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THE ECONOMY OF HUMAN ENERGY

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BY

THOMAS NIXON CARVER, PH. D., LL. D.

New York

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PREFACE

Several years ago a volume appeared entitled "The Foundations of National Prosperity," bearing the subtitle, Studies in the Conservation of Permanent National Resources. It was written conjointly by four authors, Professors Ely, Hess, Leith and Carver. The last and least meritorious part, entitled The Conservation of Human Resources, was the present writer's contribution. It defended the thesis that the principal resource of any country was its fund of human energy, that this resource was easily wasted or dissipated, and that its conservation was the greatest of all economic problems.

Professor Ely, the promoter of the earlier volume, has urged the writer to expand his former contribution into a separate volume. This is now done, and the result is before the reader.

It contains practically everything that was in the author's part of the former volume, and some more besides. The reader will find much that is commonplace, but it is hoped that he will also find some new material and, especially, some new points of view. The author has long been convinced that moral practices have much to do with economic prosperity, and that it is therefore as inexcusable to ignore them as it would be to ignore geographical resources, currency systems or anything else that affects national prosperity. This is his apology for discussing such topics.

The author desires to thank Professor Ely and the Macmillan Company for the interest and consideration they have shown. He wishes also to express his sincere gratitude to Miss Helen Prescott for her interested and faithful work which made the preparation of the manuscript possible.

Cambridge, Mass.
May 1, 1924.

INTRODUCTION

Much that is said and written on the subject of waste is confined to the waste of money, food, fuel and other material resources. These things are important in themselves and deserve attention. The only serious form of waste, however, is the waste of man power or human energy.

Habits which look wasteful may prove to be highly economical when studied with a view to the waste or economy of human energy. Americans, for example, are said to be wasteful. They are in a sense, but in another and more important sense, they are the most penurious people in the world. We are wasteful of money in a way; but strictly speaking, money can not be wasted except when it is worn out or lost. If one loses it, some one else gets it. When it is misspent for a useless thing, the thing that is really wasted is the man power that is hired to produce the useless thing. When it is wisely spent, or economically spent, the thing that is really economized is the man power that is hired to produce the useful or beneficial thing.

We are also wasteful of food. It is commonly asserted that an American family will throw away enough to feed a European family. That may be true; and doubtless the great American garbage can will bear looking into. To save all that food, however, would require time and painstaking care, and Americans are

penurious of time. To spend valuable time saving a few cents worth of food is not necessarily economical. People who do not value their time, either because it is not worth much or because they do not know how much it is worth, can spend time lavishly to save a few pennies or a few scraps of food. They may be said to be spendthrifts with respect to time and misers with respect to other things. Americans are likely to be penurious of time but spendthrifts in everything else. Doubtless a sound balance between the two forms of penuriousness would be better than either extreme, but that is no reason for rushing from one extreme to another.

Americans are also exceedingly economical of labor. No other people make such extensive use of labor-saving devices. More than half of all the telephones in the world are in the United States. More than two-thirds of them are in the United States and Canada. The telephone saves time and effort, but it costs money. It costs money in more ways than one. Our whole system of retail marketing has had to adjust itself to the fact that householders are determined to save themselves time and trouble. In order to save the householder's time and trouble the food merchants have to incur expenses that are not necessary in countries where householders go to market and carry their purchases home in baskets.

Even our amusements are taken in a hurry, so determined are we to save time in everything. One of the first things a child wants to do is to "go." Grownups seldom outgrow it. The automobile is only a glorified go-cart, and every one who can afford one, and is not too old to learn to drive, has one.

The waste of food is, ultimately, a waste of the man

power that produces it. To waste more man power trying to save some food than would be required to produce an equal amount would be poor economy. It would be a little like urging a carpenter to climb down from his scaffolding to salvage a nail that had been dropped, or a lumberman to waste a lot of time saving small branches of trees for fire wood. These things are done in countries that have man power to spare, but not in a country that tries to economize its man power.

In order that our people may be encouraged to think of every economic question as a question in the economy of human energy or man power, this book is written.

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"When in company where people engaged themselves in what are commonly thought the liberal and elegant amusements, he (Themistocles) was obliged to defend himself against the observations of those who considered themselves highly accomplished, by the somewhat arrogant retort that he certainly could not make use of any stringed instrument, could only, were a small and obscure city put into his hands, make it great and glorious."

From Plutarch's Lives,
Clough's edition, page 78.

THE ECONOMY OF HUMAN ENERGY

CHAPTER I

THE EQUILIBRIUM OF HUMAN ENERGY

The theme of economics.

National prosperity is the theme of economics. What makes a nation prosperous is the question upon which every economic discussion that is not a waste of breath must throw some light. Why do some nations prosper and others not, under equal or similar geographical conditions? Because some economize and others waste their energies or their working power. Why do some nations advance and others retrograde in civilization? There is no mystery nor magic about it. It is a question of what the people do with their energy or working power.

How prosperous does a nation deserve to be?

Given a reasonably favorable geographical situation, any nation can be just as prosperous as it deserves to be. Its prosperity is limited only by its own wisdom and virtue as shown in the economizing of its energies. It can not, by any possibility, prosper by wasting its energy or its man power; it can not help prospering if it economizes it. The problem of economizing the energies of millions of people is, however, a problem of the greatest complexity, involving factors whose results can be pre-

dicted or measured only with the greatest difficulty. But the fact that a problem is difficult is no reason for not solving it, especially when it is a problem of such vast importance as this.

Living a problem of energy.

The problem of living, even in the animal sense, is largely a problem of economizing energy. The energy used up in merely keeping alive must, of course, be replaced from some source, or the animal can not remain alive. In addition to the overhead expense, or the fixed charge of merely living, all the higher animals have running expenses as well. The most important item in the list of running expenses is the energy used up in scurrying after food. When all these fixed charges and necessary running expenses of the organism are more than replaced by the energy income from the food obtained, life becomes profitable. When there is a surplus of energy, or an energetic profit, the surplus may then be used in ways that make life worth more than it costs. Whether there is a surplus of energy or a deficit, depends upon how effectively energy is expended in the quest for food. If it is used uneconomically there is likely to be a deficit of energy, tending toward bankruptcy and extinction. If it is economically expended, there is likely to be a surplus of energy which makes possible an expansion of life in several directions.

Dissipating surplus energy.

There are several ways by which an animal may dispose of a surplus of energy when such a surplus exists. It may, on one hand, dissipate the surplus in sloth, in play or in the multiplication of numbers; it may, on the other hand, store up energy, either in the form of fat

or in the form of a hoard of unconsumed food material. If it remains idle, the mere overhead expense (in terms of energy) of living will soon use up any surplus and make it necessary sooner or later to resume the quest for food. If it plays, the increased expenditure of energy through its muscles will hasten still more the necessary renewal of energy by means of new food. If it multiplies, the increasing numbers will make it harder and harder to find food and will therefore prevent any permanent surplus from ever accumulating. The storing of a hoard of fat or of raw foods has its limits and at best only permits an animal to live through a period of deficit caused by drouth or cold. The normal life processes tend to prevent anything resembling a permanent surplus and to preserve an equilibrium of energy.

The Equilibrium of animal energy.

By an equilibrium of energy, in this sense, is meant a condition in which the animals of a given species, living in a given habitat, are barely able to secure enough food to replace the energy that is used up in the process of maintaining the number of the species. All the food that the average individual can get is just enough to replace the energy that is used up, first, in merely living; second, in escaping from or fighting against enemies; third, in the process of finding or gathering food; and fourth, in reproduction to replace the old and wornout individuals, or to enable the birth rate to balance the death rate. This leaves neither a surplus nor a deficit of energy, there being just enough to enable the species to live and get a living without increase or diminution of numbers. There is no chance for rest beyond what is necessary for recuperation; there is no chance for

play except on the part of the young, whose play is a means of developing the powers that will later be necessary to the work of living; there is no opportunity to store up fat or hoards beyond what is necessary to tide them over regularly recurring spells of cold or drouth. And they are not able to reproduce faster than is necessary to balance the death rate, any increase in the birth rate, under these conditions, forcing an increased death rate because of lack of subsistence.

Tendency toward an equilibrium.

If, for any reason, this equilibrium is disturbed, it tends to re-establish itself. Let us suppose, for example, that for any reason, food should become so abundant, or so easily procured, as to create what, in a former paragraph, was called a surplus of energy. That surplus would certainly be dissipated in one of the ways indicated above. First, the animals would not exert themselves to procure more food than was necessary to keep alive. In other words they would rest while the life process used up the surplus of energy. Second, they would play, and the increased muscular activity would use up the surplus. Third, they would store up surplus energy in the form of fat or a hoard. Unless this stored up surplus is used to enable the animals to rest, play or reproduce at a later time, it is of no use to them. If they expend energy in accumulating a hoard which they never use, the energy used in the process is lost as certainly as though it had been expended in play or rest. Fourth, the animals would reproduce more rapidly, the birth rate would, for a time at least, exceed the death rate, and numbers would increase. This increase of numbers

would, in turn, make food harder and harder to get until the equilibrium was re-established.

