it arose." [Sheldon, '85, p. 404]

ATTITUDES TOWARD THE LAW

Sheldon wrote this statement over fifty years ago and it is not quite so true now. People still reverence the law, but with an uncomfortable suspicion that it needs reform along with almost everything else. They still think that it is more nearly infallible, impartial, and moral than government in general. They are more shocked by corruption among the judiciary than among legislators. They think the law works more unselfishly and uniformly for welfare than business. It has not, I think, declined in public estimation so much as the church has. But both law and church have lost in dignity and dependability, especially in the opinion of workingmen.

They have lost still more in the opinion of reformers. The reformers of 1900 asked mainly for better laws, and in particular, for laws more in the interests of children, women, workingmen, and the masses; but those of 1940 are asking for changes in courts, lawyers, and the spirit of the law which will make all more sensitive and responsive to these interests, more able and willing to change the world in their favor, and more devoted to "social justice" rather than to justice, pure and simple.

Clever reformers like Professor Laski attack the smug pretense that a man is made a paragon of reason and impartiality by becoming a judge, and expose mercilessly the prejudices of class, education, and occupation which have influenced judicial decisions:

"When, in 1910, the House of Lords decided, on grounds of public policy, that the trade unions had no right to impose a political levy upon their members, the late Professor Geldart, one of the first lawyers of our time, wrote that it was impossible for

the English judges to understand trade unionism. Mr. Winston Churchill will not be suspected of revolutionary opinions; but he has said in the House of Commons that he fully understands why trade unions are suspicious of the courts. . . .

. . . "A judge of the nineteenth century could not easily find place for trade union methods in his categories, partly because he had no experience of them, and partly because the atmosphere in which he lived was altogether unfavourable to the claims they put forward. He found it difficult, even in the face of statute, to sympathize with the purpose of Workmen's Compensation; he whittled it down to the narrowest margin, because it seemed to subvert the principle that there can be no liability without fault which time had made of the essence of the Common Law. The Supreme Court of the United States refused for many years to admit the constitutionality of a legal minimum wage on the ground that it is a violation of liberty of contract; though anyone can see, as Mr. Justice Holmes has so insistently taught, that true liberty of contract can begin only where equality of bargaining power begins. . . .

. . . "So, also, the Osborne judgment can be explained only by the dislike of the House of Lords for the growing power of the trade unions. . . .

. . . "The second illustration I ask you to examine is that of Workmen's Compensation; and I want you to look upon it from two angles. There is, first, the question of its legal interpretation; and there is, second, the question of the way in which it is best administered so as to secure its full objects. On the first head let me say this in preamble: the intention of the Act of 1897, which was badly drafted, was simply, as Lord Halsbury said in the House of Lords, 'that there should be compensation given to every workman in certain trades when an injury happened to him in the course of his employment.' It is no secret that the judges of the Court of Appeal did not like the Act, and in the efforts to restrict its scope they laid down doctrines (I add ultimately corrected by the House of Lords) which showed a complete inability to understand the purpose the Act was intended to serve. 'They first used the fact that the Act forbade the payment of compensation to men guilty of 'serious and wilful

misconduct' to hold that contributory negligence debarred a worker from benefit; though Mr. Chamberlain, the author of the Act, specifically explained, with the assent of Parliament, that this was not the case. Their next general determination (again upset by the Lords) was even more remarkable. The Act stated that benefit was contingent upon being incapacitated for more than two weeks. The Court of Appeal held that this meant that a workman who was killed or injured during the first two weeks of his employment was not entitled to compensation. Lord Davey's description of this decision as 'startling and untenable' does not seem one whit too strong. The Court of Appeal again added a clause of its own to the Act which deprived a man of benefit if he did not start proceedings within six months. It held, further, that a rupture due to moving a heavy weight (one of the commonest of industrial accidents) was not an accident at all unless accompanied by a fall or a slip on the man's part; that an accident in the street when a man was about his master's business did not 'arise out of his employment,' since it could happen to him under other circumstances; that, notwithstanding Section 3 (1) of the Act which prohibits contracting out of its provisions, the workman and the employer could come to a private arrangement. I owe it to the House of Lords to say that, at long last, it reversed every one of these decisions." [Laski, H. J., '32, pp. 277–287, *passim*]

Other reformers who are more sympathetic with the law or at least more courteous toward it, like Professor Cohen, urge that it is in the last analysis an institution for human welfare, that judges should not be phonographs reproducing past law but servants of welfare as well as of reason, using their intelligence and erudition to develop the law to fit new needs and ideals with a minimum of damage to its consistency and precision. [See *Book II* of *Law and the Social Order*, '33, especially the chapter on "The Process of Judicial Legislation."] Many criticisms from within the law as well as from outside contrast the law unfavorably with science and technology, alleging that the law is now not nearly so inventive and progressive as it should be. The practice of law, they say, lags far behind the practice of engineering or medicine, and the science of law moves at a snail's pace in

comparison with physics, chemistry, and biology. Indeed the psychologist Robinson suggests that law hardly deserves the name of science. ['35, especially Chapters 1 and 8 to 11] Most of these criticisms may best be left to experts in the law, government, economics and history, but the charge that the contents of law libraries and the mental equipment acquired by students in law schools is not science may be discussed here.

LAW AND SCIENCE

A science of law, or, more accurately, of laws and courts, after the pattern of chemistry, zoology, physiology, geology, and meteorology, would study them and their relations, especially their causation and consequences, and would test its success by its power of prediction. It would make much use of quantitative methods. Not much like this would be found in the minds of most judges and still less in the minds of most lawyers. Not much would be found in the books in their offices. There are few crucial observations, and almost no quantitative relations such as might be expressed in equations, anywhere in law. There are, however, many facts and principles in the books of historians of law which are much like those of anthropology, psychology, and comparative anatomy. But Sir Henry Maine and his successors are probably read more by anthropologists, sociologists, and historians than by judges and lawyers. It should also be noted that much of the argument by legal historians concerns such very broad questions, and is so dependent upon definitions, that it resembles metaphysics more than physics.

Writers of law books have been especially averse to any statements about the consequences of laws. If a lawyer writes that "The wonder is not that so many guilty men escape but that under our present system any guilty men are ever convicted. Where they have money enough to employ the most able counsel and to take advantage of every delay and technicality available, they practically never are convicted," [Scoville, S., Jr., '14, p. 97], his words are not quoted in law books. When a great teacher of law advocates the study of the effects which laws produce, he appears rather as an exception. We cannot even be sure that the

law will agree with Dean Pound and advance in the direction he recommends:

"In the past century we studied law from within. The jurists of today are studying it from without. The past century sought to develop completely and harmoniously the fundamental principles which jurists discovered by metaphysics or by history. The jurists of today seek to enable and to compel lawmaking and also the interpretation and application of legal rules, to take more account and more intelligent account, of the social facts upon which law must proceed and to which it is to be applied. Where the last century studied law in the abstract, they insist upon study of the actual social effects of legal institutions and legal doctrines. Where the last century prepared for legislation by study of other legislation analytically, they insist on sociological study in connection with legal study in preparation for legislation. Where the last century held comparative law the best foundation for wise lawmaking, they hold it not enough to compare the laws themselves, but that even more their social operation must be studied and the effects which they produce, if any, when put in action. Where the last century studied only the making of law, they hold it necessary to study as well the means of making legal rules effective. Where the last century made of legal history merely a study of how doctrines have evolved and developed considered solely as jural materials, they call for a sociological legal history, a study of the social effects which the doctrines of the law have produced in the past and of how they have produced them. They call for a legal history which shall not deal with rules and doctrines apart from the economic and social history of their time, as if the causes of change in the law were always to be found in the legal phenomena of the past; a legal history that shall not try to show that the law of the past can give us an answer to every question by systematic deduction as if it were a system without hiatus and without antinomies. They call for a legal history which is to show us how the law of the past grew out of social, economic and psychological conditions, how it accommodated itself to them, and how far we may proceed upon that law as a basis, or in disregard of it, with well-

grounded expectations of producing the results desired." [Pound, '21, p. 212 f.]

If law has been so reluctant to study laws and courts scientifically in respect of their relations, causes, and consequences, why does it call itself a science, and what sort of a science is it? In my opinion teachers of law call it a science for the same psychological reasons that theologians call theology science, because it is a very dignified body of facts and principles and one which can be mastered only by very high intellects. In my opinion the "science" of law taught in law schools and used in courts is much like theology and even more like grammar.

When professors of law and jurisprudence speak of the law as a science, what do they mean more than that it is a dignified body of knowledge? Sometimes nothing more than that; but sometimes that it has a body of facts and principles beneath the customs of the common law, the rules of national or state codes, and the decisions of courts. These facts and principles are not much like those of physics, chemistry, biology, psychology or anthropology. They are not inevitable, immutable regularities in nature, but are largely if not wholly made by man, decreed by God, or somewhat vaguely and mystically inherent in nature. Since what God has decreed is known only by man's opinions about it, and since what the "law of nature" is depends upon the place and age and interpreter, it may be asserted roughly that man discovers physics but makes law.

The science of law is in fact more like the science of grammar. The English language being what it is, and the reputable ways of using it being what they are, the facts and principles of its grammar have been studied and codified, by men of vast learning and acute intellects. Similarly the life of civilized man being what it is and the reputable ways of living and doing business being what they are, the facts and principles of law can be stated. As in grammar there is a gradation from very scholarly and deep presentations to mere manuals which tell what rules one must obey in order to have a blameless reputation in speech and writing, so in law there is the range from imposing doctrines of jurisprudence to the everyday advice of one's counsellor at law.

In applying the principles of grammar the most frequent task is to find the principle or rule which covers the particular uses of particular words, telling whether each use is right or wrong, permissible or not, fit for a dignified speech or only for careless conversation. So in applying the principles of law, the most frequent task is to find the principle or rule which covers the particular case. The variety of cases brought before courts is greater than the variety of verbal usages brought before editors and grammarians, their importance to the persons concerned is greater, their average complexity is greater; but the essential mental processes are much alike.

In both grammar and law new customs require new principles, which in both are preferably treated by the experts as justifiable interpretations, extensions, or variations of old principles. In both, the changes are in the main so gradually made that a man can easily think that he uses language as his parents did and a judge can think that he decides cases as his predecessor did. But in both the accumulated changes are so great that a composition written by Chaucer would hardly receive a passing mark on its grammar in a college-entrance examination, and cases of exemplary filial duty in the past would now be pigeon-holed under murder. There are other likenesses which will come to the minds of readers familiar with law and grammar.

Certain progressive and reforming students of law, led in America by Holmes and Pound especially, are ambitious to make it more scientific in the sense of more like physics and psychology. This need not imply any abandonment of the present sort of study of laws, but only the development alongside of it of a study of how laws, decisions, and court practices are caused, and of what their consequences have been and will be, and of everything else in the law taken as a matter of brute fact.

The history of the law does now in general take it in this factual way, not seeking to read God's mind or discover nature's plans, or uphold the majesty of the law, and being ready, if occasion offers, to consider the psychology of judges and juries or the economic forces playing upon legislators and makers of codes. There is thus a natural history of the law, along the lines of which a natural science of it may develop.

On general grounds such a natural science of law, related to the traditional study of the law as the recently developed science of linguistics is related to grammar, seems desirable. But its advocates meet opposition and misunderstanding. First, having spent their adult lives in thinking in terms of verbal statements about what is lawful and in deducing whether a certain behavior does or does not come under a certain category, experts in the law feel ill at ease in thinking in quantitative symbols, making experiments, framing hypotheses, and thinking inductively from particular facts to general rules. The main common element in the two sorts of thinking is the use of evidence to determine what happened, and even here the tasks often differ, that of the scientist being chiefly to get it from things and that of the lawyer to purge the testimony of persons until it can qualify as evidence.

Second, there is the normal irritation at anything which makes one undergo new labors or alter comfortable habits; this acts against innovations in general.

Third, there is the reasonable fear that the authority and majesty of the law may be weakened by a science which studies it in the same way it might study human food preferences, marriage customs, and ways of disposing of dead bodies.

Only the third objection requires comment. In the minds of the great majority of men the law has authority from three sorts of reasons: first, because it works well in their experience; second, because able persons whose opinions they trust say that it has and should have authority; and third, because it is supposed to have superhuman origin and support. The great majority of men do think more highly of the ten commandments from thinking that God wrote them rather than Moses; they think more highly of the law of nature from thinking that it is something implanted by a miracle in each baby's soul at birth than from thinking that it is the *jus gentium* of the Romans under another name. If a judge should announce that God had appeared to him in a vision and told him that a certain defendant was guilty or that a certain law was really constitutional, and so ruled, the majority of men would be somewhat surprised, because it is not their habit to expect much superhuman aid or interference save

in the remote past, but if the decisions fitted their prejudices and if their newspapers welcomed such a new deal in jurisprudence, they would probably acclaim them.

It may, consequently, be good public policy to add one more legal fiction to the present store, continuing to use Divine Law, Natural Law, The Law, "the immutable principles of justice which Providence has implanted in man," "the sacred body of truth which the common law contains," and other such honorific titles, but understanding them to mean certain features of human customs and rules found in good men or devised by wise judges, which are advantageous for welfare. It might even be good public policy for all science to permit the laws of Newton, Ohm, Einstein, Mendel and others to be advertised as divine laws, letting 'divine' connote truth, importance, and nobility rather than extra-natural or abnormal causation.

Neither of these fictions will be desirable if the intellectual quality of the world's population is improved sufficiently. Probably neither of them is necessary as things are. Modern medicine is held in high esteem by the great majority in civilized nations though it is obviously a human product. It may lack law's majesty, but its decisions have even more authority. So have those of the physical sciences and engineering. Law which studies itself scientifically will gain far more authority than it will lose in the opinion of able men, and this gain will probably spread among people in general enough to counterbalance the loss in superstitious or semi-superstitious reverence for law.

LEGAL DOCTRINES ABOUT HUMAN NATURE

Legal doctrines about man, his senses, intellect, emotions, acts, intentions, motives, and the rest of his mental life, were established and statements of them recorded before the physiology of the brain was understood, before man's evolution from the mammalian stock was even surmised, before anthropologists or psychologists whose statements would now be accepted as authoritative or even informative had appeared. These doctrines have been modified somewhat by legislation and judicial decisions, and the statements of alleged psychological fact by the law are not interpreted now exactly as they were a century ago.

But the changes have not been great. Consequently, one would expect legal statements about human nature and behavior to be old-fashioned, incomplete, lacking in precision, and occasionally absolutely wrong or misleading. They are so, but for two reasons much less harm results than might be expected.

One reason is that many of the statements are rather vague statements about common facts of mental life which are comparable to statements by the Greek poets or the writers of the Hebrew book of Proverbs, true enough in a general way, though not entirely acceptable to present science. For many purposes of the law, it does not much matier whether the brain is a connection-system of neurones or a gray and white jelly, whether man's genes are allied to those of mammals or to those of lobsters, whether his abilities are highly specialized, as we now know them to be, or described by a few faculties as the scholastics thought.

The other reason is that lawyers and judges have been very able men constantly concerned with human thoughts, feelings, and acts, who often took an objective and factual attitude toward these. They developed rules or customs for separating certain sorts of behavior for which a person should be held legally accountable from certain other sorts for which he should not, which worked fairly well. For example, when Lord Mansfield incorporated the useful and reasonable customs of business men into the general body of law, he took the psychology of business men as realistically as his contemporary and fellow-Scot, Adam Smith, or even more so.

Dr. Steuart Britt (in a monograph as yet unpublished) has examined the concept of intent as used today in the law. Briefly he finds many things *said* which sound antiquated and false, but very few things *done* which a psychologist would oppose, and these only by judges of little repute in their craft. Robinson exposes the inadequacies of the law's doctrines about thought and action, but he does not present evidence that they have worked very badly, and does not propose substitutes for them, limiting his positive recommendations in the main to advocacy of a factual scientific attitude and method by lawyers and judges.

The customary legal uses of the concepts of *act, will,* and *intention* fifty years ago were well described in 1885 by Sheldon in the passage below. They are not much worse than those found for the present by Britt and Robinson. Their psychology would have shocked Bain, Spencer, Ward, James, or Wundt then as it shocks Britt and Robinson now, though for somewhat different reasons. But it probably served the law better than a digest of Bain, Ward, and Wundt would have done.

"In common speech the term *act* is sometimes applied to what is purely internal, when an act of the will, or of the conscience, or of the imaginative faculty, is spoken of. Sometimes, again, the term is limited to the muscular motions of a human being, when these muscular motions are *voluntary*—a qualifying term which, together with *will* itself, needs precise definition.

'At other times, again, the term *act* denotes the voluntary muscular motions of a human being attended with some few of their immediate consequences, as in speaking of a good act or a bad act, an act of charity, or an act of violence.