Reproduction as an outlet for surplus energy.

So powerful is the procreative tendency in all of the lower orders of life that the fourth of the above possibilities is certain to become a reality. Well-nourished plants produce seeds in such numbers as to insure that the ground will quickly become seeded and that it will bear as many plants as the soil can nourish. Grass will grow as thick as the soil will support. The power of reproduction is never, except for short periods, the limiting factor in the determination of numbers; but numbers can never be greater than the limited subsistence will permit; in other words, the power to get food is always, in the long run, a limiting factor and will become the limiting factor where enemies and other destructive agencies do not keep numbers down. The same is true of all animals so far as they are known. Given ample nourishment and freedom from destructive enemies, they can all reproduce at a rate that will exceed any natural death rate. That is to say, a single generation can produce offspring and bring them to maturity in numbers greater than necessary to replace itself. A single pair can, during a normal life, produce and bring to maturity more than two offspring. There never can be more than two deaths among the two parents. There can be many more births from them. Unless enemies or hunger prevent the young from maturing and reproducing, each generation will be larger than the preceding. The inevitable result of this is so to increase numbers as to overstock the pasture, overpopulate the region, or make it so hard to get food as to either increase the death

rate or decrease the birth rate until there is a balance between the two.

If, however, the equilibrium is disturbed in the opposite way, the same tendency toward a restoration of the equilibrium shows itself. Let us suppose, for example, that a given cattle range becomes overstocked, so that the cattle can not get food enough to replace the energy used up in living and searching for food and water. The herd will be thinned out in some way. The death rate may increase, the birth rate decrease, or they may migrate if there is any understocked range to which they can go. When they are sufficiently thinned out, the remainder can live and maintain the equilibrium. Thus we see that, no matter how the equilibrium is disturbed, it tends to reassert itself. This is one phase of what biologists call "the balance of nature."

The energy cycle.

Men have not been able to escape from the energy cycle. Says Birck:[1]

"As a means man is a *working machine* which creates and supplies *energy;* our consumption refunds us the energy expended by our activity; part of the energy supplied through our consumption is expended merely in keeping alive—in "preserving the machine." We know from feeding-experiments that the functions of life consume a great part of the calories of the food, and that only part is transformed into muscle; only part of the energy supplied is converted into productive work. Progress, whether individual or universal, is founded upon the existence of a surplus of energy; part of the energy at our command we invest in the productions of our labour. The *workman* is possessed of *working-power* which produces "doses" of *energy.* These doses of energy may be useful in themselves (personal services) or be incorporated in things (substances);

[1] See L. V. Birck, *The Theory of Marginal Value,* p. 2. London, 1922.

substances as well as services are thus economic goods. We now have the circle: Human energy—production—economic goods—consumption—satisfaction—energy. Compare: want—effort—satisfaction.

More effective ways of storing energy.

Apparently the only ways in which human beings have improved on what plants and animals have done with their surpluses are, first, to invent more ways of playing; second, to invent new and more effective ways of storing; and third, to gain some control over the rate of multiplication. By inventing more ways of playing, we have probably managed to get more fun out of life. By storing in more effective ways we have been able to plan our work with a longer look ahead and have not been limited by the daily necessity for food to live from hand to mouth. By exercising some control over the rate of multiplication some branches of the human race have avoided such prompt overcrowding as takes place among plants and animals, and have, at certain times and places, maintained for centuries a surplus of energy. Except during these sporadic periods of civilization, the greater part of the human race has never been much further from the state of equilibrium described above than have the lower animals. Even civilized men have seldom realized on how narrow a margin of surplus energy they were operating.

Migration as a relief for overpopulation.

Migration as a means of relieving the pressure of population upon subsistence is usually at the expense of some other race or species. It may relieve the pressure of population in the case of the emigrating group, but it must obviously increase the pressure on the part of the

group already occupying a new territory. In the case of human populations, this usually involves a war of conquest, and in some extreme cases, a war of extermination.

It is strange how the expansion of territory has been minimized in discussions of problems of food and population since Malthus wrote his famous essay. It has been pointed out with almost depressing frequency that people of European extraction have multiplied greatly since Malthus's day without any decrease in the standard of living or any approach to starvation. The depressing part of it is that this is commonly regarded as a refutation of Malthus. Such writers overlook the fact that the area from which these European peoples have drawn their food has expanded even more than the population. In order to make it a valid refutation of Malthus, it must be shown that the present numbers of European races could live as well from European soil as they now live from the wide areas from which they draw their subsistence. It would be necessary to show that people of English descent could all live as well from the soil of England as they now live from the soil of England plus that of the United States, Canada, Australia, South Africa and all the other areas from which they draw their subsistence. It is so obvious that the problem of feeding increasing populations from increasing areas is different from the problem of feeding increasing populations from the same area, that it is hard to account for the fact that men with apparent intelligence have failed to see the distinction.

Migration does not ordinarily increase variety of food.

It has even been suggested that the reason for spreading over more territory is not in order to increase the total means of subsistence, but rather to increase the

variety of food.[1] Pioneers who emigrate to new countries generally enjoy less variety than those who stay in old countries. No new varieties of food were added to those available on the Atlantic seaboard when the American population spread into the interior valley. They did, however, enormously increase the quantity of such standard foods as they already had.

An equally preposterous idea has been that people migrate primarily for the purpose of seeking a climate that is more suitable to their physiological makeup. Whether the desire for variety or the desire for endocrinological adaptation has had any influence or not would be difficult to determine. If any one will undertake to estimate whether it would be physically possible to grow enough food on our Atlantic seaboard to feed our upwards of 100 million people, he will not be in much doubt that the desire for more subsistence would have been a perfectly valid reason for seeking more land on which to grow this subsistence. At any rate, whatever the motive, the undoubted fact is that by cultivating the great Mississippi valley, more subsistence is made available than would have been available if only the Atlantic seaboard had been cultivated. It would require an unusually original and suggestive writer to deny this, and even he would have a hard time showing that this vast area had increased in any degree the variety of our food.

Pent-up and expanding civilizations.

A very important difference in the types of civilization depends upon the question whether a given branch of the human race continues indefinitely to draw its subsistence mainly from a fixed area of land or is will-

[1] See Simon N. Patten: *Essays in Economic Theory,* page 270. New York, 1924.

ing to draw its subsistence from wider and wider areas. In the first case there is likely to develop what may be called the pent-up type of civilization. In the second case there develops what may be called the expanding type. The pent-up type of civilization presents only two alternatives. The first is birth control, in order to keep population within limits. The other is overpopulation and the lowering of the standard of living, such as is found in certain Oriental countries. The expanding type of civilization leads either to emigration and the colonization of new lands, or it leads the people to turn to indoor industries and the expansion of markets. If the people can buy their materials from wider and wider markets and sell their finished products to other markets, living on the profits of the transaction, there is scarcely any assignable limit to the number of people who can make a living. This might be called commercial self-support, which is a very different thing from what may be called physical self-support.

Types of Civilization
- Pent-up
  - Birth Control
  - Overpopulation
- Expanding
  - Migrating to new lands
  - Developing new markets

CHAPTER II

ENLARGING THE STREAM OF HUMAN ENERGY

Transforming solar into vital energy.

In a physical sense, every living creature is engaged in the business of transforming solar energy into something which, for want of a better name, is generally called vital energy.[1] A certain infinitesimal fraction of the vast fund of energy given off by the sun reaches this planet. Of this, a small fraction is transformed into the energies of plant life. A part of this, in turn, is stored in the bodies of plants. When these are eaten by animals another transformation takes place and a part of the energy that was stored in the bodies of the plants is, in turn, transformed into that of animal life. Of this a part is again stored in the bodies of animals. When plants and animals are eaten by human beings a part of the energy that was stored in their bodies is again transformed into what we shall call human energy.

Human energy interesting to humans.

From the point of view of the physicist and the biologist, human energy may not differ significantly from any other form. From the point of view of the economist and the sociologist, human beings are more interesting than other things, and human life seems more valuable than lifeless matter or than other forms of life. Human

[1] Cf. a brilliant article entitled "In the Beginning," by Frank C. Eve in the Atlantic Monthly for May, 1923.

energy seems therefore more worth while than other forms of energy. From this point of view a distinct gain is made whenever solar energy is transformed into human energy.

This conclusion seems to be acted upon by every living creature, however much or little it understands. Human beings like other living creatures seem to be driven by a force that they neither understand nor care to resist, to keep on living, to consume food and transform it into human energy, and to increase their numbers, thus, in every way, enlarging the stream of human energy. In short, they act unconsciously, driven by their own nature, precisely as they would act consciously if they were convinced by unanswerable logic that the most valuable thing in the world was human energy or human life, and the most profitable thing in the world was to transform the largest possible sum of solar energy into human energy. They are driven as by invisible goads to raise the maximum quantity of energy from lower levels to this higher level. They regard themselves as successful in proportion as they succeed in this endeavor, and as failures in proportion as they fail in it. They also evaluate most things according as they help or hinder in this endeavor. Why they should evaluate things on this basis would be almost as hard to explain as why they should evaluate things in terms of happiness, self-realization, or anything else, and the explanation would not be worth very much more after it was given.