"Lastly, the word is occasionally used to cover the complex actions of a number of individual persons, and also a long train of complex consequences. Thus the beheading of Charles I. would be called the *act,* not only of the executioner or of the regicides, but of a number of other persons, and attention would not be fixed only upon the muscular effort by which the head was severed from the body, but upon the general consequences and political significance of what was done. So the Indian mutiny; the insurrection of the Southern States of America; the passing of the Bill for the disestablishment of the English Church in Ireland; are each frequently designated as single and indivisible *acts.*

"Thus, law, in availing itself of the term *act,* must have recourse to some one of these popular meanings, and when it has selected one, it must adhere to it without deviation. The only one which is at all adapted to its purposes is that of *voluntary muscular motion.* The application of the term *act* to resolutions of the will or the conscience is unsuitable for law, because law is directly concerned only with that part of men's conduct which is exposed to the judgment of the senses. Whatever inquiry it

directs to be made into states of mind and feeling is wholly subordinate and auxiliary to the inquiry into the probable consequences, and, therefore, into the true nature, of *voluntary muscular motions.*

"*Acts*, then, in the eye of law are such muscular motions as are preceded by the peculiar phenomenon entitled *will.* All other outward movements—whether occasioned by the merely animal energy of organized life or by other physical forces, and whether exhibited in a changed situation of persons towards each other, of things towards each other, or of persons towards things—are denominated for purposes of law, *events.*

"Law, then, classifies all the possible outward movements, the aggregate of which constitutes the whole sum of human life and of physical activity, under one or other of the two great categories of *acts* or *events.* The possibility of the separation between these two categories is, in many instances, matter of the most urgent concern for the lawgiver. The question of imputability and liability to punishment must constantly depend for its correct answer upon whether an alleged or proved muscular motion was or was not preceded by the phenomenon styled *will*—whether, in fact, it was an *act* or an *event.*

"The term *will* is thus seen to have its meaning presupposed in the use of the term *act.* It happens, indeed, that even a still looser use, in popular phraseology, has been made of *will* than of *act.* In fixing upon a definite use of the term for purposes of law, special care has to be taken that no psychological theory is propounded by that use. It is never to be forgotten that law is directly addressed to the coarser needs and conditions of human nature, and not to the finer; and that it seeks, in the process of its execution, for the sympathetic cooperation of the casual bystander and of the well-intentioned though common crowd of superficial observers. Furthermore, law, in determining the rules of its own application, registers not the speculations and conjectures of the man of science, but the everyday results of vulgar experience.

"For these reasons, law embodies the practical conclusion of all men,—and the firm persuasion of most men,—that, within limits at all events, men can be deterred from courses of conduct

by the influence of *motives,* that is, by an expectation of the consequences of their conduct. This implies that men have the choice of directing their conduct in one way or in another, as seems to them good.

"The first outward element in what is called conduct is muscular motion, whether of the hands, tongue, face, or limbs generally. It is assumed that, before this motion takes place, the consequences of it are pondered, however rapidly, instinctively, or almost unconsciously.

"Between these moments of pondering and the moments of muscular motion, there is held to intervene a moment of resolution or decision, of such an energetic and peculiar nature as, under average conditions of physical health, and in the absence of outward restraint, is invariably followed by the muscular motion resolved upon. It is this mental resolution or final determining effort which, for the purposes of law, constitutes *will.* It is the presence or absence of this which, in cases where the muscular motions are identical, distinguishes between a true *act* and an *event.*

"It imposes an unceasing strain upon the acuteness of the judge to ascertain, in certain cases of disease or violent interference from without, whether the conditions of the normal operations of the will were truly present, and therefore an alleged act can be properly imputed to the person whose muscles certainly moved in such a way as to occasion suffering to another. There are cases of disease in which a person cannot control the movements of his muscles. There are conceivable cases of physical pressure, where one person has, as it were, brought under his own control the muscular system of another in such a way that that other becomes, for the moment, the mere passive instrument of the person controlling him. In both these classes of cases *will* is absent, and there is no true act.

"It will be seen that it is acts *with their consequences,* and not acts themselves in their isolation, which are the true objects of judicial investigations. It is the events which immediately follow upon a voluntary muscular motion which give it its true character and description. The same voluntary muscular motion may precede a deed of kindness and a deed of cruelty; may

result in a theft or a martyrdom. It is upon the immediate consequences of acts that law fixes its eye; and the degree of imputability of an offence depends upon the correctness of foresight, at the moment of action, which can be attributed to the person acting. This foresight, or this attitude of mind, of a person about to act, towards the immediate consequences of his act, is denominated *intention.*

"It may be said that it is impossible to draw the line between the immediate and the remoter consequences, and that therefore it must be necessary to explore the condition of the mind of the person who acts, in reference to all the consequences of the act, however long and involved the train of them be. But the supposition of this difficulty affords a good instance of the practical mode in which law cuts knots which are inexplicable to psychology. It is found that, though, in numerous cases, the remote and immediate consequences cannot be severed, yet that in the vast majority of cases a very real and practical line is drawn, by common observers, between one class of consequences and the other.

"The immediateness of consequences, for purposes of this common observation, depends upon a variety of different elements, of which juxtaposition in point of time or of space, and probability of sequence, are the most considerable. Thus the act of handling a deadly weapon may have a number of consequences of a varied nature, though some of them will at once be classed, by ordinary observers, as immediate, and the remainder as remote.

"Among the immediate consequences are striking a person with it, causing his death thereby, and then committing suicide with the same weapon. Among the same class of consequences would also be reckoned the wresting the weapon from the hands of some one about to do injury with it, or the turning it to its proper purpose as an instrument of war, of industry, or of mechanical application. Among the remoter consequences, on the other hand, of handling the same weapon may be the robbery of the person killed, the appropriation of the value of his life-insurance policy, the disappointment of justice—or, in the other imagined case, the prevention of a crime.

"Now, it is neither the act alone, nor the act with its immediate consequences alone, which it is the policy of the law to prevent. Yet the only safe presumption that can be made is that, in the absence of special obstacles, men foresee, at the moment of action, the immediate consequences of their acts, and accordingly as they hold those consequences to be desirable or otherwise (whether as ends in themselves or as means to ulterior ends), they seek to avoid them by acting or by abstaining from action.

"Whether, in a particular case, a man actually has foreseen the immediate consequences of his act, becomes often the most perplexed topic for the application of the judicial criterion. A variety of circumstances may tend to rebut the general presumption that men foresee the immediate consequences of their acts. Some of these are general in their nature, and affect all men at certain periods in their lives or under certain common conditions. Others are temporary, local, or accidental in their nature; and the presence of these has to be established, not, as with the former, by the force of general presumptions, but by that of special evidence." [Sheldon, '85, p. 100 f.]

The author of this codification of common opinion about human behavior which is likely to nullify a psychologist's respect for the law was not a great light in the legal firmament, but the psychology of Sir James Fitzjames Stephen, who was, is even worse. Graham Wallas relates that "the ablest and most learned professor of law" whom he knew, informed him that he would find "the generally accepted views as to intention and motive" in Stephen, and that what he found was in part as follows: "In Chapter XVIII, Stephen divides all acts of sane human beings into 'involuntary' and 'voluntary.' The only involuntary acts which he recognizes as performed by a normal 'person of full age' are such purely automatic reactions as heart-beating, coughing, efforts to avoid falling, etc. All other acts of such a person are 'voluntary'; and a voluntary act 'is a motion or group of motions accompanied or preceded by volition and directed towards some object. Every such action comprises the following elements—knowledge, motive, choice, volition, intention; and thoughts, feelings, and motions, adapted to execute the in-

tention. These elements occur in the order in which I have enumerated them' (Vol. II, p. 100). And again (p. 84), 'Human beings love and hate each other because every man can mentally compare his neighbor's actions, thoughts, and feelings with his own.'" [Wallas, G., '21, p. 128]

The law, I think, has made up a simple and convenient behavioristic psychology to fit its wants, as follows: It is the business of the law to requite certain persons for certain behavior. The behavior must be such as can be proved to have occurred. The person must be the one who is responsible in the sense (a) that if anybody is to be requited it is he, and in the sense (b) that if he is requitable for any behavior he is for this. A person's behavior is divisible into two parts, that for which the law will requite him and that for which it will not. The customs of the law easily make it clear in most cases whether the behavior in question is in the one part or the other, but in some cases there is difficulty.

This simple and convenient psychology adjusting man's nature to the felt needs of courts and lawyers is then turned endwise and decorated with verbal distinctions and classifications taken from common usage, theology, and rather ancient psychology, making a certain pretense that the law follows fundamental natural divisions of human behavior. This is still done even by the most eminent. Consider, for example, the following argument of Cardozo: "To hold that motive or temptation is equivalent to coercion is to plunge the law in endless difficulties. The outcome of such a doctrine is the acceptance of a philosophical determinism by which choice becomes impossible. Till now the law has been guided by a robust common sense which assumes the freedom of the will as a working hypothesis in the solution of its problems." [Justice Cardozo in Steward Machine Co. *vs.* Davis, 301 V.S. 548, p. 589, 1937] The first sentence seems true and wise, and sufficient to settle the matter. Just how fully "the law has been guided by a robust common sense" may be doubted. I think that it usually has. The references to determinism and the freedom of the will seem decorative, and also rather dangerous. The Swiss and Scotch and New England

Calvinists did not have to give up law or modify it to any great extent.

Consider the fact that "In general until the last two centuries, with certain relatively brief periods as exceptions, design or intent was not considered in the treatment of criminals, or was considered only occasionally or incidentally; little interest in the question of responsibility appeared. It was generally argued that an evil spirit or the devil was the motivating factor and that the individual who was influenced by the devil should be punished." [Sutherland, '24, p. 335] The law thinks that certain persons should be punished. Whether it gives as its psychology that they have evil spirits or evil intentions is clearly secondary.

Until there is a substantial probability that a change in its psychology will make the law a better instrument for welfare, this simple and convenient doctrine may be left undisturbed. Each change suggested should be considered on its merits, and convenience to the law is, other things being equal, a merit.

Psychology may deserve the attention of the law in relation to the latter's decisions about what sorts of persons should not be legally requitable for any of their "acts," in its standards of a prudent or reasonable man and of what such a man would do and refrain from doing in various situations, in its use of the principle of the personal equation, and in its treatment of testimony.

LEGAL REQUITABILITY

All sharp divisions on grounds of age, intelligence, sanity or any other feature of a person are makeshifts. If a person becomes "responsible" at 21 years 0 days, he was already nearly so at 20 years 364 days. There is no gap between the most intelligent "idiot" and the least intelligent "non-idiot." Sanity grades imperceptibly from ordinary persons to eccentrics, to psychopaths of varying degrees, to persons whom ten out of twenty physicians would not call insane, to certifiable persons who might pass for sane among the ignorant and perhaps to one physician out of twenty, down to persons whom not one physician in a hundred thousand would call sane. The same

is true of almost all features in which persons differ. Law as a natural science would work with sliding scales and degrees of probability. But these make trouble; the law is not adapted to them; and in some cases the game may not be worth the candle.

All, or nearly all, features relevant to requitability are specialized, the ability or proclivity varying in accordance with the particular situations concerned. An idiot's mind is not equally idiotic throughout. Some very insane persons look after their own interests with great shrewdness. Ability in money matters and "knowledge of right and wrong" are notably specialized. The same person may thus be requitable for certain sorts of acts and not for others. Future law will perhaps make such distinctions, as convenient means of determining a person's specialized "intelligences," "insanities," and the like are developed.

Chronological age is a poor measure of anything save itself. Neither physical maturity, nor mental ability, nor moral development is closely correlated with it. In some cases a better criterion can be had without much trouble or expense. John Doe's "mental age" (the average chronological age of persons who make the same score on an adequate intelligence examination as he makes) is obviously a much better measure for determining the fitness of a person to be at large, to manage his own affairs, to be a trustee or guardian, to give testimony, to serve on a jury, etc. than chronological age is.

THE PRUDENT OR REASONABLE MAN

A psychologist would be appalled at the tasks of defining a "prudent man" or a "reasonable man," and of guaranteeing what a prudent or reasonable man would do and would not do in various situations. He might hazard certain judgments about the average or median man, but would, if honest, put these in the form of a great many possibilities of varying probability. If the questions were narrowed to "Would a reasonable man do A in situation Alpha?" "Would he do B in situation Beta?", etc., he would, of course, feel much more surety about his judgments; but I conjecture that a random sampling of a hundred such questions from actual legal experience would not bring more

than thirty-five confident answers from a psychologist of average modesty. Judges doubtless do very much better, because the "prudent or reasonable man" is often in their minds and they have knowledge of thousands of things which they and other judges have stated that he would do and would not do. The "prudent or reasonable man" is well known to law, being largely its creation; not, however, an essentially imaginary or capricious creation, but one due to much observation of human behavior and much consideration of the opinions of other observers.

What the psychologists would do if they had to make judgments about him would be to collect statements by a score or more of esteemed judges about what he would do in each of several hundred instructive situations, and thus obtain a factual description of him. Indeed it seems strange that the law has never done this. The law does not know whether its "reasonable" man has an intelligence above, at, or below the average, or how he compares with the average white resident of the United States today (or with any other defined real person) in any measurable quality whatever. The law does not even know how far "a prudent or reasonable man" and "a prudent or reasonable woman" (if the law takes cognizance of such) are alike! A judge has to trust to his intuition as to what a reasonable man would do, aided by his memories of what judges have said he would do, or else collect *ad hoc* a sufficient number of relevant statements. It would seem to be well worth while to have an adequate factual description of this eminently useful creature, if only for the use of young and inexperienced lawyers.

THE PERSONAL EQUATION

The ideal judge is absolutely impartial, but that is a psychological impossibility except in treating entirely objective facts. If we suppose that the true demerit of communism is K, then some judges' opinions will set it at K + .01K, some at K + .02K, some at K — .01K, etc. Unless special precautions are taken these opinions will almost inevitably operate in the delicate processes of attaching weight to each of scores of items in a case involving communism, communists, or their congeners. There are prejudices due to sex, to age, to religion, to party, to

friendships, and many other features of a person's career. A judge may be entirely unaware that he has them, which makes them more mischievous. He cannot divest himself of them at will.

What he can do is to try to know them and allow for them, as astronomers do for their differences in reaction-time. As a man grows older he may well subtract, for each year over fifty, one percent from the strength of his opinions contra the changes in the world. Any judge may well subtract something from the strength of his most impartial opinion against administrative tribunals. Another useful procedure is to make the *weights* given to facts as objective as possible by writing all down, and making the striking of a balance a matter of objective arithmetic rather than subjective opinion.

THE TREATMENT OF TESTIMONY

Common sense, the customs of courts, and psychology until recently assumed that perception by the senses was mainly passive, a determination of the person's percepts from without. A man was supposed to see what was before his eyes and acted on his retina, to hear what stimulated the auditory cells in his ears. From much recent work it is now known that the attitude or "set" of a person's mind is very important in perception, that there is a neglect or dampening of some things, an emphasis of others, and even gratuitous additions from imagination. The reports of a hundred witnesses of the same event written down immediately thereafter will vary widely and in unexpected ways. Memory aggravates all this. Suggestions from others may easily become incorporated in the report, or cause the witness to omit things which he really sensed. A perfectly sincere witness may then report that he sensed facts which are inconsistent or even impossible, but be correct in the rest of his testimony.

THE "LEGAL MIND"

If the ideas, ways of thinking, and emotional attitudes of lawyers are notably different from those of people in general, the differences should be studied not only as a means to understanding the law in action, but also because this and other

countries are largely ruled by lawyers. They form a large percentage of our legislative assemblies and public administrative boards, and as judges interpret and, in fact, modify statutes and constitutions. Government by warriors and priests such as for centuries characterized Europe and government by lawyers, business men, men of affairs, and labor leaders probably mean different ideals and different methods.

In popular usage "the legal mind" is a rather opprobrious term connoting devious ways, unnecessary subtlety, and avoidance of plain facts, in spite of acuity of intellect and impersonal interest in truth. If there were frequent uses of the "medical mind," the "ecclesiastical mind," the "engineering mind," and the "business mind" it would be interesting to compare them with the uses of the "legal mind."

Nobody has made a serious study of the qualities of mind which lead young people to become lawyers, or of those which are strengthened by the activities of a lawyer. So I can only suggest probabilities derived largely from the presumable influence of a lawyer's work. The young men who become lawyers are highly intelligent and, relatively to the generality, are more interested in words and other symbols than in things. The first is proved by their records in pre-legal studies. The second is indicated by such facts as that whereas one out of six eminent mechanical engineers had, by the age of sixteen, made a steam-engine that would run and almost all had shown notable interest in objects and mechanisms, the acme of such achievement for eminent lawyers at that age was the construction of a model of Caesar's bridge in accordance with the description in his Gallic Wars as an incident in the person's study of Latin! [Kent, E. B., '03, p. 62]

Lawyers spend much of their time in making up their minds whether a concrete thing, quality, event, act, or relation belongs, or can be made to appear to belong, in a certain class. Many of their intellectual triumphs are less in learning more fully the true nature of what they are studying than in contriving to classify it. This encourages what Robinson calls "substantive ways of thinking" to an extent which scientists and engineers at least would consider excessive. Having found reason to

classify a hydroplane as a vessel, a lawyer may be content to forget the many respects and circumstances in which it is not a vessel. A fifteen-year-old boy broke into a store and stole twelve dollars and then stole three automobiles in succession in order to go from Binghamton to Buffalo. The children's court where he confessed to the thefts adjudged him to be a delinquent child and committed him to the State Industrial and Agricultural School. Upon appeal to the Appellate Division the judgment was reversed upon the ground that he should have been proved to be a criminal guilty of a felony, the proof being made in the manner appropriate for such. A higher court reversed the judgment of the Appellate Division, reaffirming that he was a delinquent child, but conceding that he was delinquent through the commission of an act "criminal in its nature." But a dissenting judge argues that a certain act is the same regardless of the fact that the guilty person is only fifteen. "Can a child be deprived of his liberty . . . by changing the name of the offense from 'burglary' or 'larceny' to 'juvenile delinquency'?" * Robinson, who quotes these cases, asks "whether the judges in People vs. Lewis would not actually have had a clearer vision of the issue and even of their own feelings had they realized that there are no acts criminal in their nature and that there is no natural basis for eliminating the age of the actor as a crucial value in the composition of the act." ['35, p. 137 f.] I think lawyers probably do realize the inadequacies of their concepts to fit reality, but are trained by their ways of thinking to put behind them temptations to be realistic. In so far forth they may be undesirably subtle, rigid, and fond of ending thought by a classification. But if government by rules is better than government by persons, the remedy would seem to be in more detailed rules varying with the accessory qualities and circumstances of the things, acts, etc. concerned. In children's courts we do have government by persons working very well. In medicine we have as an approved doctrine the treatment of each case by itself in all its variety. It is, of course, classified so far as possible, but no competent physician would be content to treat alike all cases which he classified as tuberculosis. We may

* People *vs.* Lewis, 260 New York Reports, 17A.

hope that some of the flexibility of medicine can be put into law and government without damaging other valuable features.

Courts are largely engaged with disputes, controversies, customarily in the form of duels, and lawyers are often advocates engaged in trying to support one side and win victory. In trials by jury or by judges of mediocre ability what they do to this end favors habits of mind akin to those of the debater and salesman. Fortunately these habits can be kept fairly restricted, and do not amount to much outside the courtroom in men who were not already inclined toward them before they practised law.

A general can lose all the little battles if he wins the big ones. A business man can redeem a hundred ten-dollar mistakes by a sizable success. A literary man can burn all his mistakes before any one else sees them. But lawyers as a rule must be careful and cautious in order to succeed. One slip may lose a case, cloud a title, or spoil a contract. The legal mind is thus a cautious mind.*

The law puts a premium upon established customs, rules and precedents. The lawyer is taught not only to make sure that such and such is correct, but also to search for a formidable number of affirmations that it is correct.** This habit combines with his caution to make him distrustful of innovations, even those made by himself, and helps to explain the fact that whereas artists, literary men, philosophers and scientists often pride themselves that their ideas are new when they really are not, lawyers pride themselves rather upon their skill in making their innovations seem to be logical outcomes of the old, discovered

* So Dean Pound inserts "if any" as an unnecessary qualification in an enthusiastic plea for the study of law as a social force, though it weakens his argument and spoils the flow of a sentence: "Where the last century held comparative law the best foundation for wise lawmaking, they [the jurists of today] hold it not enough to compare the laws themselves, but even more their social operation must be studied and the effects which they produce, if any, when put into action." ['21 p. 113]

** A beautiful illustration of this may be seen in a joint publication of a lawyer and a psychologist on the "Psychological foundations for the fiduciary concept in corporation law" [Rohrlich, C., and Rohrlich, E., '38]. Nearly ninety psychological citations are used to support the authors' views, probably three times as many as a psychologist writing alone would have used.

by superior acuity in reasoning rather than by creative imagination.

A lawyer's tools are mostly words. He is paid by dull or busy people to tell them what certain words mean. The rules and decisions he operates with are in words, not equations or formulae. He takes words seriously. Mr. Justice Gray of the United States Supreme Court wrote as follows [in Nix *vs.* Hedden, 149 United States Reports 304 at 307, quoted by Robinson, '35]: "Botanically speaking, tomatoes are the fruit of a vine, just as are cucumbers, squashes, beans and peas. But in the common language of the people, whether sellers or consumers of provisions, all these are vegetables, which are grown in kitchen gardens, and which, whether eaten cooked or raw, are, like potatoes, carrots, parsnips, turnips, beets, cauliflower, cabbage, celery and lettuce, usually served at dinner in, with or after the soup, fish or meats which constitute the principal part of the repast, and not, like fruits generally, as dessert.

"The attempt to class tomatoes with fruit is not unlike a recent attempt to class beans as seeds, of which Mr. Justice Bradley, speaking for this court, said: 'We do not see why they should be classified as seeds, any more than walnuts should be so classified. Both are seeds in the language of botany or natural history, but not in commerce nor in common parlance. On the other hand, in speaking generally of provisions, beans may well be included under the term "vegetables." As an article of food on our tables, whether baked or boiled, or forming the basis of soup, they are used as a vegetable, as well when ripe as when green. This is the principal use to which they are put. Beyond the common knowledge which we have on this subject, very little evidence is necessary, or can be produced.'"

The case in question concerned duties paid on tomatoes under a tariff law which put a duty on vegetables but not on fruits. The comments of Mr. Justice Gray on tomatoes and Mr. Justice Bradley on beans may be taken as evidence that the legal mind quibbles, expatiates needlessly and has little sense of humor. I prefer to regard them as monuments of devotion to the legal duty of making the probable meaning of vegetables, fruit, and seeds in the tariff law unmistakable for the purposes of the

litigation in question. I do not think lawyers are mentally prolix, and habitually think in more words or more technical words than is necessary for the thinking they have to do. In ordinary language much is left to be read between the lines or understood in view of the particular situation in which the language is used. The law does not favor such looseness. But their training does make lawyers relatively more careful about words and less careful about realities in their own work than men in science or business, and this habit does seem to spread to matters outside their own work, making the legal mind specially careful about words in general. This is of course often useful, but sometimes not.

The law abounds in ceremonies, verbal and material, though not nearly so much so as in the past. Lawyers are not bent on maintaining procedures which are ceremonial. After his coronation oath the king of England still kisses the book, but probably no lawyer of today would object to a law making that unnecessary, or to a law making the "L. S." or "(seal)" on stockholders' proxies unnecessary. There is abundant craft knowledge to protect the profession from scabs, without reliance upon knowledge of ceremonial. There is no evidence to my knowledge that lawyers are attracted to the law by its ceremonial elements or made subservient to rituals by observing them. The legal mind seems not to be contaminated to any appreciable extent by legal ceremonies.

It is in legislators and judges that the legal mind, whatever that may be, most influences government and welfare. There is a general opinion amongst thoughtful persons that there are too many lawyers in city councils, state legislatures and the United States Congress, compared to the number of engineers, craftsmen, labor leaders, scientists, social workers, and other representatives of human interests. There is also an opinion that the lawyers who thus make our laws are not as able as they should be. On the other hand there is a plausible expectation that lawyers should be specially qualified to make laws. There are complaints of too much legislation, legislation incompetent to attain its objects, unenforceable legislation, and the general faults attributed to party politics. Some states have legislative

bureaus to assist legislators in drafting bills. But I know of no specific complaints against definite qualities alleged to characterize the legal mind. If what has been said about it in the preceding paragraphs is true, it would seem to be good as far as it went but to need supplementation in legislative bodies by realistic thinkers representing life and work in the power age.

In judges the legal mind is modified by selection for the bench and training by it. The selection varies from the system prevailing in France in the later Middle Ages and culminating in the *Arrêt Paulette* of 1604 by which judicial offices were sold to men who could transfer them like personal property to their sons, each judgeship being subject to an annual duty paid to the king, to something approaching a pure merit system, as when political parties nominate the same candidate with the approval of the state bar association. On the whole, the selection has been of notably able men, to whom judicial work is intrinsically more attractive than the work of a practicing lawyer. Indeed an able and upright man may pay a king or a political organization for a judgeship, *if that is the custom.* There is a tendency for judges, at least in the higher positions, to care more for general prestige, repute among lawyers, and a quiet life than for money.

The work of a judge being largely to state authoritative decisions or opinions, the forces of occurrence and after-effect described in Chapter 2 make him confident that his official opinions are right. He would be miserable without that confidence. It may spread to his opinions about all aspects of law, producing dicta on the philosophy of law and legal history which the philosophers and historians repudiate. Judicial self-confidence is restrained by the fear of other lawyers. This is a bald and somewhat unpleasant but essentially true name for a judge's dislike and discomfort when associates disagree with him, when higher courts reverse him, when teachers or textbooks neglect or deride him, when some lawyer puts him in the wrong. A hundred years ago the author of *The Science of Legal Judgment* noted, amongst thirteen logical reasons for attaching special weight to a case, "I feel that in differing from so great a judge, my own decisions will not hereafter possess all the authority

which might otherwise attach to them." [Ram, J., 1834, Edition of 1871, p. 309]

As a consequence of their selection and training as lawyers and judges, inventive and creative activity is rather alien to the mind of a judge, and only appears when justice as conventionally conceived at the time absolutely demands it, or in persons of very great intellect and a strong individual proclivity toward it, such as Coke and Mansfield, or when some interest precious in the sight of the judge can be protected only by inventive genius.*

On the whole, the legal mind seems far superior to the average or ordinary or normal mind, but improvable by the addition of certain characteristics of scientific or engineering mentality. Psychology warns however against interfering with able minds lest abilities of great value be damaged in the effort to add others to them. It is safer and probably in the end better to improve the law and trust that the legal mind will adapt itself thereto. If the present science of legal rules and cases is enriched by a natural science of their causation and consequences, the legal mind will, we may hope, retain its acuity but become more realistic, straightforward, and humane.

* Such an interest may be that of the nobility or the wealthy or the employers, but it may be that of poor children, labor unions, or the ultimate consumer. The inventive genius in Cardozo's famous decision in MacPherson *vs.* Buick Motor Company, by which the ultimate consumer is protected against failure of automobile makers to inspect adequately each part which they buy and put in their cars, acted in the interest of the ultimate consumer, and was probably aroused to action in part by Cardozo's humane nature. So also in the Wagner case. In the case (of Palsgraf *vs.* Long Island R.R.) where a person was injured by a scale which was knocked over by an explosion of fireworks which were dropped by a man who was being helped onto a train by two employees of the railroad, Cardozo's adroitness found a defense of the railroad against negligence.

Chapter 37

THE IMPROVEMENT OF LAW *

The theory and practice of law have obviously improved greatly in the last thousand years and in the last hundred. Why then do critics inside the profession and outside it assume that there is any greater possibility or need of improvement in law than in medicine or engineering? Until about seventy-five years ago law had a better total record for improvement than medicine. Why do outsiders in particular make suggestions about improving law though they would rarely attempt to improve medicine, engineering, or any of the physical or biological sciences? And is it not impertinent for them to do so? Is it not impertinent for me to write the chapter? Should the matter not be left entirely to the profession itself?

There are several reasons why thinking men in general, and especially students of economics, government, and the other sciences of man, offer suggestions. One is that law expresses and codifies customs, about which they as well as lawyers should be competent to judge. For somewhat similar reasons these sciences *do* suggest improvements in education, business, and social work. Another reason is that law interprets and enforces laws which, in democracies, the public makes and is responsible for. One common criticism of law is that it hampers, thwarts, and even nullifies the acts of legislatures. Law can hardly be left to decide alone how far this is so, whether it would be an improvement to reduce "judicial legislation," and, if so, in what respects and by what means. A third reason is

* The word 'law' in this chapter will usually mean what students study in law schools and what lawyers and courts do, and not the larger total, including all rules made by governments and all the activities connected with the enforcement of these rules, for which the words 'the law' were used in the previous chapter. When the usage is inconsistent with this distinction the context will make clear what is meant.

that the doctrine of lawyers and courts as instruments for welfare is so modern that law can hardly be expected to have set up unimprovable hypotheses about what welfare is, or how lawyers and courts can serve it best.

"Law begins by granting remedies; by allowing actions. In time we generalize from these actions and perceive rights behind them. But as the actions are means for vindicating rights, so the rights are means conferred by law for securing the interests which it recognizes. Accordingly the scheme of natural rights, to be secured at all hazards, becomes a scheme of interests—of human claims or wants or demands—which we may think the law ought to protect and secure so far as they may be protected and secured; it becomes something for the lawmaker to take account of as of moral and political significance rather than something for the judge to consider as of *legal* significance. . . . Prior to Jhering all theories of law were individualist. The purpose of law was held to be a harmonizing of individual wills in such a way as to leave to each the greatest possible scope for free action. . . . On the other hand, Jhering's is a social theory of law. Whereas the eighteenth century conceived of law as something which the individual invoked against society, the idea of our American bills of rights, Jhering taught that it was something created by society, through which the individual found a means of securing his interests, so far as society recognized them. . . . The conception of law as a securing of interests or a protecting of relations has all but universally superseded the individualist theory." [Pound, '21, p. 204 f.] It is not impertinent for other sciences of man to cooperate in a discussion of what the "human claims or wants or demands" are and how law may "protect and secure" them better than it now does.

A fourth reason is that law makes customs as truly, though not as often or as much, as customs make law. All thinkers and workers for welfare are concerned with courts and lawyers as social forces.

The present chapter, it should be noted, is intended as much to prevent ill-advised tampering with law as to favor improvements from within or without.

It is a general precept of psychology as of common sense to

favor ways of improvement which have worked in the past, unless changed conditions demonstrably make them inapplicable. Consequently we may review briefly the past course of legal improvements. These are usefully classified into: (1) improvements by outright inventions, such as, in recent times, Children's Courts with relaxation of certain requirements and partial replacement of legal duels by expert diagnosis and treatment, or the "declaratory judgment" by which courts can make decisions concerning a question without its being complicated or confused by the particular concomitants of an actual court trial; (2) improvements by the adaptation of legislation, lawyers, and courts to new needs and customs; (3) improvements by the struggles of various persons and classes for advantage one over the other, from which there emerge benefits to the general welfare.

LEGAL INVENTIONS

Many of the changes in law are gradual accumulations or omissions, progressive small increases or decreases in emphasis, and the like, almost or quite unperceived from year to year or even from decade to decade, but producing substantial results observable to an historian. By the law of effect, these tend to make law more satisfying to those who practice it, and perhaps on the whole to those who are affected by it. A trivial but typical case is the administration of oaths to witnesses and others. This was originally a very serious matter intended to inspire awe and arouse conscience and was doubtless pronounced slowly and gravely, with dignity and solemnity. Oaths doubtless were administered thus so long as the officers got more satisfaction from feeling that they were doing an important service properly than they got from the saving of time and effort due to saying the words more rapidly and perfunctorily. They are now rattled off by clerks, notaries, etc. in such a way as to suggest that the matter is of little or no consequence. This is an improvement, a true labor-saving device, for them, and does no harm to those affected by the oath-taking, if the persons taking the oaths treat them as seriously as they would if the physical circumstances were more impressive.

Between the almost infinitesimal changes and such changes as extending the laws about persons to corporations, or treating mutual promises as a contract, every gradation is found. In some cases the inventors were hardly conscious of their inventions, making new law though asserting that they were only applying the old to a novel situation, or not even realizing that the situation really was novel. In others they probably knew what they were trying to do as well as Judge Olson knew what he was trying to do in his advocacy of Children's Courts. The results are usually good in either case because the persons in question are men of much more than average ability and good will. Even their unconscious modifications of law will be in the direction of reasonableness and justice. They are more often good in the second case, because the action is deliberate and also because the ablest persons are the most likely to dare to make new law. But they may be bad in either case; in the former by carelessness, in the latter by ignorance or prejudice.

Students of law now regard Lord Abinger's decision in the famous fellow-servant case as bad, and the language he used is such as any psychologist would consider evidence of strong prejudice. The judgment in Strangborough *vs.* Warner, 4 Leon 3 (the case in which the rule was set forth that mutual promises give rise to a contract) made new law that was good law in the opinion of everybody concerned since 1588 and probably forever. But the treatment of a corporation as a person is regarded with suspicion by some; and it may well be that the ignorance of the early inventors of this convenient legal device concerning the future development of corporations, especially corporations of corporations of corporations, led them into a sacrifice of the interests of the public, and that new legal inventions are now needed. At all events, no human mind, legal or otherwise, can now legislate perfectly for the changes of a century, or even a lifetime, in manufacturing, trade, transportation, communication, war, or education, because the necessary knowledge is lacking.