The great economic problem.

More intelligence in the aggregate has probably been applied to this problem of enlarging the stream of human energy than to any other problem—probably than to all

others combined. This statement is made with a full consciousness of the many brilliant achievements in other fields. But the great masses of men, for untold generations, have been applying their intelligence, day in and day out, year in and year out, to the great problem of getting more and more subsistence for more and more people. Everywhere subsistence has limited numbers. The power of reproduction is so great that, given ample subsistence, no assignable limit can be given to any population. The power of reproduction is not the limiting factor in population. Subsistence is always limited, and population is limited by subsistence. The tribes that succeeded in securing the most subsistence have, in general, had the largest populations. They have also been able to devote more energy to other things than the getting of subsistence than those tribes whose subsistence was more limited.

To say that human intelligence has been applied to the problem of transforming the largest possible quantity of solar energy into human energy is the same as saying that human intelligence has been applied to the problem of economizing human energy. It is only by economizing the energy that is developed in our bodies and released through our muscles that the stream of human energy can be enlarged. How to apply the energy developed in the bodies of this generation so as to make it possible for the largest possible number of people to live and to live as well as possible in this and subsequent generations is the ultimate economic problem for each and every generation.[2]

[2] An enlargement of this idea will be found in a profound and brilliant article by Professor Walter F. Willcox entitled "A Statistician's Idea of Progress," in the International Journal of Ethics, vol. xxiii.

What it means to live well.

The phrase "to live as well as possible" as used in the last paragraph may mean different things to different people. To some it means a life of sloth and idleness in which the energy developed in one's body is applied to nothing in particular, and certainly is not applied in such a way as to enlarge the stream of human energy. To others it means a life of gluttony, either material or spiritual, in which the individual's surplus energy is devoted to the purpose of registering the largest number of pleasant sensations, sometimes of a physical, sometimes of a spiritual sort. To others it means a life of play, the energy developed in the body being used up in frisking about, physically or mentally, doing whatever pleases one, whether the thing done is productive or not—that is, whether it enlarges the possibilities of human life, the stream of human energy, or not. From our point of view, living well means living an energetic life, that is, a life in which the energy of the body is not only made kinetic, but is so applied as to enlarge the possibilities of human life, or to enlarge the stream of human energy.

Is there any solid reason for believing that one idea as to what it means to live well is better than another? If one prefers a life of sloth, another a life of gluttony, another a life of play, and still another a life of productivity, is there any reason that one can give to show that his preference is better than any of the others? All he can say is that he likes it better, or that he can not imagine how any one could possibly get any fun out of anything else, every one to his taste, etc., etc. This sort of argument gets us nowhere.

It makes a difference whether our desires are sound or unsound.

Let us grant, for the moment, that if one likes some kind of productive work as well as another likes sloth, gluttony or play; or, to put it otherwise, if work seems as pleasant to one as sloth, gluttony or play to another, then he will live as well as any of the others when he is enabled to do what he likes. The statement could then, of course, be reversed and we could say that if one likes sloth or gluttony or play as well as another likes some kind of productive work, then the one lives as well as the other if he is enabled to enjoy what he likes. We may admit, for the sake of argument, that one man is as good as another and is as much entitled to his own tastes and preferences. If it should turn out, however, that more men of one kind can get what they want than is possible for men of another kind, there would seem to be some numerical advantage in favor of one kind of men as compared with the other kind.

Granting that the slothful man gets as much satisfaction from being slothful as the productive man gets from being productive, the argument is not closed by that admission. The slothful man, in the process of enjoying his slothfulness, does not contribute anything to the enjoyment of any one else. The productive man does. As a result of his enjoyment, things are produced or services rendered which contribute to the satisfaction or happiness of some one else. Even the slothful man would rather have productive than slothful neighbors. He may enjoy more rest if others are producing than he is likely to if they are not. He in turn is not contributing anything to their satisfaction. His productive neighbors would rather have productive than slothful neighbors. They

would find it more to their own interest, other things equal, to produce the things desired by productive neighbors than to produce things desired by slothful neighbors. The former would be able and willing to pass the service along, or pass it back, whereas the latter would only absorb it.

Is one kind of man as good as another?

The same thing may be said in another way by imagining two communities starting with equal numbers and equal natural resources. Let us call these two communities Workham and Restham. Workham is made up of the kind of people who can and do find real satisfaction in productive work. They find it fun because they are built that way, or because they are that kind of people. Restham is made up of people who find no real pleasure in anything but rest. They love to bask in the sunshine, or to while away their time in other easy ways. Their surplus energy, if they have any, is used up in merely keeping alive. They do this because they are the kind of people who cannot imagine how anybody can get any pleasure out of productive work or out of anything but rest.

We may admit for the sake of argument that, man for man, the citizens of Restham live as well, or get as much out of life as the citizens of Workham. At least we may admit that and still make out a good case for the citizens of Workham. The point is that, in the course of time, there will be many times as many Workhamites as Resthamites. If, man for man, the Workhamites get as much happiness as the Resthamites the fact that there are more Workhamites than Resthamites proves arith-

metically that there is a greater sum total of happiness among the Workhamites than among the Resthamites.

This, however, compels us to abandon an assumption made earlier in this argument, namely, that one man is as good as another. It comes very near proving that the Workhamites are really superior to the Resthamites. A community, a nation, or a world peopled with Workhamites would be a better community, nation, or world than one that was peopled with Resthamites. More solar energy would be transformed into human energy in one case than in the other, or, as some would prefer to have it said, more human happiness would exist in a Workhamite than in a Resthamite world.

All that has been said about people who are so constituted as to be unable to get any pleasure out of anything but rest can be repeated regarding those who are so constituted as to be unable to get any pleasure out of anything but gluttony or play. The same difference exists between people thus constituted and people who can get pleasure out of work as was shown above to exist between the Workhamites and the Resthamites.

Work and play.

A quibble might be introduced here by one who would say that if the Workhamites really get fun out of their productive work, then work becomes play to them. Very well, then, we will distinguish between those to whom productive activity is play and those to whom it is not play, or between those who can play at something that is productive and those who can only play when they are doing something unproductive. The kind of people to whom productive action is play are a superior kind of people because more of them can live and play at that

sort of thing than can live and play at unproductive exercises. If, man for man, they get equal quantities of fun, there will be more fun where there are more than where there are fewer men to enjoy it.

Another objection that may be offered is that there must be resters, gluttons or players in order to use up the products of the producers. The answer is that producers can use up one another's products. If with frugal consumption and efficient production there tends to be a surplus of production, that surplus can be disposed of through the increase of producers. A great many more people can be provided for where every one of mature age is a skillful producer than where many are either non-producers, or are using up a great deal of their energy in non-productive ways. If they are the best kind of people they can, as we have already seen, get just as much pleasure per individual out of life as the non-producers, and support a much larger number of individuals besides.

A question of balance.

A more valid objection, so far as it goes, is found in the fact that every one gets some pleasure in all four of the ways we have been considering. No one is so lazy as not to enjoy a certain amount of play and work, as well as of luxurious consumption. No one is so gluttonous as not to enjoy a certain amount of rest, play and work. No one is so playful as not to enjoy a certain amount of rest, luxury and work, and finally, no one is so industrious as not to enjoy a certain amount of rest, luxury and play. All this is true enough, but these different kinds of capacity for pleasure are combined in different proportions in different men. A great

deal depends upon that proportion. In general it may be said that they who are so constituted as to get a great deal of pleasure out of productive work are superior to those who get very little pleasure out of it. The reasons are the same as those in favor of the proposition that the Workhamites are superior to the Resthamites. In fact, that illustration could be repeated, if it were necessary, by merely describing the Workhamites as deriving a relatively large amount of pleasure from productive work and the Resthamites as deriving a relatively large amount of pleasure from rest. There are higher and lower types of citizens according as these and other capacities are combined in different proportions.

Higher and lower desires.

While on this topic we might as well consider a closely allied subject, namely, that of higher and lower desires [3] A desire whose gratification increases one's ability to gratify other desires must be regarded as superior to one whose gratification does not so increase one's capacity. The reason is similar to that by which we have shown that an individual who finds pleasure in productive action is superior to an individual who does not. Let us take the case of a desire for an exhilarating drug which does not nourish the body or furnish it with any energy and compare it with the desire, equally strong, for some pleasing confection which is not only pleasing but nourishing. If the two desires are equally strong and their gratification equally pleasant, we might say that the two desires were equally commendable if we

[3] A very illuminating discussion of this topic is found in an article by A. F. McGoun in the Quarterly Journal of Economics for February, 1923.

were willing to let the case rest there. But if we follow the two cases a step further we shall find that there is a difference. The consumption of the exhilarating drug produces no new energy with which to produce new supplies of this or any other means of gratification, whereas the consumption of the pleasing confection, which is also nutritious, produces at least a little new energy with which to produce new units of this or some other means of gratification.