Besides the danger already mentioned that legal inventions will favor the wants of courts and lawyers and neglect relatively the needs of women, children, workers, owners, renters, juries,

law-students, and other fractions of those affected by law, there is a second danger that abrupt changes will not be made even when needed. This is probably true of all spheres of invention. Even in physics, the old terms positive electricity and negative electricity are retained, though the sort which is called negative has long been well known to be more "positive" in all useful senses than the other. It is true of law par excellence. In the garden of the law few plants are ever dug up and cast out; few are brought in full grown from other gardens, though the best known cases where this was done were eminently successful (the acceptance by the Romans of certain laws and customs of foreigners as the *jus gentium,* in addition to their own *jus civile,* and the incorporation, especially by Lord Mansfield, of many of the business customs known as the "law merchant" into the common law). In general, law abominates revolution and is suspicious of evolution by abrupt mutations. As instructive illustrations, I take two passages from Maine:

"Almost every gesture and almost every set of formal words in the Legis Actio Sacramenti symbolise something which, in some part of the world or another, in some Aryan society or another, has developed into an important institution. The claimant places his hand on the slave or other subject of dispute, and this grasp of the thing claimed, which is reproduced in the corresponding procedure of the ancient Germans and which, from them, was continued in various modified forms far down into the Middle Ages, is an early example of that Demand before action on which all civilised systems of law insist. The wand, which the claimant held in his hand, is stated by Gaius to have represented a spear, and the spear, the emblem of the strong man armed, served as the symbol of property held absolutely and against the world, not only in the Roman but in several other Western societies. The proceedings included a series of assertions and reassertions of right by the parties, and this formal dialogue was the parent of the Art of Pleading. The quarrel between plaintiff and defendant, which was a mere pretence among the Romans, long remained a reality in other societies, and, though its theory was altered, it survived in the Wager of Battle which, as an English institution, was only fi-

nally abolished in our fathers' day. The interposition of the Praetor and the acceptance of his mediation expanded into the Administration of Justice in the Roman State, one of the most powerful of instrumentalities in the historical transformation of the civilised world. The disputants staked a sum of money—the Sacramentum, from which the proceedings took their name—on the merits of their quarrel, and the stake went into the public exchequer. The money thus wagered, which appears in a singularly large number of archaic legal systems, is the earliest representative of those Court fees which have been a more considerable power in legal history than historians of law are altogether inclined to admit. The very spirit in which a Legis Actio was conducted was that which, in the eyes of laymen, has been most characteristic of lawyers in all historical times. If, says Gaius, you sued by Legis Actio for injury to your vines, and called them vines, you would fail; you must call them trees, because the text of the Twelve Tables spoke only of trees. The ancient collection of Teutonic legal formulas, known as the Malberg Gloss, contains provisions of precisely the same character. If you sue for a bull, you will miscarry if you describe him as a bull; you must give him his ancient juridical designation of "leader of the herd." You must call the forefinger the "arrow"-finger, the goat the "browser upon leeks." There are lawyers alive who can recollect when the English system of Special Pleading, now just expiring, was applied upon principles not remotely akin to these and historically descended from them." ['75, Edition of 1893, p. 254 f.]

"Neither Ancient Law nor any other source of evidence discloses to us society entirely destitute of the conception of Contract. But the conception, when it first shows itself, is obviously rudimentary. No trustworthy primitive record can be read without perceiving that the habit of mind which induces us to make good a promise is as yet imperfectly developed, and that acts of flagrant perfidy are often mentioned without blame and sometimes described with approbation. In the Homeric literature, for instance, the deceitful cunning of Ulysses appears as a virtue of the same rank with the prudence of Nestor, the constancy of Hector, and the gallantry of Achilles. Ancient law

is still more suggestive of the distance which separates the crude form of Contract from its maturity. At first, nothing is seen like the interposition of law to compel the performance of a promise. That which the law arms with its sanctions is not a promise, but a promise accompanied with a solemn ceremonial. Not only are the formalities of equal importance with the promise itself, but they are, if anything, of greater importance; for that delicate analysis which mature jurisprudence applies to the conditions of mind under which a particular verbal assent is given appears, in ancient law, to be transferred to the words and gestures of the accompanying performance. No pledge is enforced if a single form be omitted or misplaced, but, on the other hand, if the forms can be shown to have been accurately proceeded with, it is of no avail to plead that the promise was made under duress or deception. The transmutation of this ancient view into the familiar notion of a Contract is plainly seen in the history of jurisprudence. First one or two steps in the ceremonial are dispensed with; then the others are simplified or permitted to be neglected on certain conditions; lastly, a few specific contracts are separated from the rest and allowed to be entered into without form, the selected contracts being those on which the activity and energy of social intercourse depend. Slowly, but most distinctly, the mental engagement isolates itself amid the technicalities, and gradually becomes the sole ingredient on which the interest of the jurisconsult is concentrated. Such a mental engagement, signified through external acts, the Romans called a Pact or Convention; and when the Convention has once been conceived as the nucleus of a Contract, it soon becomes the tendency of advancing jurisprudence to break away the external shell of form and ceremony. Forms are thenceforward only retained so far as they are guarantees of authenticity and securities for caution and deliberation. The idea of a Contract is fully developed, or, to employ the Roman phrase, Contracts are absorbed in Pacts." ['61, Edition of '94, p. 312 f.]

In their inventions lawyers and judges have in the past been more moved by reason and the desire to make law intellectually admirable than by benevolence and the desire to make it humane. So Maine points out that though the practical results of

certain changes in Roman law were much like those which Bentham sought in the interest of the general good of the community, the motives of the Romans were very different. "It was not to anything resembling philanthropy but to their sense of simplicity and harmony—of what they significantly termed "elegance"—that the Roman jurisconsults freely surrendered themselves. The coincidence of their labours with those which a more precise philosophy would have counselled has been part of the good fortune of mankind." ['61, Edition of '94, p. 79 f.]

The law of courts and lawyers has been less concerned with giving people what they desire or what is good for them than the laws of legislatures, kings, and other rulers have been. If a court's interpretations of the latter seem to make them fail of their purpose, the rulers can easily pass new laws; and even so benevolent a jurist as Brandeis was convinced that courts should stick to legality, leaving humanity to legislation. This is psychologically sound, maintaining a division of labor by which the expertness of courts and lawyers on the one hand and the expertness of representatives of human needs on the other are used maximally. But what was legal to Brandeis and Holmes was not legal to some of their colleagues; and benevolence, valuations of wants, and valuations of persons do influence legal inventions. If Grotius had had the ideals and temperament of Nietsche mixed with those of Louis XIV, he would probably not have originated and defended the doctrine that the society of nations is governed by Natural Law, and that since men under Nature are all equal, commonwealths under Nature are also equal. The same is true of others who shared in the establishment of international law. An international law in which nations varying in size and power are none the less equal, has been of great benefit to the welfare of mankind.

Not all legal inventions made by the profession have been made of its own initiative. Napoleon by his demand for a simplified code probably had more influence upon French law than any lawyer or judge of his day. Some legal inventions have been made by outsiders. This seems to have been partly the case with the use of the secretarial bureau of the King of England as a supplementary court, which developed into the

Court of Chancery. "The origin of the equitable jurisdiction of the Court of Chancery is now fairly well established. The process of writ-making, previously described, came to an end about the close of the thirteenth century; either because the judges of the Common Law Courts lost their inventive energy, or because the newly-created Parliament was jealous of the process, perceiving, very rightly, that to make new writs was to declare new law. But it was urgently necessary that new law should be declared; and Parliament, which ought, according to our views, to have declared it, had not yet assumed legislative activity. A temporary remedy was provided by the Statute of Westminster the Second in 1285, which allowed the Chancery, i.e. the bureau, not the court, to frame new writs 'in like case' to the old. But this was an inadequate provision for a progressive community; and men took the readier step of petitioning the Crown when no remedy was provided by the Common Law. Where the matter seemed one for legislative enactment, the king laid it before his Council, and, ultimately, before the Parliament. Where it seemed to be merely a matter 'of grace,' he referred it to his Chancellor, who, as head of the Chancery and an ecclesiastic, had the double advantage of knowing whether the Common Law provided a suitable writ, and, if not, what would be the remedy which 'conscience' would dictate. Gradually the practice assumed regular shape. To the petition or 'bill' of the claimant, his opponent was allowed, nay compelled, to put in a sworn answer; the parties might interrogate each other. Successive chancellors followed the rules which had guided the practice of their predecessors, and declared new rules of their own. The Court added to its litigious business a large administrative business. It administered estates of infants, took accounts of debtors and trustees, declared priorities between rival claimants to the estate of a deceased person. Sometimes it would perform useful functions in aid of proceedings in the Common Law Courts. Sometimes it would render these proceedings nugatory, by imprisoning litigants who conducted them. In so doing it acted in the name of Equity, or 'good conscience.' But it preserved to the end its character

as an 'extraordinary' tribunal. The proceedings before it were a 'suit' or humble petition, not an 'action.' It adjudicated on fact as well as law, without the aid of a jury. In strict theory, no suitor had a right to any remedy, though some remedies were never denied in suitable cases; the relief given was 'of grace.'" [Jenks, E., '98, p. 142 f.]

Caution is needed against supposing that an invention was, when invented, all that it later became, or, more truly, all that later became associated with it or its name. As with clocks, steam engines, or automobiles, so with legal inventions, one fruitful idea or practice is enlarged, varies, causes others, and assimilates other inventions affiliated with it. In the end the thing called by the same name may be no more like the primary invention than a Hipp chronoscope is like a clepsydra or hour-glass. The Will is a beautiful illustration.

. . . "To the Romans belongs pre-eminently the credit of inventing the Will, the institution which, next to the Contract, has exercised the greatest influence in transforming human society. We must be careful not to attribute to it in its earliest shape the functions which have attended it in more recent times. It was at first, not a mode of distributing a dead man's goods, but one among several ways of transferring the representation of the household to a new chief. The goods descend no doubt to the Heir, but that is only because the government of the family carries with it in its devolution the power of disposing of the common stock. We are very far as yet from that stage in the history of Wills in which they become powerful instruments in modifying society through the stimulus they give to the circulation of property and the plasticity they produce in proprietary rights. No such consequences as these appear in fact to have been associated with the Testamentary power even by the latest Roman lawyers. It will be found that Wills were never looked upon in the Roman community as a contrivance for parting Property and the Family, or for creating a variety of miscellaneous interests, but rather as a means of making a better provision for the members of a household than could be secured through the rules of Intestate succession. We may

suspect indeed that the associations of a Roman with the practice of will-making were extremely different from those familiar to us nowadays." ['61, Edition of '94, p. 194 f.]

IMPROVEMENTS BY ADAPTATIONS OF LEGISLATION, COURTS, AND LAWYERS TO NEEDS AND CUSTOMS

The essential facts under this heading are well known and require little comment. Occasionally the march of civilization simplifies the task of the law. Abolishing slavery abolishes slave-law; the decline of feudalism replaces a host of local rights and duties by a widespread law of contract; freedom of religious thought and action makes many offenses innocent. But on the whole the task becomes more and more extensive and complex. It probably requires a higher intelligence and more time to master business law (including corporation law) alone today than was required for a Roman jurisconsult to master the whole of Roman law. The law has required many improvements merely to keep on providing as useful justice as before for the more varied and complex conditions of life.

But both legislative law (enactments) and judicial law (interpretations) have also responded to changes in the quality as well as in the quantity of human wants and customs. The response is clearest in legislative law, where, for example, the improvement of biological knowledge has caused health legislation, and the improvement of sympathy has caused legislation for free education, the emancipation of women, and the relief of the unfortunate. But courts respond also to better knowledge and better ideals. They permitted the use of the blood tests of relationship without being instructed to do so by legislatures.* They found ways to justify the receipt of money for the use of money by a Christian in medieval Europe when remedial legislation to the same effect would have been difficult to pass.

There is an interesting difference between law and education on the one hand and medicine and engineering on the other in

* Some judges were too indolent or too stupid to do this and will be the scorn of legal posterity. The medical board of the University of Paris which in the seventeenth century failed to appreciate the value of Peruvian bark as a remedy for malaria had better excuse.

the relation of professional improvements to lay customs. In the former, lay customs often lead; in the latter, they usually follow. In the former we have public feeling, pressure groups, agitators, and the like influencing or trying to influence what the professions do. In the latter the experts are largely left to themselves.

IMPROVEMENTS RESULTING FROM THE STRUGGLE OF PERSONS AND CLASSES EACH FOR ITS ADVANTAGE

The economic struggles of persons to obtain the goods and services which they desire, when carried on under a regime of approximate freedom of enterprise, contract and trade, under the laws of 19th-century Europe and America, tended to maximize their production and to get them out of the hands of those who wanted them least into the hands of those who wanted them most. In a somewhat similar manner the legal struggles of persons and classes to obtain what they thought were their rights and to defend them against other claimants have presumably increased the sum total of freedom of action and satisfaction. The theory and practice of Roman law, of Teutonic law, and of the various European and American hybrids of the two was to settle disputes and so prevent interminable strife, and to settle them as the customs of the group decreed, when interpreted by its legal experts. These experts were men much above the average in knowledge, intelligence, and good will. It may then be assumed that what Jenks says of State justice was true generally. "We may take it for granted that State justice would not succeed in defeating its rivals unless it had something better to offer than they." ['98, p. 122] Retaliation by an eye for an eye was improved on by payments of money damages, Wergild, because compensation was better for all concerned. Trial by ordeal or by a duel of champions was replaced by a trial in court with evidence because it was better (for the innocent, for the peace of mind of the community, for the encouragement of reason among them, etc.). The legal conflicts between man and man, kings and nobles, employers and employees, produced not only peaceful settlements of the particular issues but also more or less that was better for the community,

progressing somewhat toward a maximizing of the freedom and goodness of life for each with regard for the freedom and goodness of life for all. This is not to say that legal conflicts necessarily evolve toward justice. In England the King's law made some rather sharp bargains in the King's favor.*

The King could drive hard legal bargains with nobles and commoners because he had more control of the courts; the rich could drive hard legal bargains with the poor because they could hire better counsel and endure a longer struggle; until recently the employers had similar advantages over their employees. Due process of law probably never worked perfectly for justice, still less for general welfare. But on the whole it favored them, and favored them increasingly century after century.

This has been due partly to law as law and the general conscience of man as man, but the orthodox view of jurisprudence seems to exaggerate this and to assume that the law bears within itself a motive force which accounts for most of its improvement. Psychologically such a doctrine neglects the very important fact that judges were men of notable intellectual superiority. The strength of the appeals of reason will correlate very high with intellect, and the correlation of good will with intellect is substantial. If the judges and lawyers of England had been drawn from the population by lot, I warrant that the

* Consider, for example, the invention of a punishment in the form of a fine paid to the state and the retention of the outlaw as a possible warrior for the king as a substitute for outlawry. "The community will have nothing more to do with a man who kills another in a church or at the Thing, who slays a sleeping man, or a woman. He may go out into the wilderness; the community will no longer tolerate him. But this penalty has a double aspect. The goods of the offender may be shared between the Clan and the State; but in the outlawed man the State loses a warrior. . . . So we get the rule that the King's ban entails a heavy fine, a *punishment*, as distinct from a composition. The State is willing to waive its extreme rights, and to keep its warrior, on payment of a fine." [Jenks, E., '98, p. 108 f] This case of substitution for the King's ban is not only dubious in respect of justice, but still more so in respect of welfare. Outlawry meant death without further offspring in most cases and on eugenic principles was much more advantageous to all save possibly those of the criminal's relatives who were specially fond of him, than a fine to the King.

improvements caused by the conflict of interests in courts would have been far less.*

IMPROVEMENT BY A NATURAL SCIENCE OF LAW

Except for the law of corporations and for certain matters concerning the treatment of criminals, credit for which belongs in large measure outside the law, the law has not improved during the last hundred years as rapidly as engineering or medicine.

From 850 to 1750 European law improved more rapidly than European engineering; from 850 to 1850 it improved more rapidly than European medicine. These facts suggest that the recent advantages of engineering and medicine are related to their utilization of the advances in natural science, and that the law may speed up its improvement by utilizing more fully the facts and methods of natural science which are relevant to it. They support the recommendation already made that law should become naturalistic as well as erudite, critical, and historical. In doing so, it will make much use of the sciences of man, including the so-called "social" sciences. It will use them also in another way, namely, to change the purposes now assumed by the law and the valuations which it makes. The two changes are likely to be advocated together, but I shall keep them apart as far as truth permits. For the present we are concerned only with the first.

A naturalistic science of the nature, causes and consequences of law and laws would include first a body of descriptions of the instructive laws, written and unwritten, of schools, clubs, factories, churches, armies, games, caravans, pilgrimages, hunts, hospitals, stock and produce exchanges, monasteries, oligarchies, communist parties, etc., to be studied along with the laws found in textbooks and histories of law. For the curiosity of a naturalist ranges far and wide. He is a glutton for instructive facts, distinguishable to outsiders from children and pedants mainly

* It may be noted that the same holds for the beneficence of economic competition. It was the enlightenment rather than the self-interest which carried most of the load. Freedom for the self-interest of ignorant fools does little good.

by the fruits of his curiosity. The legal naturalist might indeed abandon laws of any sort for a time and study the habits which cause customs which in turn cause laws.

The different treatments of the same event by the laws of different times and places will interest him no less than the resemblances. He reads that "The maximum penalty for incest in Virginia is six months; in Louisiana the minimum penalty is imprisonment for life; in Delaware the penalty is a simple fine of $100. . . . The guilt (as measured by maximum penalties) of counterfeiting in Ohio and Minnesota is twice that of perjury, but in Rhode Island and Alabama the guilt of perjury is twice that of counterfeiting. The guilt of perjury in Indiana is to that of incest as twenty-one to five, but in Kentucky the guilt of incest is to that of perjury as twenty-one to five. . . . The guilt of burglary in Kentucky and Alabama is twice that of larceny, but three times in Wisconsin and Mississippi, four times in Georgia and Michigan, five times in New Hampshire, six times in New Mexico. The guilt of forgery in Kansas is four times that of larceny, but in Connecticut the guilt of larceny is four times that of forgery." [Wines, '94, pp. 325–327, *passim*, quoted by Sutherland, '24, p. 507] He is inspired by this apparently extreme ignorance of lawmakers concerning what are suitable penalties for various offenses to ask many questions concerning the theory and practice of punishment.

A naturalistic science of law and laws will be curious about who originated a law or the idea whence the law grew, about what persons and forces caused its enactment (or its pronouncement in the case of judge-made law). It will wish to know about law caused by thought and law caused by emotion, law caused by reason and law caused by prejudice, law caused by science and law caused by custom. It will be eager to compare laws made in emergencies with laws made under normal conditions, laws enacted by large majorities with laws barely passed, the decisions of administrative tribunals with those of regular courts, the decisions of sons of the nobility, the rich, and the educated with those of the sons of commoners, the poor, and the illiterate.

It will be even more curious about the consequences of laws,

studying not only such grand questions as common law *versus* law by civil codes, court law *versus* administrative law, popular legislation *versus* expert legislation, punitive *versus* reformative intent, and uniformity *versus* diversity to fit individual differences, but also intrinsically trivial consequences understanding of which seems likely to advance science. Faraday and Joseph Henry did not restrict their curiosity to the consequences of earthquakes, volcanoes, and great engines, but played with little magnets and bits of wire, such as a practical man of the time would have scorned. But their work and other work like it made the power age. Some little thing may point the way to great improvements in legislation about education, work, or peace.

A natural science will study also the affiliations of legal phenomena. Valid observations of causal relations in either civil law or criminal law are hard to make, often requiring experiments which governments will not undertake, and private agencies cannot. When we cannot observe directly what causes a certain law or decision or what it causes, we can often make substantial progress by using knowledge of what its affiliations or correlations are. The variations in customs, laws, courts and the like then become aids instead of disturbances. The exceptions which annoy the student of law *qua* classifier and logician become the material for instructive mathematical treatment with the techniques of partial correlation, multiple correlation, and path coefficients.

Such a natural science of law will be related to biology, psychology, anthropology, sociology and economics somewhat as the science of medicine is related to physics, chemistry, biology, and psychology. It will draw from them and give to them.

Not enough has been done with law as a natural science to justify predictions of how much it can do. They should probably be modest because the great improvements are likely to be caused by advances in the more fundamental sciences of man. But such an addition to the study of law can, as was shown in the previous chapter, do no harm, and will not duplicate the good work of historical and comparative studies. It is not a rival but an ally.

IMPROVEMENT BY CHANGING THE PURPOSES AND VALUATIONS OF THE LAW

A great lawyer and judge, Cardozo, spent much of his life and left all his fortune to promote what has been termed Sociological Jurisprudence. This formidable term refers in the main to adaptations of jurisprudence to the purposes and valuations which the "social" sciences recommend rather than to the alleged edicts of Jehovah, conscience, or reason, neatly recorded in the existing law. "It is the opinion of sociological jurisprudence that if the law continues to follow the method of deriving its axioms and premises from within itself alone and verifying them by criteria which it itself sets up with disregard to the ambient world, it is bound to stagnate. . . . The sociological jurist wishes to indicate the necessity for jurisprudence of recognizing an extra-legal norm or standard derived from a sociological analysis of the *mores.*" [Aronson, '38, p. 10 f. *passim*]

Cardozo and other advocates of sociological jurisprudence would favor, or at least tolerate, a natural science of law, but they are specially interested in a *social ethics* for the law. By studying the social sciences the law will learn to appraise competing moral values. Also, "Other values, not moral, values of expediency or of convenience or of economic or cultural advancement, a host of values that are not final, but merely means to others, are to be ascertained and assessed, and equilibrated, the less sacrificed to the greater, all in subjection to like tests, the thought and the will, and the desires of society as the judge perceives and interprets them supplying the measure and the scale." [Cardozo, B., '28, p. 54 f.]

The law is to protect the rights of society as well as the rights of individuals. It is to work frankly for welfare as well as for the rules set up by God or by the state. The best brief statement of what sociological jurisprudence accepts as the "social" purposes of the law is, perhaps, the following, by Pound, its chief American defender:

". . . The legal order endeavors to give effect to at least six groups of claims or demands involved in the existence of civi-

lized society. First we may put the general security, the claim or want of civilized society to be secure from those acts or courses of conduct that threaten its existence. This paramount social interest includes (1) peace and order, the first interest to receive legal recognition, (2) the general health, recognition whereof by means of sanitary legislation was objected to by the positivists a generation ago, (3) the security of acquisitions and (4) the security of transactions. The security of acquisitions was recognized in Justinian's three precepts and has been emphasized ever since. The security of transactions is no less important in an economic order resting upon credit, and the last century insisted upon these two phases of the general security at the expense of the individual life. Second, there is the security of social institutions, the claim or want of civilized society to be secure from those acts or courses of conduct which threaten or impede the functioning of its fundamental institutions, domestic, religious and political. Third, we may put the conservation of social resources, the claim or want of civilized society that the natural media of civilized human existence and means of satisfying human wants in such a society shall not be wasted and shall be used and enjoyed in a manner consistent with the widest and most beneficial application of them to human purposes. In a world of discovery and colonizing activity, in a society of pioneers engaged in discovering, appropriating and exploiting the resources of nature, this interest seemed negligible. In the crowded world of today the law is constantly taking account of it and the *jus abutendi* as an incident of ownership is becoming obsolete. Fourth we may put the general morals, the claim or want of civilized society to be secure against those acts and courses of conduct which run counter to the moral sentiment of the general body of those who live therein for the time being. In primitive society this interest is secured through organized religion. But the law soon takes it over. In our law today it is secured through the common law as to misdemeanors, by definition of a multitude of statutory offences and by the doctrine of a public policy against things of immoral tendency. Fifth there is the interest in general progress, the claim or want of civilized society to be secure against those acts and

courses of conduct that interfere with economic, political and cultural progress and the claim that so far as possible individual conduct be so shaped as to conduce to these forms of progress. The law is coming to be full of recognitions of this interest. Lastly, sixth, we may put the social interest in the individual human life, the claim or want of civilized society that each individual therein be able to live a human life according to the standards of the society, and to be secure against those acts and courses of conduct which interfere with the possibility of each individual's living such a life. Recognition of this interest as such is characteristic of the law of the present and the twentieth century is insisting upon it as strongly as the seventeenth century insisted upon the general morals or the nineteenth century upon the security of acquisitions and the security of transactions.

"Finally as a result of social utilitarianism the legal reason of today in shaping rules and developing traditional premises of the legal system in order to give effect to social interests, looks at them in terms of the concrete situation, not in terms of the abstract claims of abstract human beings." ['21, p. 208 f.]

The comments of psychology concerning this program of Professor Pound are those suggested by a naturalistic and scientific ethics, such as was outlined in Chapters 14 and 15. Such an ethics has something to offer now and will have much more as fast as it itself advances to fuller knowledge. At present it joins the chorus of approval from realistic and benevolent thinkers, but with a few reservations. It regrets that Pound's statement makes no use of the principle of weighting wants, in particular of weighting the same want according to the kind of person that has it. Law as an agent for welfare, for maximizing the satisfaction of mankind, will not progress far if it begins by neglecting the differences in wants and the differences in men. It may, for convenience in administration, have to waive a large fraction of welfare, and return to counting dollars and noses. But it should not admit failure without trying.

Scientific ethics regrets the incomplete consideration of the wants of future men. It is also a bit skeptical of assuming the absolute value of all "fundamental institutions," of "the moral

sentiment of the general body" of persons, and of enabling "each individual . . . to live a human life according to the standards of the society." These, however, are much less important than the neglect of the principle of weighting, and Dean Pound is probably prudent in advising the law to be a defender of fundamental institutions, the moral ideas of the majority, and the right of each to a certain standard of living.

The criticisms which the legal profession makes of "sociological jurisprudence" are very different from these. They are to the effect that it introduces subjectivism, relies on social doctrines which are not yet science, extends the purposes of the law too far and too fast, may detract from welfare by having the law do more than now but badly, and is in general upsetting. "Leave such things to be introduced gradually by men like Holmes and Cardozo," lawyers say. "Don't expect us to learn a new jurisprudence; and don't fill the minds of law students with dubious economics and sociology instead of the definite facts of law."

Pound himself appreciates these criticisms and advises a cautious evolution of public opinion, followed by legislation, followed by the courts: "In reason the judges may not be asked to lead in the present transition. They must go with the main body not with the advance guard, and with the main body only when it has attained reasonably fixed and settled conceptions. Let us remember that it is not so long ago that the votaries of the social sciences who now complain of law had succeeded in confirming lawyers in the ideas they had found in their law books. They cannot expect courts, which have the whole economic structure in their hands and are bound to regard the social interest in general security, to turn the law about in a moment. When we reflect how fundamental is the shifting from the older idea of the end of the legal order to the newer, how uncertain the new lines are as yet on the one hand, and on the other hand how completely the change goes to the root of everything the courts do, we must recognize how futile it is to expect the courts to adjust our whole legal system to it over night." ['21, p. 191]

SOCIAL JUSTICE

Somewhat akin to the doctrine of sociological jurisprudence is the doctrine held by many reformers that if ordinary justice were replaced or amplified by "social justice," there would be great gains for welfare.

It is remarkable that so popular a concept should have no accepted definition. It is not entered in the *Encyclopedia of the Social Sciences,* and in a fairly wide reading during the past five years the nearest approach to a definition which I noted was a statement made by Pope Pius XI.* This I quote:

"*Social Justice*

"51.—In reality, besides commutative justice, there is also social justice with its own set obligations, from which neither employers nor workingmen can escape. Now it is of the very essence of social justice to demand from each individual all that is necessary for the common good. But just as in the living organism it is impossible to provide for the good of the whole unless each single part and each individual member is given what it needs for the exercise of its proper functions, so it is impossible to care for the social organism and the good of society as a unit unless each single part and each individual member—that is to say, each individual man in the dignity of his human personality—is supplied with all that is necessary for the exercise of his social functions. If social justice be satisfied, the result will

* The economist Carver published in 1915 an excellent book entitled *Essays in Social Justice.* His doctrines are very different from those of Pope Pius and from those of most of the reformers who use the term. "Justice," he wrote, "is the name for the moral obligation of the state, as distinct from the individual, with respect to its task of adjusting conflicting interests. Since the state has this to do, it must find out how to do it. What *ought* the state to do with respect to these conflicts, and how *ought* it to do it? These are the questions of social justice. Since the state is self-ruled, and what is more important, self-protected, the only answer it can possibly make to these questions is that it *must* do it in such a way as to strengthen itself and safeguard its own existence." ['15, p. 9 f.] "It is the duty of the state to make each man's acquisition equal to his production. That is justice." [Ibid., p. 173]. "It is time to stop talking about protecting the weak against the strong. . . . What the state must do is to protect production against predation." [Ibid, p. 93] The title was probably chosen in total disregard of, or as an antidote to, the present popular uses of the words.

be an intense activity in economic life as a whole, pursued in tranquillity and order. This activity will be proof of the health of the social body, just as the health of the human body is recognized in the undisturbed regularity and perfect efficiency of the whole organism.

"52.—But social justice cannot be said to have been satisfied as long as workingmen are denied a salary that will enable them to secure proper sustenance for themselves and for their families; as long as they are denied the opportunity of acquiring a modest fortune and forestalling the plague of universal pauperism; as long as they cannot make suitable provision through public or private insurance for old age, for periods of illness and unemployment. In a word, to repeat what has been said in Our Encyclical Quadragesimo anno: 'Then only will the economic and social order be soundly established and attain its ends, when it offers, to all and to each, all those goods which the wealth and resources of nature, technical science and the corporate organization of social affairs can give. These goods should be sufficient to supply all necessities and reasonable comforts, and to uplift men to that higher standard of life which, provided it be used with prudence, is not only not a hindrance but is of singular help to virtue.'" [Encyclical letter of March 19, 1937.]

Social justice for Pope Pius XI is obviously an admirable thing. It also is stated not to be ordinary justice. Since it includes the opportunity for all decent workers to have "all reasonable comforts" and to acquire "a modest fortune," it is also demonstrably something which the world has never yet had. It did not exist in the American colonies, for the slaves could not acquire modest fortunes. Even in the pioneer West of free land it did not exist, because the justice the pioneer West had was the same justice which the East had. The possession of comforts and the acquisitions of fortunes came from the beneficence of nature's deep loam soil, the gifts of the federal government, the building of railroads, etc., rather than from any special brand of justice. Italy has never seen it. Iceland has something approaching it, but Iceland has a population of superior ability. What changes in laws and courts or in industry and trade social justice requires

the Pope does not state. His bland and hopeful words present us, not with a legal or economic program, but rather a myth, a fairy godmother. If certain hitherto impossible conditions are met, she will provide "an intense activity . . . pursued in tranquillity and order," we are told.

The implications of social justice as used by its advocates are much like the explicit statements of the Pope. It is an *X* which (1) is not ordinary justice, and (2) will cause an enormous increase in material welfare, by (3) undescribed and apparently largely mythical and miraculous activities. Sometimes it appears as the name for the social product produced by such an *X*. It is then a heaven, a utopia, a condition of a population in respect of welfare in which the needs of each person and family are regularly and securely met.

The following are representative statements:

Mr. R. MacEachen ['31] opines that social justice requires that somebody provide work for those who are willing to work, and pay them enough so that they can live decently.

To Mr. Alex Mackendrick social justice is something the absence of which caused the World War, the presence of which will prevent the inexorable laws of the universe from causing the wreck of civilization. Writing in 1916, he said: "It is becoming increasingly clear that the old world is at this moment paying the penalty of its age-long indifference to the demands of the workers for justice. It seems as though for Europe the day of reckoning has come. The god Nemesis has presented her bill and demands instant settlement. It should not be difficult for those who can look beyond proximate to original causes, to perceive that in the threatened or impending revolts from beneath, which seemed two years ago to endanger the internal stability of each one of the belligerent nations, are to be found the real reasons why Europe is now weltering in blood. Had Justice ruled in each of the warring countries; had the resources of each country been open to the effort of all the citizens in each country; had general contentment reigned alongside of each monarch on his throne; had every honest man sat securely under his own vine and fig tree, none daring to make him afraid, such an inhuman spectacle as we are now witnessing

would have been impossible,—indeed, unthinkable. The question, therefore, which is probably pressing itself upon those European minds that are sufficiently freed from the asphyxiating influence of national passions to be capable of thinking, is not as to when and how the war may terminate, or as to what form a treaty of peace may assume, but as to whether the nations that have been involved in the struggle may have sufficient vision to interpret the teaching of destiny aright. Will the suffering peoples learn that to go on perpetrating social injustice is to defy the inexorable laws of the universe; that it is to pile up a debit-balance that must assuredly one day be wiped out; that it is to accumulate explosive material that must ultimately, by spontaneous combustion if not by accident, result in disastrous conflagration?" [The Dial, April 27, 1916]

In Willoughby's volume entitled *Social Justice* [1900], he stated "the problem of social justice" as "the proper distribution of economic goods; and the harmonizing of the principles of liberty and law, of freedom and coercion" [p. 11], and concluded that the proper distribution and the just harmonizing were such as promoted the welfare and ethical perfection of the world. "A man's rights are measured by his capacity and disposition for good." [p. 201 f.] . . . "A right to subsistence or to labor can only be maintained when it appears that the welfare of humanity will be advanced by the continued existence of the individual concerned." [p. 207] "All that any ethical teacher, whatever his doctrines, can say is that, in each instance where an act is required, one must examine it as to all its possible results, proximate and ultimate, objective and subjective, and then ask himself whether the given line of conduct is more calculated than any other possible line of conduct to advance the world toward the realization of the highest ethical perfection" [p. 213].

The most constructive suggestion which I have found is the one made by Brandeis that the provision of a reserve to ensure regularity of employment for workers should be a fixed charge, having precedence over dividends to stockholders.

"For every employee who is steady at his work there shall be steady work. The right to regularity in employment is coequal

with the right to regularity in the payment of rent, in the payment of interest on bonds, in the delivery to customers of the high quality of products contracted for. No business is successfully conducted which does not perform fully the obligations incident to each of these rights. Each of these obligations is equally a fixed charge. No dividend should be paid unless each of these fixed charges has been met. The reserve to insure regularity of employment is as imperative as the reserve for depreciation; and it is equally a part of the fixed charges to make the annual contribution to that reserve. No business is socially solvent which cannot do so." [Brandeis, L. D., quoted by Billikopf, '31, p. 72]

There are some difficulties in predicting the amounts which should be required to be paid in to make reserves for such unemployment insurance, and in arranging the conditions under which the fact of having been employed by a corporation gives a worker a lien upon this reserve. There are other problems concerning what rights workers at seasonal trades have, what rights willing but casual laborers such as washwomen or poets have, evasion by small employers, et cetera. It is also possible that the net advantage to workers and to the general welfare from legal recognition of the right to regularity of employment might be negative. I fear that the net economic consequences would be disappointing. The psychological consequences would, I think, be desirable on the whole, because on the whole the employer-employee relation seems likely to work better with an infusion of the organization-member, parent-child, master-servant, and leader-follower attitudes than on a basis of mere trading with labor-contracts.