Let us assume that in two communities, equally equipped with mental capacity and natural resources, there are different habits of consumption.[4] In Community A, let us assume, to take an extreme case, that there is a strong desire for the exciting drug that produces exhilaration, but does not nourish and is not capable of being transformed into energy through combustion within the system. In Community B, there is an equally strong desire for the confection which gives the same pleasure as the exhilarating drug in the other community and which happens also to be nourishing or capable of being transformed into energy by combustion within the system. So far as the immediate effects are concerned, the satisfaction which the people of Community A get as the result of consuming the exhilarating drug may be just as great as that which the members of Community B get from consuming the nourishing confection. Up to this point the two cases balance. The one may be said to cancel the other, the same amount of satisfaction being secured in the two communities in the first instance. But the problem does not end at this point. In Community A, after the exhilarating drug has been consumed, no

[4] See *Human Relations* by Carver and Hall, D. C. Heath & Co., 1923, pp. 275-277.

new energy has been created in the process. There is no increase in the power to get new supplies of the drug or of anything else. In Community B the consumption of the nourishing confection at least tends to restore some of the energy used up in its production, so that there is more energy available in the second period of production in Community B than in Community A. The normal result would be that, in this second period, Community B would have an increased supply of its nourishing confection or of something else, but there is nothing in the consumption of the exhilarating drug in Community A to increase the productive power of the community or enable it to increase its supply. Community B would, therefore, other things equal, be able to secure during succeeding periods of production larger supplies of its nourishing confection and other desirable things and support larger numbers and thus get larger quantities of satisfaction from its consumption, whereas Community A would not enjoy any such increase. The differentiation thus begun between the two communities, if other factors are equal and this difference alone persists, would increase from period to period, or from generation to generation. The energy used up in the process of getting the exhilarating drug is not replaced by the act of consumption. The energy used up in getting the nourishing confection is replaced in greater or less degree, and there is more energy available for getting what Community B wants than there is for getting what Community A wants. This difference, though stated quantitatively, constitutes a real qualitative difference between the desires of these two communities. Community B will be able to produce more of the thing it desires or support more life and support it more amply than Community A will be able

to do. If, instead of the desire for a pleasing confection which contains very little nourishment, we substitute the desire for productive action itself, the case becomes still stronger.

Good and bad citizens.

We may conclude, therefore, that one characteristic of a good citizen is the possession of desires whose satisfaction tends to increase the power to gain the means of satisfaction, whereas a characteristic of a bad citizen is the possession of desires whose satisfaction does not increase the power to secure increasing means of satisfying desires, either his own or those of other people.

Can men get as much pleasure from nourishing confections as from exhilarating drugs? The answer is that some men can and do, and that fact constitutes them better men than those who can't and don't. Can men get as much pleasure out of productive work as out of sloth, luxury or play? The answer is that some men can and do. That fact, again, constitutes them better men than those who can't and don't. There are such men and they are the greatest contributors to the life of civilized men. A community, a nation, or a world peopled with such men would be a better community, nation, or world than one peopled with the opposite sort. Carried to its highest development such a world would be one in which every one took delight in producing whatever himself and others needed. Whether the products were distributed by the universal giving of gifts or by the processes of buying and selling would not matter much, though the latter would probably come nearer fitting every product to every need than the former. Producing for a market at least takes into consideration what

some one else really wants; whereas giving gifts is more likely to be governed by what the giver likes to give, or, if he gives his own product or service, by what he likes to produce or do. The more we can increase the number of such men the better the world will become. The country that possesses the largest number of men who take delight in producing what others need will be the best, the most prosperous, and the most progressive country—the country in which even the rest of us would prefer to live because, whatever we want, there will be more opportunity to get it in such a country than in any other.

The argument has been presented in this form for the benefit of those who believe that human happiness is, or should be the end of all human endeavor. The author is not of that number, preferring to look upon pleasure as a lure and upon pain as a prod to induce us to function as living creatures in enlarging the stream of human life or of human energy. What life is for is beyond his comprehension, but no more so than what happiness is for, if it be not as a lure to the enlargement of life. It is quite as easy to posit life as the final end, the *summum bonum,* as to posit anything else. It is as easy to ask what happiness or self-realization is for, or what makes happiness or self-realization worth while, as to ask what life is for or what makes it worth while; and there is quite as much sense in one such question as in another. However, though the author holds firmly to the opinion that life is the end, and pleasure and pain merely the lure and the prod that promote life, nevertheless, he can see that if men collectively and in a wise and large-minded way will follow the lure and avoid the

prod, they can not go so very far wrong in their practical conduct of affairs.

The pursuit of happiness.

But what does it mean to follow happiness in a wise and large-minded way? It is very likely to mean to follow it in such ways as will promote the largest life, enlarge the stream of human life, or transform the maximum of solar into human energy. Some men are so built as to get happiness mainly through sloth or gluttony. The pursuit of happiness means to them the pursuit of the only means to happiness that they know. To tell them that they do not attain true happiness by that means is to tell them what is not true. To tell them that if they were the kind of men who could get happiness from productive work they would be better men than they are would be a true statement, but it would not enable them to get happiness from work. Nor would it help matters much to appeal to their altruistic motives and tell them that they ought to promote the happiness of others by working, even though the work was disagreeable to themselves. If that be true, they could reply, "Then others ought to promote our happiness by working also." In fact every one ought to promote the happiness of every one else by doing the thing that does not bring happiness to himself. In short, every one would be making himself miserable in order to make others happy and insisting that they in turn should be making themselves miserable trying to make him happy. As a means of enlarging the stream of human life and energy, they could say, your plan is admirable; but as a means of deliberately promoting happiness it seems to be self-destructive.

Happiness is elusive.

However, it seems to be the general experience that they who deliberately pursue happiness seldom get it, while those who forget about happiness and deliberately function as members of an expanding society, each one enlarging the life stream, are happy without intending to be. This probably means something. Pleasure as a lure to lead us to function, and happiness as a sign or symptom of proper functioning are apparently factors in the life process. As signboards they work admirably, but signboards were not made to be collected, and they who spend their time trying to collect them seldom find them satisfying when collected.

Self-realization.

The author cannot accept self-realization as the end, and for much the same reason that he is unable to accept happiness as the end. It seems that we must accept the biological fact of variation. Individuals are not alike and it is useless to pretend that they are. It is the nature of one individual to prefer one thing and of another to prefer another. In following his own real nature, one individual will do things that we simply cannot have done; another will do things that we desire to have done. It is useless to talk to the one about his higher or his better self. He knows that such terms are subterfuges. To the other it is natural to work. To him self-realization comes through productive work. To the one it is natural to loaf, and to him self-realization means loafing. It is less near the truth to say that his higher self would be realized by doing what he is disinclined to do but which comes natural to some one else, than to say that his self is inferior to the other man's self.

To say, however, that a man only realizes himself when he functions to the limit of his possibilities, is only an obscure way of saying what might be said much more clearly, namely, that he is a better man when he is producing to his limit than when he isn't. The standard is thus changed from some assumed or hypothetical self, which may be very different from his real self, to an objective, quantitative standard of accomplishment. "By their fruits ye shall know them."

CHAPTER III

THE STORING OF SURPLUS ENERGY

Civilization as the storing of surplus energy.

There are many good definitions of civilization because civilization is a very complex thing and has many characteristics. He who defines it usually selects that particular characteristic which interests him and, on the basis of that, characterizes the whole. A very good definition for our purposes is that civilization is a collective name for a multiplicity of forms in which human energy is stored. When we speak of the storing of human energy we are using that term in a somewhat peculiar and non-physical sense. We shall now try to justify our use of the term.

Methods of storing.

We saw in Chapter I that there is a universal tendency toward an equilibrium of energy. The storing of energy so far as plants and most animals are concerned, takes place in their own bodies. A few, like the bees and the squirrels, hoard supplies of food primarily to tide them over periods of scarcity. When it is said that the purpose of their storing is to tide them over periods of scarcity it is not implied that they do it consciously for that purpose. Storing is to them probably instinctive, but the purpose of the instinct, if such the propensity to hoard may be called, is to enable the species to survive periods of scarcity. Beyond the storing of energy

within their bodies and the hoarding of food materials, the lower animals do not seem to go.

Human energy not stored in a strictly physical sense.

In these cases the solar energy stored in the food materials is not yet transformed into vital energy. It is not the vital energy or working power of the animal that is stored. In so far as human beings store up food that is not yet consumed, no human energy is stored in the sense in which a physicist would use that term. There is another sense—not the sense in which a physicist would speak—in which we may speak of the storing of animal or of human energy. After food is consumed and the body is enabled to transform the energy that was in the food into working power, that working power may assemble a group of materials in more or less durable form. The materials thus assembled may be food materials. In this case we have two different funds of energy to consider. In the first place, there is the energy that is in the food and that may be transformed into animal energy when it is consumed. In the second place, there is the animal energy or working power that was utilized in collecting and assembling the food.

These two funds of energy are separate and distinct and there is no physical relation between the two. The energy in the food may be more than or less than that which was used up in producing or hoarding it. If they happen to be equal it is only an accident, or possibly a little more than an accident. If the soil is good, the weather favorable, and if the grower of food has economized intelligently the labor of growing it, the food that is grown may vastly more than replace, when consumed, the energy that was used up in the labor of growing it.