When there are any statements or implications about social justice as a thing which courts could do or cause as they now can do or cause ordinary justice, they seem to mean or imply one or both of two things. The first is making the treatment of persons and groups of persons correlate more closely with their real merits, and be more independent of accidents of fortune and prejudice of the legislatures and courts. This is merely a fuller and more perfect ordinary justice. The second is the use of legislation and judicial decisions to counterbalance the

disadvantages which certain large classes of persons have by misfortune *or any other causes.*

Let us start with the rudiments of justice by which nobody among *n* brothers who are indistinguishable in merit will be treated better or worse than the rest by the sheer whim of a tyrant. There is progress toward more and better justice by distinguishing merit more correctly, by widening the brotherhood, and by getting rules for the game of life which leave less scope for the whims of a possessor of power, whether an individual, a clan, a majority, or a nation. Ordinary justice has progressed along all these lines. Perfect justice of the ordinary sort is a limit which we approach by getting power used more and more according to rules which requite men according to their merits. Social justice cannot be better than this unless it is something better than justice,—mercy, perhaps, or forgiveness, or a mixture of justice with these, or a system of injustice which is somehow better for welfare than justice.

The treatment of groups by men by laws and courts so as to maximize welfare is difficult by any system. The action of the group in respect of any item may have been opposed by 49% of its members; it may be a resultant of a great number of acts varying in all sorts of ways. The stockholders of a corporation, its bondholders, a ship's crew, a labor union, a political party, a pressure group, a radical club, a communist "cell," a church—how can the law deal out justice to these? Old law was accustomed to dealing with such associations as families and clans, using simple methods of assessing wergild on the kindred and leaving it to them to manage the rest. Indeed the law was slow in learning to provide justice for individuals. But neither the law for family units nor the law for individuals nor the law for the troublesome sorts of associations known as conspiracies is adequate for these modern groups. The term, social justice, may be useful by calling attention to this.

Improvements in justice by widening the brotherhood, citizenship, or "closed society" within which equal merit is legally entitled to equal treatment may seem to be within the realm of "social justice," but in fact most of such widenings occurred before this term came into use.

Legislation which prevents or is intended to prevent predatory practices in business is sometimes called "social" legislation, and "social justice" may be used to refer to the superior justice obtained by such legislation. This seems to be a double exaggeration. The justice obtained by it seems to be mainly of the ordinary sort, and it does not seem notably superior.

I cannot find evidence to support the view that the evils of unfair competition increased as capitalism grew and were checked and reduced only by the legislation of the end of the 19th and beginning of the 20th century, and cannot agree with Joseph Mayer's statement that "Competition was of a decidedly predatory nature until modern social legislation (representing the forces of community cooperation) stepped in to 'free' it somewhat of cave-man influences." ['36, p. 40] The "law merchant," for which business men were largely responsible, made very great improvements over what went before. Ordinary law remedied and prevented many forms of fraud, deceit, and chicanery. If one wishes to see thoroughgoing unfairness in competition he should not look at even the worst practices of business men in the last century, but at what the soldiers of a looting army do when the restraints of ordinary law are lacking.

Social justice may claim affiliations with cooperation, especially of a desirable sort, but the connection is not close. If a hundred college students or intelligent adults who read about social problems are asked to give cases of social justice, they are likely to refer to such things as:

1. free schools,
2. old-age pensions,
3. votes for women,
4. state care of the blind, crippled, tuberculous, and the like,
5. jobs for all who are willing to work, paying the current rate of wages.

These are either matters of ordinary justice on a large scale; or of what used to be called charity, arrangements to counterbalance misfortunes with more or less disregard of merit; or of things excellent to have but hard to provide, and requiring fortunate circumstances, very competent industrial organization, or a fairy godmother.

On the whole the use of the term seems undesirable. The law should favor justice, including justice to groups and classes; it, or some other agency, should provide mercy and charity where these are needed for welfare. But if a thing is essentially injustice it should not be called "social justice."

So far as the law is concerned, the doctrines of Holmes, Pound, Cardozo, and their adherents seem more likely to produce improvements in the interest of welfare than the vague demands for social justice. So far as industry and trade are concerned, nobody yet knows how much they would be injured by being arranged to counterbalance the misfortunes of being a woman, a Jew, an atheist, a Communist in America, a non-Communist in Russia, blind, deaf, or stupid, and how much the general welfare would gain thereby.

Psychologically the words *social justice* seem to function mainly as a demand for more and better justice of the ordinary sort, and secondly as a euphemism for benevolence and charity. The demand is justifiable. No fair-minded lawyer thinks that the courts provide as good justice as they might. No fair-minded legislator thinks that the existing laws provide as good justice as they might. The euphemism may be justifiable as a means of lessening feelings of inferiority, guilt and shame in the recipients of charity, and of preventing smug pride and condescension in the givers. But it has the bad feature of often hiding and distorting the real causation of a person's affliction, and of assuming that a world which has only so much to give robs us because it gives no more.

JUSTICE FOR THE POOR

In the theory of modern civilized states men of equal merit are equal before the law, but in practice justice can be bought. Not that judges are often bribed directly or indirectly; they have probably never been so free from corruption by the rich. But legal counsel and court fees make civil suits a luxury.

Twenty years ago, after careful study, R. H. Smith wrote:

. . . "Because law is all-embracing, the denial of its protection means the destruction of homes through illegal foreclosures, the loss through trick or chicanery of a lifetime's savings, the taking

away of children from their parents by fraudulent guardianship proceedings. Hundreds of thousands of men, many of them immigrants, have been unable to collect their wages honestly earned.

"Denial of justice is not merely negative in effect; it actively encourages fraud and dishonesty. Unscrupulous employers, seeing the inability of wage-earners to enforce payments, have deliberately hired men without the slightest intention of paying them. Some of these employers are themselves poor men, who strive in this way to gain an advantage. The evil is not one of class in the sense that it gives the poor over to the mercies of only the rich. It enables the poor to rob one another; it permits the shrewd immigrant of a few years' residence to defraud his more recently arrived countrymen. The line of cleavage which it follows and accentuates is that between the dishonest and the honest. Everywhere it abets the unscrupulous, the crafty, and the vicious in their ceaseless plans for exploiting their less intelligent and less fortunate fellows. The system not only robs the poor of their only protection, but it places in the hands of their oppressors the most powerful and ruthless weapon ever invented.

"The law itself becomes the means of extortion. As Lord Brougham said of the English administration of justice in 1800, it puts 'a two-edged sword in the hands of craft and oppression.' From the cradle to the grave the poor man is the prey of a host of petty swindlers, who find it easy, through such devices as fraudulent assignments, trustee process, or garnishment of wages for fictitious debts, to rob and despoil.* There exist to-day businesses established, conducted, and flourishing on the principle that as against the poor the law can be violated with impunity because redress is beyond their reach. It is this situation which allowed such unrestrained abuse of the laws regulating the assignment of future wages that a sort of quasi-slavery resulted, which brought the loan shark into being, and

* An investigation in Omaha disclosed a case in which the defendant's summons had been left in his woodpile. By the time he discovered it, a default judgment had been entered.

permitted flagrant usury to grow into a monstrous thing." ['19, p. 9 f.]

In spite of the continued good work of Legal Aid Societies and other antidotes, the evil persists to a deplorable extent.

It is being combated by wider use of litigation *in forma pauperis*, by the appointment of salaried public defenders, and by Legal Aid Societies supported by private funds; by the establishment of small-claims courts with greatly reduced fees; and by various other arrangements such as the system of the poor man's advocate and legal-aid bureaus in Sweden, honorary work of solicitors under the general direction of the Law Society in England, and the institution of public legal-aid bureaus in France; it is combated also by the system of governmental legal aid in Germany and the establishment of conciliation courts by the Italian Government corporations.

There are two difficulties with most of these plans. It is hard for persons living outside the large cities to use the facilities; it is hard for the persons who need the help to find out that it is available, and when, where, and how. In the case of medical care for the poor, various expedients, such as the employment of school physicians and district nurses, have been used to bring the aid to those who need it. The volume of injustices to be redressed does not justify any comparable staff to discover them, but some publicity more than there now is seems desirable. Announcements from time to time in churches and labor-unions might perhaps be useful.

The bad feeling caused by the misuse of the law against the poor by mean and brutal employers, landlords, and money-lenders is out of all proportion to the actual amount of resulting damage to the poor. The suffering of the poor from actual criminals, against whom they do have substantially the same police protection as the rich, is probably much greater than their suffering from unjust employers, landlords, etc.

According to Smith ['19, p. 52] there were, in 1916, 117,201 cases handled by Legal Aid organizations collecting $340,990 for their clients (plus also probably as much more in future payments) in the United States. If we reckon that they han-

dled only one tenth of the injustices which were actually done to the poor, the total would be about one and one-sixth million cases, involving 3½ millions of dollars paid down and probably 3½ millions more. If we reckon that they handled only one-twentieth of them, the totals would be two and one-third million cases involving 7 or 14 million dollars. By the top limit of the second set of estimates, the robberies by the scoundrels who take advantage of the defenseless poor, abominable as they are, did not equal the gifts made to the poor in a single city, New York, from public funds alone, during that year.

The poor in civilized countries now receive very much better value from the world than they give to it so far as purchasable goods and services are concerned. On the whole, modern civilization has been beneficent to the poor, and its failure to prevent the misuses of law in question is, like its failure to prevent various misuses of automobiles, printing-presses, banks, labor-unions, morphine, democracy, and other useful inventions, in some ways a relatively unimportant matter. It is important, however, because of its impressiveness to the sufferer and to benevolent citizens in general, who are thereby prejudiced against the law and against a social order which permits such iniquities.

It is well to remind ourselves that this social order, which also permits many gangsters and racketeers to terrorize whole neighborhoods and industries, many robbers and bums to live off the decent and industrious, many feeble-minded to commit arson for pleasure, many mothers to pawn their children's clothes in order to get drunk, and many fathers to use their children as means of sex-gratification, is nearly or quite as good as any that man has yet operated, and that the difficulties may lie more in the persons themselves than in the social order by which they are managed.

Chapter 38

HUMAN NATURE AND REFORM

Our consideration of human nature in relation to welfare has brought forth no panacea, and promises no miracles of any description. But it has shown that man has the possibility of almost complete control of his fate, and that if he fails it will be by the ignorance or folly of men. It has also set forth certain sound principles of action, some of which I will review here.

1. Better genes. A man's intelligence and virtue can work for welfare only for a life-span, but his genes can live forever. By selective breeding supported by a suitable environment we can have a world in which all men will equal the top ten per-cent of present men. One sure service of the able and good is to beget and rear offspring. One sure service (about the only one) which the inferior and vicious can perform is to prevent their genes from survival. Any forces which increase the relative birth-rate of superior men should be treasured, and the effect of any alleged reform or benevolence upon the selective birth-rate should be considered.

2. Better training by rewards. By rewarding a tendency (to thought, feeling, or action) in a person at the time that it operates, that is, by so arranging matters that the immediate consequences of its operation are satisfying to the person, the tendency can, except for strong contrary forces, be strengthened. So, by unfortunate attachments, horrible perversions may be established; and, by wise training, habits of great value to welfare. Punishments have no such direct, unqualified, ubiquitous power to weaken tendencies. Measures to motivate education, business, social life and government more by rewards and less by punishments are helpful.

3. Better training by sheer repetition. The mere operation of

a tendency strengthens it somewhat, so that a second golden rule for making men better is the ancient law of habit. If by persuasion or coercion, by hook or by crook, a person is caused to do a good thing, there is so much gained. *Per contra* every error is costly. Bad tendencies are very rarely overcome by resolutions or by punishments, but only by being displaced by some good tendency. The price of a competent intellect or a disciplined will is eternal vigilance in the formation of habits. A large degree of freedom may be appropriate for those whose own natures and previous actions direct them into good courses; for the weak, wayward, unbalanced, and vicious a benevolent but somewhat rigid paternalism is indicated.

4. Adaptation to reality. Whatever else it is, a measure for welfare must be adapted to reality. Customs and reforms which are caused in whole or in part by hopes for the impossible and fears of dangers which do not exist still play far too great a rôle in human affairs. We must not make plans by wishful thinking. The social sciences should be beyond the stage of alchemy, searching for easy ways to make gold and live forever. Civilized nations should be beyond the stage of irregular and precarious gains for welfare mixed with useless or harmful accessories and made by the zeal of prophets, not to say fanatics.

5. Guidance by science. The social sciences are still weak and insecure; the doctors often disagree. Some can be found to support fantastic schemes. But it is surely better on the average to take their medicine than that of ignoramuses. The scientific method is dependable. Proposed treatments to cure political, economic, or other social ailments should be studied so far as possible by the impartial methods of science such as are used in deciding the merits of a treatment for rheumatism or cancer. Proposed measures to increase welfare should be tested, so far as possible, in the ways that science tests the effects of a new food substance, or method of growing crops, or device for reducing friction. Whether they are popular with governments or with the populace is a matter which should not be confused with their actual consequences, assuming adequate governmental and popular support.

6. Governments and peoples must be induced to use the

truth. Since a measure may enhance welfare if it receives adequate governmental or popular support and fail or even do harm if it does not, pressure must be put behind the truth. This is contrary to the hopes of some moralists, and is regrettable. But the facts of psychology prove that the naked truth has little power save over those who have learned to honor and serve it, and that governments and peoples tend to prefer ideas which make them comfortable for the time being over ideas which will adapt them better to reality. The truth needs power behind it. The measures which an impartial and enlightened board of trustees of human welfare selects would often be outvoted in a legislature or referendum in favor of some plausible and attractive but foolish scheme, or some compromise between blocs which sacrificed the common good to the advantage, real or imagined, of certain special classes. The lines of action which are greatly to the interest of the great bulk of the population are often very hard for people in general even to understand, much less to evaluate.

7. The able and good should acquire power. In order to support the truth, defend justice, and restrain folly, superior men should acquire power. They should acquire pecuniary, political, and persuasive power as well as that personal power which they wield by their reputation for ability and good will. Psychology does not assert that they must fight political bosses with bosses of their own choice, or grafters with money, or demagogues with demagoguery, or greedy groups with opposing claims, though perhaps they must, but it does assert that they must fight them with something. This is regrettable. It is unjust that the able and good cannot be left in peace to advance science, practice the fine and useful arts and professions, conduct industry and trade honestly and efficiently, and serve in government when called on. But if they do not get pecuniary, political and persuasive power, not only will they miss a great opportunity to advance welfare by supporting the truth; they, and their like in the future, may be seriously hampered in their ordinary activities for welfare.

8. The balance of power should be in the hands of some impartial, or nearly impartial, groups. The able and good among

farmers, factory workers, manufacturers, labor unions and other special groups will do better for welfare than the dull, selfish, and ill-balanced among the same groups, but they will rarely be impartial. A reasonable compromise between the desires of these special groups is better than an unreasonable one, but it may have important errors and omissions concerning the general welfare. Impartiality in carrying out laws by courts and police has been a blessing wherever it has been attained or approximated. Impartiality in making laws and customs and in informing and advising the public would be an even greater blessing. The world should give more power to competent impartiality.

9. A national council of the able, good, and impartial endowed so as to be utterly their own masters, such as was suggested for a particular purpose in Chapter 32, seems desirable, but perhaps such a formal recognition of the value of their opinions is unnecessary.

These nine points concern getting better men, providing them with better training, and arranging for the best of them to have more power. The others are more concerned with improvements in the environment of institutions, customs, etc. The first of these is the elimination of wars and preparations for wars.

10. The elimination of wars between and within nations. War is now a loss to all concerned—almost as bad a bargain for the victors as for the vanquished, yet nobody seems able to cause nations to abandon it. We must keep on studying its causes and trying to remove them. Those which lie in the inborn tendencies of men can be removed by selective breeding unless they are so firmly linked to desirable qualities that we dare not breed them out. This will be a slow process. Those which lie in ignorance can be reduced by the advancement and dissemination of knowledge. Those which lie in the passion of rulers each to have his own way and enlarge his rule can be reduced somewhat by selecting rulers of benevolent and progressive rather than masterful and aggressive natures. But this must be done so widely that the peaceful are not left at the mercy of some Caesar or Napoleon. Those which lie in the passion of citizens to take pride in the political and military power of their

country can be reduced somewhat by diverting this to pride in its health, per-capita wealth and income, athletic records, scientific and artistic achievements, and the like. Any movement toward national action in the interest of the world rather than of the nation, or in the interest of the nation at no cost to the rest of the world, is promising as a step toward a most beneficent habit, even though the particular issue may be of minor importance. Any movement toward consideration of absolute rather than relative welfare is promising as a step toward national productivity rather than predacity.

But injustice and the use of force by nations or by groups within a nation will not disappear until the governments of nations and groups all become reasonable or are somehow coerced by a higher force into abiding by reason.

11. The elimination of preparations for war. Though not so brutalizing or cruel as actual wars and not as yet nearly so expensive, these are a deplorable tax. Probably only the abolition of wars will reduce them or even prevent their increase.

12. Increasing capital goods. With peace, a birth-rate quantitatively the same as now and qualitatively as good or better, and prudent government, man can increase capital goods almost without limits, and with an actual decrease in the hours of labor and abstinence from consumption. Durable capital goods in the shape of railroads, factories, agricultural improvements, etc., can be made so abundant that the share of the cost of consumers' goods paid for the use of capital goods to make and transport them will be very little more than the cost of keeping the capital goods in repair and establishing a reserve to replace what wears out, becomes obsolete, or is destroyed by acts of God. Interest rates can be lowered to 3 or 2 or 1 percent. The gain for welfare will be enormous if this enlarged outfit of productive instruments is used reasonably.

13. Increasing mental capital will, under the same conditions, be even easier. If the hours of labor are reduced to an average of 40 per week the world over, all men should within a short time (from 100 to 150 years) be able to obtain, at no cost save the use of half of their leisure time, as much knowledge of the essential facts about the world and about man's own nature,

and of the particular facts of their occupation as they desire and can make good use of.

Men of science and scholarship will maintain and advance knowledge if they are left free to do so, and most teachers will teach the truth rather than superstitions or prejudices if they are left free to do so. It might become as easy for any person to get any truth that he wanted from some information service as it now is for him to get the news of the day from the newspaper and radio.

14. The freedom of labor from drudgery. Machines and power from coal, oil, water, etc. can and should abolish killing labor, brutalizing labor, and labor where a man does little more than what a fraction of a mule can do. Men who can do no more than that should very rarely be born. Men should not work at tasks beneath their capacities, except by choice or for a small part of their working time.

15. Careers open to talents: equality of opportunity in proportion to merit. Training should be given so as to maximize welfare, regardless of caste, class, wealth, etc., except in so far as these are evidence of merit.

16. An abundance of educated labor and skilled labor. Educated and skilled labor should be as plentiful and as cheap, relatively to other sorts, as the genes of mankind permit.

17. Absolute rather than relative welfare. Institutions and customs which improve lives over what they would otherwise have been are good. Institutions and customs which improve some lives relatively to others which are equally meritorious, by restraint or deprivation of these others, are bad. These axioms should be taught along with the law of gravitation and the second law of thermodynamics, perhaps along with $2 + 2 = 4$ and c a t means pussy.

18. Quality is better than equality. Institutions and customs which seek equality for equality's sake are useless, and likely to be pernicious. There is no magic virtue in taking power from the strong and giving it to the weak, or in taking wealth from the rich and giving it to the poor. Power and wealth should be taken from those who misuse them. The test of any proposed

reform in the distribution of anything among men is its consequences for welfare, not for homogeneity.

19. Quality is better than numbers. A decline in the birth-rate, if selective in the right direction, has a positive balance for welfare. In any case a billion persons with as good genes as the best present quarter of the world's population would be worth far more to present and future welfare than two billion such as the world now has. Consequently institutions, customs and legislation promoting an indiscriminate increase in the production of babies are, to say the least, missing a golden opportunity.

20. Reasonable expectations. There have been some great and sudden discoveries in the sciences of man, and some great and sudden improvements in the life of man; and we may hope that such will be more frequent in the future. But on the whole the sciences of human affairs have progressed by small advances, and the conduct of human affairs has improved even more slowly. It is wise not to expect too much. I venture also the suggestion that the beneficent reforms will come less from governments, churches and social reformers in search of wholesale salvation than from engineers, biologists and other scientists observing man and his works with an impartial curiosity and eager for facts no matter how uninspiring.

APPENDICES

Appendix I

AN OBJECTIVE CRITERION FOR LIKENESS IN GENERAL NATURE AMONG ABILITIES DIFFERING IN GOODNESS

Any given person will, in different attempts to attain a certain result (produce a certain product), manifest abilities, that is, attain results, of varying goodness. He may, for example, receive a score of 84 once, 85 once, 86 three times, 87 ten times, 88 twenty-one times, 89 thirty times, 90 twenty times, 91 nine times, 92 three times and 93 twice. Another much less able person may receive scores as follows in a hundred trials: 10 once, 11 twice, 12 twice, 13 eleven times, 14 nineteen times, 15 thirty-two times, 16 eighteen times, 17 ten times, 18 three times, 19 once and 20 once. Similarly for each of a thousand or so persons there will be varying abilities on different occasions due to variations in him.

Suppose that for each person the 1st, 25th, 50th, 75th and 99th percentile scores are determined, or the scores which are —3.0 standard deviations, —2.0 standard deviations, —1.0, 0 (i.e., his average) +1.0, +2.0 and +3.0.

If the abilities represented by scores of 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, etc. are alike in general nature, the intercorrelations of the scores at —3.0 S.D., —2.0 S.D., etc., will approach perfection. Conversely if the correlations are as near perfection as the reliability of the determinations permits, the abilities are alike in nature. For if they were not—if, for example, there was a change in the nature of the ability from the ability producing a score of 40 to that producing a score of 45—the correlations involving the different abilities (in this case those involving scores below 40 and above 44) would fall below perfection.

This criterion is sound but requires many trials of the activity in question in each of a considerable number of persons, even

if we abbreviate the procedure by limiting it to the part or parts of the scale of goodness where the suspicion of change in the nature of the ability is greatest, as would probably be done in practice.

As was stated in Chapter 3, there is rarely reason for suspicion of unlikeness in the abilities grouped together because they seem to be simply differing degrees of goodness of the same ability producing differing degrees of goodness of the same kind of product. However, careless thinkers might so group all the abilities involved in learning, say, Latin and assert that the scores in tests or examinations meant simply varying degrees of goodness of one same ability. The use of the criterion would expose their error. To take another conceivable case, some thinkers might be so dull and careless as to express all the abilities involved in success as a physician as varying degrees of goodness of the ability to succeed as a physician. Again, the use of the criterion would expose the error; but so would the far simpler criterion that abilities alike in general nature and differing only in goodness will be alike in the general nature of their several situations and their several results attained or products produced.

Appendix II

A SECOND OBJECTIVE CRITERION FOR LIKENESS IN GENERAL NATURE AMONG ABILITIES DIFFERING IN LEVEL

Among the abilities differing only in level, the number which any given person has at any given time will vary somewhat with his condition (of sleepiness, fatigue, dullness, etc.). In other words, he will attain higher levels on some occasions than on others. Although, by hypothesis, if he were on all occasions in exactly the same conditions, he would succeed with all the tasks of that ability up to a certain level and with none above that, in fact he will show a variation. The procedure described in Appendix I may then be used as a criterion for similarity save in level.

The operation of this criterion will usually be even more laborious here than in the case of differences in goodness.

Appendix III

THE MEASUREMENT OF MENTAL ABILITIES

There are two simple golden rules: Measure all of the ability. Measure nothing but it.

To measure all of it does not, however, require measuring every item of it, but only that the sample be large enough and well-proportioned enough to give the same result that would be had if every item had been measured. For example, if the ability is knowledge of the meanings of English words (excluding proper names), a test with ten thousand properly chosen should give as useful a result as a test with twenty thousand or with fifty thousand or two hundred and fifty thousand. A test with even only a thousand will measure accurately enough for most purposes the abilities of most persons except specialists who extend their general vocabularies by thousands of special words from botany, chemistry, medicine or the like.

To measure nothing but it does not require that a perfectly pure sample free from any contamination by other abilities must be obtained, though that is very desirable. If pure samples are unobtainable or obtainable only at enormous cost of time and effort, we may manage by determining the amount of contamination and allowing for it.

For example, it is difficult to make tests of enjoyment of beauty which are entirely free from contamination by intelligence and knowledge. The more intelligent and better-informed persons are likely to apply certain notions about balance, simplicity and the like oftener and more suitably than other persons when they depart at all from naïve registration of likes and dislikes. But with sufficient ingenuity, one can arrange the content of the tests with traps so that intelligence and knowledge lower a person's score as often and as much as they raise it.

Measuring a human ability is usually more like taking an inventory than like using a tape, or balance, or thermometer.

Conceivably sometime science may be able to infer the amount of some traits of mind by a few ingenious questions or tests, or even by some biochemical fact or by the action currents in the brain. But for nearly all traits now, and for most of them for a long future, the measurement will not be by some simple symptom, which happens to parallel the trait perfectly, but by sampling the behavior and achievements which the trait is or causes.

Ingenious investigation will, however, often enable us to do much better than merely take a *random* sample inventory of relevant behavior and achievement. The Stanford Binet test of intelligence is an inventory, but a much better one than a random collection of questions would be. Giving the opposites of words is a far better test of intelligence than adding and multiplying numbers.

The test inventory should, if possible, enable the measurer to report the "level" of the ability in the person measured, and its "width" at each level where the width is less than 100 percent (or some specified high percentage).

Suppose, for example, that a valid measure of ability at chess is required.* We would waste no time in feeling the bumps on chess-players' heads, or getting their bodily conformation *à la* Kretschmer, or applying Rorschach tests. We would proceed at once to collect or create chess problems from the easiest to the hardest, problems representing justly the ability to develop the pieces, the ability to make combinations, the ability to handle the end game, etc.; find how hard each was; arrange them in a series of columns for each sub-ability, and levels for each amount of difficulty. We would obtain the records of success or failure at each problem (either in unlimited time or for convenience in some specified time) of enough persons of all degrees of ability at chess to provide the following information, supposing that we have also had our persons play enough games each with enough others to put the persons into an exact order of ability at playing chess:

* What follows may seem elaborate to the layman, but it is only a rough description of the main essentials of a measurement of a relatively simple ability.

The true correlation (within one percent) of score in each column with scores in every other column and with score at playing chess.

That weighting of the scores in the different columns which gives the maximum correlation with score at playing chess. If this maximum correlation is not approximately perfect, we shall have to begin over again by finding or creating more or better chess problems.

The smallest number of problems at each level which will give a score for that level which correlates perfectly or nearly so with the score for all the problems at that level. The prorating per column will be in accord with the optimum system of weights described above.

Suppose the smallest number varies from 25 to 32, for the different levels. We will take 32 or more (so as to have a factor of safety) at each level, and compute each person's score at each level. The best chess player should then have the highest score at the highest two or three levels, and either the highest score or a perfect score at all lower levels. The next-best chess player should have the next-to-the-highest score at the highest two or three (or possibly four) levels. And so on, the scores at appropriate levels correlating perfectly with the ability at chess.

If the correlation is not approximately perfect, it will mean that the set of chess problems (and probably any set) does not measure all ability at chess; in particular, that ability at chess as actually played includes responses to the personal competition, and to changes in the tactics of the opponent which even elaborate problems of winning or drawing against any defense do not cover. Conceivably some players might require the competitive stimulus to evoke their full ability, and others might be upset by it and not do as well in actual chess as in problems.

Even if the correlation is perfect, our measuring instrument may prove fallible in future use, by reason of persons learning the solutions to the problems before taking the test. It might be necessary to make dozens of such graded series of chess problems so that nobody could learn the solutions or get help from studying them save in the way of making him play chess better!

Consequently, it might be prudent to turn to an entirely different method and measure a person's ability at chess by having him play against selected series of players of known ability, systematizing and making precise the method now everywhere in use. The players would be arranged in levels, and it would be desirable to have at each level players with different sorts of play. At least two and probably more games should be played with each player at the levels near which the ability to be measured lies.

MEASUREMENT BY MONEY PRICE

The money price which the use of a certain ability for a certain time commands is a fact of great importance in a pecuniary civilization, and is often the nearest thing to a valid measure that can be had without more time and trouble than can be devoted to the matter. We can in some cases find out how near price is to ability by correlating true (or nearly true) measures of varying amounts of the ability with their market prices. This should be done before using price as a measure.

A great surgeon may receive for the same hour's work at the same operation five hundred dollars or five thousand dollars, because of the custom of adjusting fees to incomes. Tall boys are paid more than short boys for clerical ability of presumably equal quality because some employers retain the custom of preferring fine upstanding lads to run adding machines or check figures! Great originality and inventiveness in mathematics or psychology receive far less pecuniary reward than equal genius in engineering because an idea can be patented only if it is embodied in some physical object. The relations of supply and demand for different abilities and different levels of the same sort of ability may vary widely.

An ability may be so high that very few persons want it, as in the case of a wit so subtle that only one in a hundred of the readers of Punch could enjoy it. The less of his ability its possessor used the more he would be paid (down to a certain limit)!

The money paid ostensibly for a certain ability is often really paid for things other than it. So a medical man may be paid

for social talents or fashionableness rather than for medical ability; a clergyman may be paid for making his parishoners comfortable rather than for saving their souls or improving their actions.

Other forces play a part in contaminating money prices as measures of ability.

MEASUREMENT BY A CONSENSUS OF JUDGES

Often the best that can be done with the resources available is to have the ability estimated by persons supposedly competent to do so. That is about all that can be done with high levels of ability as a sculptor, painter, etcher, singer, philosopher, or poet, or with high levels of tact, courtesy, manners, grace, wit, or wisdom. The opinions rest, of course, upon observations of some sort ranging from definitely remembered observations that so and so achieved such and such to observations which have themselves faded out but have left as a relic the opinion that so and so has about such and such a degree of the ability.

It is sound practice to correlate the rating by half of the judges with the rating by the other half and to increase the number of judges, if necessary, to obtain a half-with-half correlation of at least .90. Even more important than the reduction of the error due to the variety of opinions by increasing their number is the prevention of systematic or "constant" errors whereby the judges tend, no matter how many there are, toward certain prejudices or illusions. All that can be done is to select judges to represent fairly all the points of view that should be represented, arrange the ways and means of expressing opinions so as to discourage any general tendency to make like errors, and test the consensus by objective facts in enough cases to expose any prejudices or illusions.

The first procedure (selection to represent fairly all points of view) is obviously impossible so far as concerns the ratings of the future and often impracticable so far as concerns the opinions of the past. The second procedure is helped somewhat by certain rating scales which assist the measurement in other ways also. The third is often a practical impossibility.

RATING SCALES

Scales designed to help judges in expressing their opinions and to help others in using the opinions may be scales of achievements or scales of persons. In either case they may vary from crude things constructed almost by guess to refined instruments devised with much thought and labor.

Consider judging the quality of handwriting. We may economize the time of all concerned and secure a certain agreement as to the adjectives, letters, or numbers that the judges use in rating pupils' handwriting by selecting ten or twelve specimens ranging from an excellent to a very poor handwriting and say "Let A + or 100 mean as good as this; let A or 95 mean as good as this; let B + or 90 mean as good as this"; and so on.

Half an hour spent in preparing such a scale may prevent certain judges from using eccentric meanings of their own, and also from shifting their meanings during the hour or hours they are judging, or from one month or year to another.

Such a scale will be much more useful if (1) specimens (here of various styles of writing) at each level of "goodness" are provided, if (2) the differences between each level and the next are known with some exactitude, and if (3) the scale extends down to a true zero of just not any merit (here as handwriting). The first desideratum requires much labor; the second requires the use of correct theory and very much labor; the third often requires much ingenuity as well as sound theory and labor. To casual observation, scales with the differences step to step accurately known and with all the steps properly related to a true zero point may not differ from scales put together by wrong principles or none. But for scientific treatment of abilities the advantages are very great.

The first of such scales constructed, which happened to be a scale for quality of handwriting, is shown in part on pages 976 and 977 (but with the dimensions of the specimens half as large as they are in the actual scale).

Consider now the extremely crude scale of persons for use in judging the amount of ability of a person to benefit a nation as its ruler, shown on the next page:

Provisional Scale for Rulers of Nations

9. The average of Frederic William III, the Great Elector
   Gustavus Vasa
   Henry IV of France
8. The average of Charles XI of Sweden
   John I of Portugal
   William III of England
7. The average of Albert (consort of Queen Victoria)
   Frederick VI of Denmark
   Leopold I of Belgium
6. The average of Frederick William IV of Prussia
   Louis Philippe
   Joseph II of Austria
5. The average of George II of England
   Henry II of France
   Humbert of Italy
4. The average of George III of England
   Louis XVI of France
   William IV of England
3. The average of Ferdinand IV, King of Naples
   Charles IV of Spain
   Philip II of Spain
2. The average of Alphonso VI of Portugal
   Charles II of Spain
   Christian VII of Denmark

Such a scale could be improved further by determining the value which represents the quality of ruling that would have been had if the ruler had by a miracle been replaced by an average man of forty, and noting this on the scale. An absolute zero in the shape of a person with just not any ability to rule is not a very important feature of such a scale of beneficial rulers because the scale goes to negative quantities, misrule, interferences with the nation's welfare. We are not measuring the values of various governments versus anarchy, but the abilities of persons assuming the general status of government of their time and place.