If the opportunities for storage are good and intelligently utilized, the energy used in the extra labor of storing may be much more than replaced by the store of food when it is consumed. If, however, the soil is poor, the weather unfavorable, or if the grower has not wisely economized his labor, the energy in the food that is produced may not, when consumed, be equal to that which was used up in growing it. Owing to the law of diminishing returns from land and owing to the propensity to increase population, there is a tendency toward an equality of these two forms of energy—as we saw in Chapter I, but they still remain distinct even though they should happen to be equal in quantity.

When the working power of human beings is used to assemble a group of things in more or less durable form, even though the things assembled are not food, we may say, in a non-physical sense, that human energy has been embodied or stored in them, even though when consumed they do not yield any working power in the sense that food does. If the physicist objects to this use of the term, we can only remind him that he has no monopoly of the term energy. Besides, a person is permitted to use a term in any way he pleases so long as he defines it and sticks to his definition. This we shall endeavor to do.

Storing in a social sense.

Human beings may be said to store some of their own energy when they use it to collect, assemble, build or construct, in more or less durable form, a mass of materials. Even if it be nothing more than a pile of stones, human energy was clearly used up in the work of collecting them, and something is clearly left to show that

energy was used in that way, even though it cannot be released or transformed again into working power. We may therefore say that human energy is stored in the pile of stones. If the pile of stones happens to be a large one, pyramidal in shape, and called Cheops, it amounts to the same thing on a larger and more magnificent scale. If it takes the form of a Parthenon or a Rheims Cathedral it becomes still more significant as a form of stored up human energy.

Human energy stored can not always be released.

The pile of stones, of whatever sort, cannot, of course, be burned in the human body and physically transformed into vital energy, heat, or mechanical power as food can. It may, however, inspire to higher endeavor and thus be a factor in the economizing of the energy of the people who are thus inspired. In other words, it may be a factor in transforming a larger quantity of solar into human energy, but the energy thus transformed is not the energy that was used in erecting the pile of stones. It is the energy that was in the food consumed by the people who were inspired by the pile of stones. Of course, the pile of stones may also do nothing of the kind. It may be a monument of wasted energy, neither inspiring to higher endeavor nor doing any other good whatsoever, in which case the energy used in the erection of the monument is never regained either directly in a physical sense, or indirectly by inspiring workers to higher endeavor through the better economizing of the actual energy of the people.

If it is now clear what is meant by the storing of human energy, we may turn to the question of the agencies through which and the forms in which it is stored.

Sub-human nature has made little provision for storing.

Since nature, considered apart from social control of some kind, seems to have made no provision for the storing of surplus human energy, but tends everywhere, in the human as well as in the sub-human world, to preserve a balance or equilibrium, it becomes pertinent to inquire how it has happened that such a result has been achieved in those few cases where what we call civilization has been built up.[1] In a perfectly natural state, and in the absence of some artificial means of arresting the process of dissipation, the life history of human beings, like that of other forms of life, is summed up in the words: They are born to breed and die, generation after generation, in endless and unprofitable repetition. Each generation seems to have served its purpose when it has reproduced a succeeding generation. For the vast majority of human beings who have peopled this planet, that is about all that can be said for or about them. In a few scattered instances small sections of the race have achieved something more—have left something as a mark of their having lived. These achievements may be nothing more than a few monumental tombs or rude altars to appease the gods whom they feared. They may have been magnificent temples and palaces, systems of religious philosophy, national literatures, or bodies of scientific knowledge. The only explanation of such results that really explains must first account for the fact that the universal dissipation and degradation of energy was by some means arrested, that some small fraction of the energy that had been raised to the human level was

[1] The substance of this part of the chapter was previously published in "Essays in Social Justice," Harvard University Press, 1915. pp. 132-135.

saved from dissipation and degradation and stored in some of these products of civilization.

The agencies that store human energy.

One of the earliest and, in the primitive stages perhaps the most effective of all the agencies for storing human energy was the despot, the strong man who was seized with a desire to govern and had the capacity, physical or mental, to subject his neighbors to his will. When that primitive bully overpowered his neighbors and compelled them to obey his will and to share their produce with him, he simply reduced the amount of subsistence left for them. If they could not live on what remained, nature would take care of the situation by thinning them out until the remainder could subsist on what was left, but the despot himself would be in possession of a surplus. In most cases he probably wasted this surplus in riotous living, thus becoming himself an agent for the dissipation and degradation of energy. But in a few cases, either through the surfeiting of his primary appetites, through the substitution of vanity for greed, or through the fear of things dark and mysterious, the whim seized him to build for himself a tomb, a palace or a temple, or to maintain priests to carry on incantations, musicians to sing praises to his name, or artists to represent him in heroic attitudes. In such cases the race had achieved something more than its own preservation, or more than the provision for the primary appetities of hunger, thirst and sex. Something like this is, in substance, the beginning of every ancient civilization.

Instead of a single despot ruling by physical force, it was sometimes, as in Judea, the machinations of a priestly class ruling through fear of that which was dark

and mysterious. In other cases, as in the case of Greece, the united power of a race of despots ruling over a subject population could accumulate a surplus for themselves by robbing subject peoples of a part of their produce. Without some agency of exploitation the mass of the people would in all probability have continued indefinitely wasting their surplus in sloth or gluttony, or dissipating it through rapid multiplication, living, as they always had lived, like the insects of an hour, for the single purpose of breeding before they died.

The despot or storer.

Despotism of whatever kind is always odious, and yet there is not much to be said for freedom so long as it results in the equilibrium of energy that is found among the plants, the sub-human animals, and in the lower stages of human development. The grandeur of every ancient civilization was the result of some form of despotism. This is not saying, of course, that despotism always produces such results, but without some form of despotism, no such result was ever achieved until the modern period began. Some of the products of human industry had to be rescued from immediate consumption; otherwise it would have been dissipated in sloth, in gluttony, or in rapid multiplication of numbers. It may be that none of the products of ancient civilization were worth what they cost, for the cost was despotism, which is always hateful; but whatever the cost, the results were at any rate achieved. If we are called upon to choose between the form of oppression which achieves such results and the primitive communism under which energy is dissipated and life kept down to a low level because it is all at the mercy of the most gluttonous consumers

and the most rapid breeders, we should not go so very far wrong if we were to choose oppression as the less disagreeable of the two alternatives. The thought of despotism is not pleasing, but it is not less pleasing than that of a community living the profitless round of animal existence for the sole apparent purpose of reproducing its kind. Some support for this conclusion may be found in the teachings of Thomas Carlyle. It is not improbable that the real benefactor of his fellowmen is not always or necessarily the man who frees men from oppression and lets them do as they please; it may sometimes be the man who masters them by the force of his own personality and by his superior wisdom and virtue and who thus makes them do what they ought to do.

Under the modern economic system a new factor has been introduced, or if not introduced it is at least functioning more effectively than in any ancient system. This is what is commonly termed the standard of living. By the standard of living is technically meant the number of desires that take precedence in the individual's choice over the effective desire for offspring.

Thrift and the standard of living.

It is a common error among economists who have not trained themselves to see things in their larger relations to assume that there is something antagonistic between thrift and a high standard of living.[2] That this assumption is wrong will be obvious to anyone who once understands what a high standard of living really is and what thrift really means. There may be said to be a high standard of living among the people of any community or class

[2] Cf. A note by the author entitled *Thrift and the Standard of Living* in the Journal of Political Economy, November, 1920.

when its members commonly refuse to marry and have children, or generally postpone marriage and child-bearing until they are able to provide themselves and their families with a considerable number of other satisfactions. In a very true and special sense, the standard of living may be said to include the total number of things which the average person prefers to marriage and children. *Anything*—leisure, a house, an automobile, foreign travel, a library, education, amusement—which the individual desires strongly enough to cause him to postpone marriage and family building until he can afford it, may be said to enter into his standard of living. If there are few things which he insists upon having before undertaking the responsibilities of a family, his standard of living is low; if there are many such things, his standard of living is high.

There does not appear to be any good reason for distinguishing among those things which a man insists upon having before undertaking the support of a family, or for saying that some of them enter into his standard of living and others do not. If in one class a man must afford a house rather than a flat, while in another he must afford an automobile before he will marry, there is as good reason for including the house in the one's standard of living as for including the automobile in the other's. If in a third class a man will not marry until he can afford an insurance policy, and in a fourth class he will wait until he has a savings account of a certain size, then, by the same reasoning, the insurance policy and the savings account enter into their standards of living. There is no reason for believing that the standard of living is any lower in classes three and four than in classes one and two. Yet classes three and four are thrifty

classes. In short, the time element enters into one's standard of living as well as into every other subject of economic choice.