Historians and experts in political science will scorn such a scale; and so do I, who made it! Yet the subjective scales used

17 Then the carelessly dressed gentleman stepped lightly into Warren's carriage and held out a small card, John vanished be-

15 lightly into Warren's carriage and held out a small card, John vanished behind the bushes and the carriage moved along down the drive

held out a small card. John vanished behind the bushes and the carriage moved along down the driveway. The audience of passers-

John vanished behind the bushes and the carriage moved along down the driveway. The audience

Then the carelessly dressed gentleman stepped lightly into Warrens carriage and held out a small white

13 Then the carelessly dressed gentleman stepped lightly into Warren's carriage and held out a

ished behind the bushes and the carriage moved along down the driveway The audience of passers-by which had

Then the carelessly dressed gentleman stepped lightly into Warren's carrige and

Then the carelessly dressed gentlemen stepped lightly into Warren's carriage and

11 riage moved along down the driveway. The audience of passers-by which had been gathering about them melted away

along the down the driveway
The audiena of passers-by which
had been gathering about them

John vanished behind the
bushes and the carriage
moved along down the
driveway The audience

9 Then the carelessly dressed gentlemen stepped lightly into Warrens carriage and held out a small card, John vanished behind the

by which had been gathering about them melted away in an instant leaving only a poor old lady on the curb. Albert was sadly

Then the carelessly dressed gentleman stepped lightly into Warren's carriage moved and held out a small card, John vanished

7 card, John vanished behind the bushes and the carriage moved

5 bushes and the carriage

moved along down the

driveway. He andre

in the thinking of individuals, even of some historians and students of government, may be much worse. Regardless of the demerits of the sample scale, the possibility of such scales is as sure as the possibility of yardsticks. If it can truly be said from easily obtained facts that William the Silent, Gustavus Adolphus, and Frederick the Great were on the average better rulers than George III and Louis XVI, then by more adequate facts it can truly be said that rulers A, B, and C were not on the average so good rulers as William the Silent and Gustavus Adolphus, but averaged better than the average of D, E, and F, who in turn averaged better than the average of G, H, and I, and so on.

Scales of persons are in general inferior to scales of mental products or achievements, and for many reasons. One reason which the reader will not be aware of unless he is conversant with the theory and practice of mental measurements, is the so-called "halo" phenomenon. This is the fact that in judging a person's status in any particular ability or trait, judges unconsciously tend to prejudice their rating of him for that ability by their general opinion of him in a totality of abilities more or less allied to that one. Our general opinions cast a "halo" which influences our particular judgments. It is well nigh impossible to guarantee that our judgments of persons measure nothing but the ability or propensity in question.

Appendix IV

EXPENDITURES OF TIME BY BUSINESS GIRLS

TABLE 35

Reported expenditures of time (in hours per day, for an ordinary week) by business girls (468 in 1931, 485 in 1932). The entries in each column are computed from the tables of Nelson '34 for Sundays, Saturdays, and full work-days, after weighting the last as 5 to 1.

	1931	1932
1. Sleeping	7.96	7.92
2. Personal care	1.40	1.38
3. Medical attention	.01	—
4. Personal business	.03	.05

TABLE 35 (*Continued*)

	1931	1932
5. Eating	1.77	1.78
6. Work	5.98	5.75
7. Home responsibilities	.44	.54
8. Transportation (to and from work)	1.02	1.07
9. Automobile riding	.61	.63
10. Parks	.01	—
11. Shopping	.24	.22
12. Dates with men*	.06	.05
13. Swimming	.09	.08
14. Tennis	.06	.04
15. Golf	.03	.03
16. Horseback riding	.01	.01
17. Walking	.22	.19
18. Gardening	.03	.05
19. Boating	.03	.02
20. Other outdoor games	.03	.02
21. All trips	.01	.05
22. Cards	.18	.24
23. Other indoor games	.01	.05
24. Listening to radio	.25	.27
25. Listening to singing or playing in the home	a trace	a trace
26. Art museum	a trace	a trace
27. Singing or playing instrument	.04	.02
28. Resting	.13	.12
29. Talking with members of the household	.20	.17
30. Entertaining	.55	.57
31. Sewing	.08	.11
32. Arts and crafts	.02	.03
33. At seashore	.06	.03
34. Cemetery	a trace	a trace
35. Taking pictures	a trace	a trace
36. Writing letters	.05	.06

* "Dates" refers here only to those dates not otherwise defined; when reported in terms of a specific activity, they are classified as of that activity.

TABLE 35 (*Continued*)

	1931	1932
37. Reading (not specified)	.21	.17
38. Reading newspaper	.19	.21
39. Reading magazine	.07	.07
40. Reading book	.09	.18
41. Filling in questions	a trace	.01
42. Movies	.44	.34
43. Vaudeville	a trace	.03
44. Theater	.08	.10
45. Pageants, etc.	.01	.03
46. Concerts	.03	.04
47. Dance recital	a trace	a trace
48. Parties	.09	.07
49. Spectator at sports	.02	.02
50. Dances	.11	.11
51. Picnics	.07	.03
52. Vocational and professional study	.04	.07
53. Other studies	.04	.07
54. Church activities	.19	.28
55. Lectures	a trace	.01
56. Club activities	.31	.21
57. Amateur dramatics	.01	.01
58. Transportation (other than to and from work)	.25	.31
59. No record	.08	.03

Appendix V *

ON THE FALLACY OF IMPUTING THE CORRELATIONS FOUND FOR GROUPS TO THE INDIVIDUALS OR SMALLER GROUPS COMPOSING THEM

If the correlation between two traits, A and B (say, poverty and delinquency), in n groups (say, the residents of w districts) has a certain value, K, the correlation between A and B in the individuals or the families composing the groups need not be K and will not be, save in very special circumstances. It will usually be very much nearer zero. This is easily demonstrable, yet some able teachers have been guilty of thinking that the two correlations will be closely similar, or of leaving their students relatively unprotected against thinking so. And it is to be feared that many readers with little knowledge of correlation often misapply correlations between features of states, counties, cities, wards, classes, etc. to their constituent units.

I append an artificial illustration of the general fact, which will be of service especially in making the matter clear to students. A is supposed to be intelligence quotient, and B is supposed to be the fraction of a room or number of rooms per person.

Let the scores for sample persons in each of twelve districts into which a city is divided be as shown in Tables 36–47. Within each of the districts the correlation between A and B is zero. If all the persons in the sample are combined, the result is Table 48, and the correlation is 0.45. If the averages for the twelve districts are used, the result is Table 49, and the correlation is 0.90.

* This appendix is quoted from a note in the American Journal of Psychology, vol. 52, pp. 122–124.

TABLES 36 to 47

THE CORRELATION (ZERO) BETWEEN INTELLIGENCE QUOTIENT AND NUMBER OF ROOMS PER PERSON FOR EACH OF TWELVE DISTRICTS

The captions at the top of the Tables, −4, −3, −2, −1, 0, 1, 2, 3, 4 and 5, represent intelligence quotients of 64 to 71, 72 to 79, 80 to 87, etc. The stubs at the left of the Tables, −4, −3, −2, −1, 0, 1, 2, 3, 4 and 5, represent 0.20 to 0.39 rooms per person, 0.40 to 0.59 rooms per person, 0.60 to 0.79 rooms per person, etc.

Table 36

	−4	−3	−2	−1	0	1	2	3	4
−4									
−3				1	1	1			
−2		1	1	4	6	4	1	1	
−1	1	2	4	7	15	7	4	2	1
0	2	2	6	8	20	8	6	2	2
1	1	2	4	7	15	7	4	2	1
2		1	1	4	6	4	1	1	
3				1	1	1			

Table 37

	−4	−3	−2	−1	0	1	2
−4							
−3			1	1	1	1	
−2		1	2	4	4	2	1
−1		1	3	6	6	3	1
0		1	2	4	4	2	1
1			1	1	1	1	
2							
3							

Table 38

	−4	−3	−2	−1	0	1	2	3	4
−4									
−3									
−2				1	1	1	1		
−1		1	1	2	5	5	2	1	
0		1	3	5	10	10	5	3	2
1		1	3	5	10	10	5	3	2
2		1	1	2	5	5	2	1	
3				1	1	1	1		

Table 39

	−4	−3	−2	−1	0	1	2
−4							
−3		1	1	1	1		
−2	1	2	4	4	2	1	
−1	1	3	6	6	3	1	
0	1	2	4	4	2	1	
1		1	1	1	1		

Table 40

	−4	−3	−2	−1	0	1	2	3	4
−4		1	1	1					
−3	1	2	4	2	1				
−2	1	3	6	3	1				
−1	1	2	4	2	1				
0		1	1	1					

Table 41

	−4	−3	−2	−1	0	1	2
−4			1	1	1		
−3		1	2	4	2	1	
−2		1	3	6	3	1	
−1		1	2	4	2	1	
0			1	1	1		

Table 42

	−4	−3	−2	−1	0	1	2
−4							
−3			1	1	1		
−2		1	2	4	2	1	
−1		1	3	6	3	1	
0		1	2	4	2	1	
1			1	1	1		

Table 43

	−3	−2	−1	0	1	2
−4			1	1	1	
−3		1	2	4	2	1
−2		1	3	6	3	1
−1		1	2	4	2	1
0			1	1	1	

TABLES 36 to 47 (*Continued*)

Table 44

	−4	−3	−2	−1	0	1	2
−4							
−3							
−2				1	1	1	
−1			1	2	4	2	1
0			1	3	6	3	1
1			1	2	4	2	1
2				1	1	1	

Table 45

	−3	−2	−1	0	1	2	3
−4							
−3							
−2							
−1				1	1	1	
0			1	2	4	2	1
1			1	3	6	3	1
2			1	2	4	2	1
3				1	1	1	

Table 46

	−4	−3	−2	−1	0	1	2	3	4
−1									
0					1	1	1		
1				1	2	4	2	1	
2				1	3	6	3	1	
3				1	2	4	2	1	
4					1	1	1		
5									

Table 47

	−3	−2	−1	0	1	2	3	4	5
−1									
0									
1						1	1	1	
2					1	2	4	2	1
3					1	3	6	3	1
4					1	2	4	2	1
5						1	1	1	

Table 48

COMBINATION OF ALL THE PERSONS IN TABLES 35 TO 46

	−4	−3	−2	−1	0	1	2	3	4	5
−4		1	2	3	2	1				
−3	1	4	10	12	11	5	1			
−2	2	8	19	30	26	14	4	1		
−1	3	11	25	38	44	23	9	3	1	
0	3	7	21	33	50	29	15	6	4	
1	1	3	12	20	39	26	16	8	5	
2		2	3	9	17	16	12	9	3	1
3				3	4	6	8	8	4	1
4						2	3	5	2	1
5							1	1	1	

Table 49

AVERAGES OF THE TWELVE DISTRICTS

	−3	−2½	−2	−1½	−1	−½	0	½	1	1½	2	2½	3
−3													
−2½													
−2			1		1		1						
−1½													
−1				1	1	1							
−½													
0							2						
½								1					
1									1				
1½													
2											1		
2½													
3													1

Appendix VI

ON THEORIES OF THE ORGANIZATION OF A PERSON

The known facts about a person's abilities, proclivities, and wants are a list of the frequencies of his responses to certain situations, and of measures of the probabilities that he will respond in such and such ways. These are paralleled by certain anatomical and physiological (i.e. physical and chemical) conditions in his neurones. But about these almost nothing is known in the case of any person living or dead. These in turn are the outcome of a certain collection of genes plus certain experiences in life. But about the organization of these even less is known.

The "general factors" and "principal components" in abilities and proclivities which were mentioned in Chapter 4 as possible simplifications in an inventory of abilities, etc., are important also as possible simplifications of the organization of a person. Psychologists have sought eagerly for some further simplification of the thousands of abilities and tendencies which still remain after the consolidations described in Chapter 4. The main doctrines have been roughly as follows:

(1) The "general + specific" theory of Spearman that there are a few large and widespread factors, each of which acts with many factors which are specific in the sense that their intercorrelations are all zero. Chief among the widespread factors is G, originally announced as a general factor in *all* abilities, and later restricted to intellectual abilities. Others are P, allied to perseveration; O, to oscillation; and W, allied to "will" of early psychology.

(2) The "multi-factor" theory of Kelley, and, more recently, Thurstone, that important factors can be found which correlate zero each with any other but that these are many and are rarely general or even very widespread. Samples of the factors found to account for intellectual achievements by Kelley are ability with words, ability with numbers, and speed of mental processes.

Thurstone ['36] infers, from his analysis of an elaborate series of tests requiring 15 hours of time from each of 240 college students, the existence of seven primary factors, correlating zero

each with all the others, concerned respectively with (1) number, (2) visualizing, (3) memory, (4) word facility or word fluency, (5) verbal relations, (6) perceptual speed, and (7) induction. He finds evidence also of two others, one related to deduction and one not surely describable but possibly related to precision.

(3) The "specialization" or "empirical" theory of Thomson and Thorndike that factors like Spearman's G, P, O, and W, Kelley's "speed" factor, and Thurstone's deductive reasoning and inductive reasoning factors are in considerable measure statistical averages of things which are really different in behavior, in the nervous system, and in the genes so far as they are represented there. The specialization theory admits the existence of certain more or less unitary features of abilities and propensities such as are suggested by the words ability with words, ability with numbers, ability with abstractions, intelligence, fear, love of approval, sociability, and the like, but emphasizes the "or less," and is unwilling to attribute a behavioral, physiological, or genetic unity to a factor derived from the analysis of a table of intercorrelations unless there is corroborative evidence.

The clean-cut unitary factors of the first two theories would be of help in describing the natures of individuals, and in guiding them, if the factors were real and the amount of each such factor in a person could be measured by suitable tests.

Unfortunately this seems to be the case only rarely. And the recent work of Price rather strongly favors the specialization theory: "It would seem difficult to doubt that human homogamy has for long involved cross marital correlation in respect to desired traits, and an important cause of the intercorrelation of such traits is therefore indicated. The process which has been described is of course simply the throwing together or the association of traits which would otherwise be independently distributed in the population. To the extent that there is a common element in various concepts of the integration of personality and of character, it may be said that such expressions concern the predictability of one or several traits of the individual from one or several others, and this implies some degree of association of these traits in a group of individuals. In the present view, groups

in differing circumstances should be expected to develop differing ideas concerning desirable traits, and, through corresponding variations in homogamy, eventually to reflect those differences in the integrations of character found in their prominent members. Similarly, intercorrelations should change as generally recognized concepts as to what is desirable are changed by the conditions and needs of the group concerned. Since the effects of cross homogamy are cumulative, it is clear that the lag between changed circumstances and their significant effects on intercorrelations may be a marked one. We should expect however to find differing sets of intercorrelations for groups which have long mated under different sets of conditions.

"The fact that high marital correlations are observed for those capacity traits which intercorrelate highly is here considered to be of more than incidental importance. If it be argued that such marital correlations reflect in part or are raised by, non-genetic differences between social classes, then the same argument holds for the intercorrelations as obtained, and the presumption of a genetically causal relation between the two kinds of phenomena remains largely unaffected. It would appear likely that large numbers of genetically discrete traits which we have come to regard as comprising general mental capacity and versatility are simply traits for which mating has been crossly homogamous, and that this is a primary source of their marked intercorrelation and seeming unity. It appears from (2) above that for a marital coefficient of 0.75 maintained in respect to the sum of forty pairs of alleles determining general intelligence, the average intercorrelation throughout them would approach 0.07 at equilibrium if dominance were absent. Let us assume that the effect of dominance is to diminish this intercorrelation of the pairs to 0.05. It may be seen from the relation for the correlation of sums or averages that the correlation between two mental functions each determined by twelve different such pairs would be 0.39. If, say, four out of twenty of these pairs "overlapped" the tested functions, the correlation $r_{(1+2+\ldots+12)(9+10+11+12+\ldots+20)}$ would be 0.59. These arbitrary values suggest that the structure of intercorrelations may be unlike that assumed or anticipated in contemporary "factor analysis" methodology.

It has here been assumed that the alleles determining capacity traits are not only (i) many in kind and number, but also (ii) intercorrelated through cross homogamy. If (ii) is correct, the "obliqueness" variant in factor theory—that of allowing that the sought-for variates may be correlated—becomes a necessary line of attack. If (i) is correct, it is of course doubtful whether factor analyses can properly describe capacity functions in terms of a few variates.

"The Something which, as has been held, must cause the observed intercorrelations, may thus be in large part cross homogamy, and major variates may be much less necessary hypotheses than has been supposed. On the other hand, it is probable that there exist genes having pleiotropic effects in some degree analogous to the rôles which have been assigned to so-called general factors. Proponents of major variates have apparently been little concerned with this possibility and the effectiveness of such genes in causing intercorrelations is yet to be explored. In the writer's view, however, since solid evidence for either 'general' or 'specific' variates is lacking the probable multiplicity of genetically discrete but slightly correlated determiners should receive no less emphasis in present-day intercorrelation theory than should the possible singularity of certain as yet hypothetical factors." [Price, '36, p. 26 f.]

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