One of the commonest things in real life is for men and women to postpone marriage until they have "saved up" enough to provide themselves certain comforts and conveniences. In such cases thrift is a necessary part of the standard of living. If they wait until they have saved enough to buy a house, a farm, a shop, or to make certain investments, these things become a part of their standard of living. In fact, it is the writer's observation that the thriftiest people are the people with the highest standard of living. These are the people who rank economic safety high among the desirable things of life —to whom the thought of an uncertain future is as painful as present deprivation, and to whom that of a future well provided for is as satisfying as the immediate gratification of the senses.

The difficulty with those who fail to see the relation between thrift and a high standard of living is not due solely to their failure to understand the real meaning of the standard of living. It is sometimes due to a failure to understand thrift. Thrift does not consist in refusing to spend money or to buy things. It consists, under a money economy, in spending money and buying things, but in spending money for things of a kind different from that which thriftlessness buys. Thrift buys things with a relatively vivid appreciation of the future; thriftlessness buys things with a relatively dull or weak appreciation of the future. Thrift regards future needs as comparable in importance with present desires; thriftlessness regards present desires as of greater importance than future needs.

Hoarding not the only form of storing.

Thrift emphatically does not consist in hoarding money. In these days that is one of the most thriftless things one can do with money. It consists in spending money for things which will bring a permanent or a durable advantage. It very generally, though not exclusively, consists in investing money, that is, in buying income-bearing goods. This may be done directly, as when a farmer buys a tractor, or improves his farm as a producing unit. It may be done indirectly, as when one deposits money in a savings bank, buys an insurance policy, or a corporation bond. In all these and many other cases the saver merely turns his money over to other agencies and they do the investing, that is, they buy the producer's goods or the income-bearing goods with it.

It is obvious, is it not, that when a farmer buys a tractor he spends money as truly as when he buys a luxurious automobile, and that the money spent employs as much labor and stimulates business as much in one case as in the other. Temporarily, he has, by so doing, deprived himself of a means of immediate enjoyment. In the long run, however, farmers who undergo this form of deprivation spend more money and have more means of enjoyment, possibly better automobiles, than those thriftless farmers whose standard of living never looks to the future. As a matter of observation, thrifty communities spend more money, in the long run, than thriftless communities, for the sufficient reason that they have more money to spend. But even with their larger expenditures, so long as they remain thrifty a larger proportion of their money is spent for producers' goods than is true in a thriftless community.

It ought not to be necessary to add that in advocating a *higher degree* of thrift one is not advising people to spend *all* their money for producers' goods and *none* for consumers' goods. If it were the writer's opinion that any community was going too far in this direction, he would feel justified in advising a lower degree of thrift, even at the risk of being accused of advising the cessation of *all* thrift. The writer does not know of any such community. It seems that there is everywhere too little rather than too much thrift. He therefore feels justified in advocating more thrift, even at the risk of being accused by undiscriminating persons of advising people to invest *all* their money and consume nothing.

Thrift and a high standard of living increase storing.

A population in which the average individual has a high standard of living, in which standard of living the desire for accumulation forms an effective part, will be able to accumulate and store surplus energy without the intervention of any kind of despotism. If the average individual will not undertake to support a family and reproduce his kind until he has safeguarded their future by some kind of accumulation, such a population will accumulate something each generation. In each generation consumption will be less than production. The surplus products will take some durable form. They may be in the form of tools, machinery and equipment for future production, in which case they continue to enlarge productive power more rapidly than the power of consumption increases, making it possible to store more and more surplus energy. This storing may, in other cases, take the form of durable goods other than tools and ma-

chinery—products of art, literature, architectural monuments, etc.

Standard of living ineffective with moron.

The standard of living, however, is only effective with people who possess enough intelligence to plan their lives with a view to the maintenance of a standard. It is ineffective with the feeble-minded, and those bordering on feeble-mindedness who have no power of forethought. However expensive the habits of a feeble-minded person may be, these expensive habits do not really constitute a standard of living because they will not prevent his multiplication. He will multiply, as the animals do, until it becomes impossible for him to maintain his expensive habits. An intelligent person, exercising forethought, would not do this. An intelligent population will not do this; but the lower fringe of any population is likely to be either feeble-minded or bordering on feeble-mindedness. Here is a distinct menace to civilization. Given time enough, the feeble-minded minority, with whom reproduction is a purely biological process, can outbreed all other classes until their progeny will eat the others out of house and home. Nothing except authority will hold such people in check. In other words, we must revert to something resembling ancient despotisms to control this minority. If the intelligent majority that uses forethought for the maintenance of a high standard of living does not exercise some authority to prevent the too rapid multiplication of the feeble-minded, they will find their own standard of living menaced by the spawning tendency of those with whom reproduction is a biological process. With the intelligent and forethoughtful, repro-

duction becomes in part an intelligent or intellectual process. Their own salvation requires that they exercise the same control over the spawning minority that ancient despotisms and aristocracies exercised over the spawning majority.

CHAPTER IV

THE FOOD MOTOR

Importance of cheap fuel.

A great automobile manufacturer recently referred, half disparagingly, to the horse as a hay motor. In a rather strict sense he is—and a good one; that is, he makes efficient use of the kind of fuel he was built to use. Measured by this standard neither the steam engine nor the gasoline motor has any advantage over him. They both have the advantage, however, of being built to use a cheaper fuel than hay. The horse is in no way to blame for the fact that hay costs more than coal or gasoline per unit of energy contained. Economically a contrivance that makes inefficient use of a very cheap fuel may be superior to one that makes efficient use of an expensive fuel. Economically, therefore, the horse will continue to be at a disadvantage so long as the great coal beds and oil wells hold out, and possibly longer if solar engines are perfected and the rivers, winds and tides are more skillfully harnessed.

Cheap food.

In a similar vein of disparagement we may speak of a human being as a food motor, a contrivance for converting food into power. The kind of fuel that this motor is built to use is more expensive even than hay; in fact it makes use of the most expensive kinds of fuel, though some kinds are more expensive than others. The

economy of food is therefore a matter of great importance. Aside from all joking, a race or a nation that manages to live economically and to live well has a decided advantage over one that lives wastefully but no better.

The economy of food.

In the economy of food there are two main problems, first, how to make use of cheaper foods and second, how to make more efficient use of such food as we have. The problem of selecting cheap food is complicated by the fact that food has several other functions besides supplying energy. It must also keep the motor in good running condition. If the fuel of a gasoline motor had to supply not only energy but lubrication and the means of removing carbon deposits, and, in addition, had to supply materials for the replacement of worn out parts, the fuel problem would be much more complicated than it now is. Even then it would not be so complicated as the problem of fuel for the human motor, which has to do all these things and several others, including that of furnishing pleasure to the consumer. The fact that human food, in order to perform all of its functions, must furnish pleasure to the consumer, in no way minimizes the importance of economy at the same time. Economical food may be just as pleasant as expensive food, especially if it be properly prepared. The art of cookery consists largely in preparing foods in such ways as to make them pleasant.

Even though food preferences are largely matters of custom, some food customs happen to be more economical than others. A people is fortunate, whether it is wise or not, whose food customs happen to be economical. If it is a wise people, it will deliberately choose economical

foods and custom will make them agreeable. A food prejudice may prove to be a positive handicap, or at least an expensive luxury.

Wise food habits.

The prosperity of this country is due in some small measure at least to the wise food habits that were developed under pioneer conditions. It would have been easy, perhaps natural, for those pioneers to have insisted on the kinds of food to which they had been accustomed in their European home. If they had cherished those prejudices they would have found them expensive luxuries in their new home. Instead of cherishing such prejudices they developed new food habits more in keeping with the new conditions. They managed to find ample nourishment and pleasure in foods that could be economically grown. Pork and beans furnish an excellent illustration. Here is a highly nutritious combination and reasonably well balanced. Though not so easily digestible as some others, and perhaps not well suited to the needs of indoor people, it served admirably for outdoor workers such as cattle men, lumbermen and farmers. At the same time it was economical. Hogs ran wild in the woods and found their own living. They were highly prolific and multiplied rapidly. Beans were easily grown and required no expensive milling or processing to prepare them for food. Besides, being legumes, they tended to replace rather than to exhaust the nitrogen of the soil. The housewives who mastered the art of making this highly nutritious and economical combination into a delectable dish were important factors in laying the foundation for the present prosperity of our country. Codfish balls furnish another illustration. This combination of codfish, which the ocean

furnished in apparently inexhaustible quantities, potatoes which could be grown in every garden, and pork fat, a by-product of hog raising, was a well balanced and nutritious combination made agreeable by the housewives' art. Time would fail us to speak of pumpkin pies, green corn, succotash, hasty pudding and a multitude of other delicious compounds that delighted as well as nourished our ancestors at low cost in human labor. Mention must be made, however, of Johnny cake, one of America's chief contributions to the happiness of mankind, made of the meal of an indigenous cereal, the largest crop now grown here, and the most magnificent crop grown anywhere in the world. Even the despised buckwheat, grown on many soils as a catch crop, but grown mainly on soils too poor and cold for anything else, has yielded to the art of our cooks and given us buckwheat cakes.

As conditions change, food customs must change in the interest of economy. They who will not change, or adapt their food habits to changing conditions, are under a serious handicap. Take, for example, the single item of fish. The ocean teems with fishes that are not consumed for the simple reason that it is not customary to eat them.

Harvesting the sea.

When the population was sparse and the demands upon the ocean small, we could afford to be fastidious and cull the tidbits from the vast supplies of sea food. As population increases and the demands become greater, we must learn to eat fish that were never eaten before. When we become accustomed to them we find, perhaps to our surprise, that they are quite as palatable as those to which we have long been accustomed. Not long ago

the haddock was not considered salable. Still more recently the pollock was ignored. These are now regarded as among the most desirable of the products of our fisheries. There is not much doubt that, unless we become squeamish, sharks, porpoises, skates, squids and many other fishes and marine mammals will sometime be eaten readily in this country as they are in other countries. The unhandsome sculpin is already known by a few to be a delicacy. In fact there is no fish or animal that inhabits our northern waters that is not good food.

Eating big fish to save the lives of little fish.

There will be a double economy in consuming some of the larger fish that are now neglected. We shall then have not only the food furnished by these fish themselves, but, as they tend to be thinned out the other fish on which they prey will tend to become more abundant. The swarms of dogfish, which are themselves edible but practically neglected, that migrate northward along the Atlantic coast every summer, destroy millions and millions of food fishes on their way. If we should begin to prey upon the dogfish we should not only have them, we should also have more of the fish upon which they prey. The same may be said of practically every large fish or marine animal that we now neglect. We have scarcely begun to realize the food possibilities of the sea when scientifically harvested, but it will never be scientifically harvested until we get rid of some of our customary prejudices.

Horseflesh.

Another expensive prejudice is that against the eating of horseflesh. Whether the prejudice originated because the horse was held by our wild northern ancestors to be

sacred to Wodan, as the cow is held by the Buddhists to be sacred to Buddha, whether it is due to an ancient totemic belief that we were descended from Hengist and Horsa (stallion and mare), an equine Adam and Eve, or whether it originated in some other way, it deprives us of a certain amount of good food. This does not mean that the horse is an economical producer of meat as such. He is an efficient producer of mechanical power, that is, he is a good hay motor. Animals that are efficient machines for converting feed into mechanical power are seldom efficient in transforming feed into meat or fat. The hog, which is a very poor machine for turning feed into mechanical power is one of the very best for turning it into meat and fat,—far better than the horse. But while the chief purpose in raising horses must be the production of power, meat has to be produced as a by-product. In this respect a certain amount of it, that which goes to waste when a horse is no longer valuable as a hay motor, would be a very economical form of food.

The hog as a meat producer.

Speaking of the hog, it is demonstrable that they whose prejudices prevent them from eating pork or lard must find it an expensive prejudice. Feeding experiments [1] show that the hog is nearly twice as efficient as the cow in turning feed into human food in the form of fat and lean meat, though the dairy cow will beat the hog if milk is compared with meat. That is, in proportion to the feed consumed, the dairy cow will furnish more human food in the form of milk than even the hog will in the form of meat and lard. But in the production

[1] Cf. infra. p. 220.

of meat and fat, other than the fat of milk, the hog is the most efficient of our animals. Besides, it has two other advantages. First, it matures quickly, and second, it multiplies at a more rapid rate than any of the larger farm animals, being excelled only by the rabbit among meat animals. The fecundity of the hog and its quick maturity give the pork producer a much quicker turnover than the beef or mutton producers and thus tends toward a lower cost of production. When this is taken along with the efficiency of the hog in turning feed into meat and fat, it means that pork is a very economical form of meat. A race or nation that refuses to eat it where it can be economically produced will always be under a handicap.

Beef, mutton and dry forage.

This does not mean, however, that it would be economical to give up all other kinds of meat in favor of pork. Cattle and sheep can live on forage too coarse and dry for hogs. The great cattle and sheep ranges of arid and semi-arid countries are unsuited to hogs, but can and do produce large quantities of beef and mutton. These ranges would go to waste if they were not pastured. Besides the grasses that grow on these dry areas, there are the cornstalks, straw, cotton seed meal and other by-products of our farms in the humid areas. Hogs can not consume this dry and coarse forage, but it is suitable for cattle and sheep. Finally, in the production of milk, which is an economical food, a certain amount of beef and veal is produced as a by-product. If this were not eaten it would go to waste as horseflesh is now wasted. When the cow has passed her prime as a milk producer, she can be fattened into excellent beef.

While she is producing milk she has to be freshened periodically, and this produces veal. Mutton is sometimes a by-product of wool growing, though generally it is the other way about. When there is an active demand for lamb, the flock owner derives his chief income from his lamb crop which is sold for meat, and the income from the wool shorn from his breeding ewes and rams is secondary. It is economical, therefore, to consume beef, veal, mutton and lamb as well as pork. The superior economy of pork is found only when grains and succulent grasses which hogs can eat are fed to cows and sheep for the making of beef and mutton.

Milk.

The consumption of milk has been shown to be an economical habit. That is, it has been shown that the dairy cow is an efficient animal for the conversion of animal feed into human food. Any nation that allows a prejudice against milk to affect its habits of consumption must find such a prejudice expensive.

Jordan, in his work on *The Feeding of Animals,*[2] gives the following figures for the amount of human food produced by 100 pounds of digestible organic matter in an animal ration, when fed to different animals:

	Marketable product lbs.	Edible solids lbs.
Milk, general average	139.0	18.0
Steers, general average, carcass	8.3	2.75
Sheep and lambs, general average, carcass	7.0	2.60
Swine, general average, carcass	25.0	15.6
Fowl, dressed carcass, average	15.6	4.2
Eggs	19.6	5.1

[2] See W. H. Jordan: *The Feeding of Animals.* New York, 1901. Pages 405, 406.

From this it will appear that if steers and hogs are each fed on materials that hogs can eat, the hogs will manufacture that feed into more than four times as much edible solids as steers. The dairy cow will beat the hog by the ratio of 18.0 to 15.6. It would clearly be uneconomical to produce steer beef were it not for the fact that steers can utilize a great deal of feed that neither hogs nor dairy cows can consume, that is, the grasses of the great cattle ranges of arid countries.

Veal.

An entertaining suggestion emanating from the sapient minds of urban editors is that if we had a law prohibiting the use of veal we should have more beef. This theory is based on the observed fact that a full-grown beef animal weighs more than a calf. If that were the only factor involved, there might be a grain of wisdom in the suggestion. There are other factors, however, in the problem that deprive the suggestion even of that small grain of wisdom. One of those factors is the feed required to produce growth in an animal. If feed cost nothing, or if it were not a limiting factor in the production of meat, then it would be true that we could have more meat if every animal that was born were allowed to attain its full growth; but on the other hand, if that were true, there would never be any scarcity of meat to compel us to think about economizing it. The fact is that with a given amount of feed we would have more meat in the form of veal than we can in the form of mature beef. The longer an animal is kept, the slower its rate of growth and the more feed it requires to add a pound to its weight. With a limited amount of feed, therefore, we can produce less meat in the form of mature animals than in the form

of young animals. A given quantity of feed will produce, for example, more than five times as many 200-pound calves as 1000-pound steers.

In addition to the fact that a given amount of feed will produce more meat in the form of young than in the form of mature animals, we have the further fact that veal is a by-product of dairying. The dairy cow is a very efficient food-producing animal, but in order that she may give milk, she must be periodically freshened. In this sense the calf costs nothing, being a necessary by-product of dairying. In old and thickly settled countries where meat is more expensive than it is in this country, they find it uneconomical to eat very much beef. They find it economical to use a great deal of milk either in the form of milk, butter or cheese, and incidentally they find it economical to have a large proportion of their meat in the form of veal. On the continent of Europe, for example, it is difficult to get good beef but easy to get excellent veal. The reasons have already been given, namely, that veal is produced more economically than beef, and is, in fact, one of the most economical forms of meat. A prejudice against veal is therefore an expensive prejudice.

Vegetarianism.

Another expensive prejudice is that of a vegetarian who refuses for sentimental reasons to eat animal food. If we refuse to eat animal food, all the cornstalks, wheat-straw, bran, cottonseed meal and other by-products which are not suitable for human food would have to go to waste. Certain animals are effective machines for turning these waste products into human food. To that extent at least, animal food is highly economical. In addition to these waste products of ordinary farming there are

vast arid and semi-arid areas already mentioned, that, so far as we now know, can produce nothing but sparse pasturage. The only way by which these vast areas can contribute to the support of human life, so far as we now know, is through pasturage. The food supply of the world is greatly increased by utilizing these areas for this purpose. If the world should turn vegetarian and refuse to make use of this source of food, we should either be less well nourished than we now are, or the population of the world would have to be thinned out.

A study of the food possibilities of the world should convince any one that food prejudices are expensive luxuries. In some countries where the problem of food is rather acute, the cost of such a prejudice is terrific. In India, for example, where there are multitudes of people who are living very near the minimum of subsistence, a prejudice against beef is positively dangerous. India has more cattle than any other country in the world, yet a large proportion of her population who need beef refuse to eat a kind of food that the country supplies in great abundance. In a country like the United States, however, the food problem is in no sense acute. We are so rich that we can afford to indulge ourselves in a good many luxuries, food prejudices among them. The question is not, therefore, whether a food prejudice threatens us with starvation; the question is whether we would rather indulge ourselves in this kind of luxury than in some other.

Economy in variety.

Another conclusion based on the study of food, is that considerable variety is not only desirable hygienically but economically as well, provided we seek variety in the forms in which the world supplies it. We find it eco-

nomical, for example, to make use of waste products in the production of animal food, at least in the form of milk and its products. Veal and a certain amount of beef are by-products; it is therefore economical to consume them. On the far western ranges and in other arid parts of the world beef animals can be grown, but dairying would be out of the question because of the distance from markets. It is, therefore, economical to consume a great deal of mature beef that grows on these ranges. In addition to this we need leather for shoes and various other purposes, and a certain amount of beef has to be grown in order to get the leather we need. We also need wool for clothing purposes and we can't grow wool without growing a certain amount of mutton and lamb. We still need horses for motive power; we can't grow horses without growing a certain amount of horseflesh. Fish supply us with a large quantity of food, but we can get much more by eating a great variety of fish than by limiting ourselves to certain special kinds, and so on. It is beyond all question economical to consume a great variety of foods.

Standard food.

While the conditions of food production make it desirable that we should eat a great variety, there are certain standard foods that can be produced in vast quantities with great economy. If our food habits are such as to enable us to use these foodstuffs in large quantities and the others merely to give variety, we secure the maximum economy. First among the economical foodstuffs is wheatflour. If it had to be produced by methods of intensive farming, it would be much less economical than cornmeal or potatoes. It happens, however, to be adapted

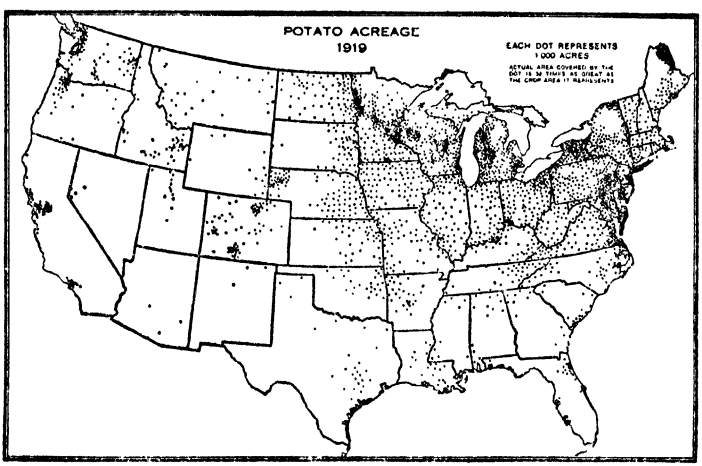
to semi-arid countries, and there is more semi-arid than moist land in the world. So far as good wheat land is concerned, there is so much of it as to provide for a much larger population than the world now sustains or is likely to sustain for many centuries to come. For present purposes we may regard the potential supply of wheat as practically inexhaustible, though, of course, nothing is absolutely inexhaustible.

Wheat.

Two other facts should be considered along with the vast area of good wheat land. First, wheat stands transportation better than most other foodstuffs. It is dry, and therefore not much water has to be freighted when wheat is shipped. Being dry, there is less danger of spoilage than in the case of more bulky and more perishable crops. As transportation becomes a more and more important factor in world economy, wheat will become a more and more economical source of food. In the second place, wheat growing is carried on largely by power-driven machinery when it is grown in dry countries. Teams of 8 or 16 horses are adapted to the kind of cultivation required by wheat in these dry countries. Tractors are also easily adapted to this kind of work . The seedbed may be prepared economically, therefore, by the use of power. The seed is drilled also by machinery. The wheat is harvested and threshed by machine processes. Probably no other food crop is so well adapted to the age of machinery as wheat. Unless, therefore, some country whose land is moist chooses to isolate itself and refuse to bring its food from distant parts of the earth, wheat-flour or bread must remain for an indefinite period the most important foodstuff in its national economy.

The potato.

In moist areas in the temperate zone, the potato is the most economical of all starchy foods. It not only yields heavily per acre, but under modern methods it yields a large quantity of food per unit of labor applied, especially where it is grown on a large scale and machinery can be used. In this country, for example, there is enough good potato land along our northern border from Maine to the Dakotas to supply starchy food for many times our present population.



This map is reproduced through the courtesy of Professor O. E. Baker, of Clark University.

The limiting factor in the potato industry at the present time is not land but markets. Increased population will furnish better markets and cause a great extension of potato growing. The following map shows where potatoes are now grown. The areas of dense production will be greatly extended whenever the growers can sell their product at a price that will pay the cost of produc-

tion and transportation. Besides this country, there is Canada, and many high mountain valleys of the West, and large portions of Northern Europe; everywhere, in fact, where the summers are cool, provided there is a growing season between frosts long enough to enable the potato to mature.

The sweet potato.

Another great food crop even more prolific than the white potato is the sweet potato. It is adapted to warmer countries then the white potato. It is not only a prolific yielder of excellent food, rich in starch and sugar, but there are wide areas suitable for its cultivation. Our coastal plain from New Jersey southward through Florida, and again westward into Texas, is admirably adapted to this crop. The limiting factor at present in the sweet potato industry, as in the case of the white potato, is markets rather than land. In other words, we have unused land enough available for this crop to supply starchy food to many times our present population.

Maize.

Indian corn or maize is a very prolific food crop, much more so than wheat, though it requires a moister and a warmer climate than is necessary for wheat. There are no such areas of unused land in the United States now available for extending the corn crop as are available for extending the potato and sweet potato crops, but there are great possibilities in other parts of the world. In this country, also, considerable economies of food production can be effected by consuming corn directly rather than in the form of meat and animal fat. At the present time the greater part of the corn crop is fed to animals.

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This is a method by which corn may be marketed. Whenever the food demands of the world require it, corn meal can be consumed directly, in which form it supplies more food than when transformed into meat. Other concentrates, such as the refuse from the manufacture of wheat flour, corn meal and vegetable oils, may be substituted for whole corn in the feeding of animals, while we eat the corn meal ourselves.

Sugar.

One of the great food crops of the modern world is sugar. This product, once a luxury of the very rich, has become one of the cheapest and most economical of all foods, besides being wholesome and palatable when properly diluted with more bulky food materials. The two principal sources of sugar are the sugar beet, suitable for temperate climates, and sugar cane, suitable for semi-tropical and tropical climates. Both these crops respond vigorously to intensive cultivation and yield heavily per acre. In the growing of sugar beets, considerable hand work is necessary and the labor cost is consequently fairly high except when very cheap labor is available. In the cane sugar industry, heavy machinery plays a large part and this makes it a strong competitor of the beet sugar industry.

The fact that the labor cost of sugar beets is high does not destroy the value of that crop as a food resource for overpopulated countries, especially when it is considered that it yields heavily per acre. An overpopulated country is one where land is scarce and labor abundant. The sugar beet is well adapted to the needs of such a country. It is also a safeguard against world overpopulation, when we consider that there is a good deal

of land that is suitable for the growing of sugar beets. Most of this land is now used for growing other crops, but they are generally crops that yield less food per acre than sugar beets. When the pressure of population upon subsistence becomes great enough, it will become profitable to turn some of the land now growing light-yielding crops to the growing of heavy-yielding crops. The increasing demand for food will produce such a change in prices as will make it to the advantage of farmers to grow the crops that yield the most food per acre.

As to sugar cane, it not only yields a heavy tonnage of food per acre, but there are such areas of good sugar land in the tropics and sub-tropics as to make it safe to predict that there can never be a real sugar shortage due to overpopulation.

Summary.

We may summarize our discussion of the world's food problem by repeating (1) that food prejudices form one of the most serious causes of a possible food shortage. (2) That considerable variety in food is not only pleasant and hygienic, but economical as well, because it enables us to make use of many cheap foods that would otherwise go to waste. (3) That with this great variety of foods, there are special food products that can be supplied so economically and on so vast a scale as to make it desirable that they should form the staple articles of diet if the world is to support the maximum number of people and on the optimum scale of health and comfort. These products are wheat, beef, mutton, potatoes, sweet potatoes, Indian corn and sugar. Wheat, beef and mutton can be supplied in much larger quantities than at present by the utilization of great unoccupied areas, the semi-

arid for wheat growing and the arid for pasturage; potatoes can be grown, as soon as there is a market for them, on a vastly increased scale on our Northern border, north of the corn belt, as well as in most of southern Canada and other cool and moist portions of the earth's surface. The sweet potato also can be grown on a vastly increased scale, whenever the market calls for it, on our Southern seaboard, and south of the cotton belt, as well as in every other warm country where there is enough moisture. Sugar can be supplied on a vastly increased scale as fast as the market will absorb it, from sugar beets, but mainly from sugar cane. With these as the great staple food products furnishing the basis of the world's rations, we can also have a great variety of other things to add to the pleasure of eating and also add appreciable quantities of nutriment.

CHAPTER V

FOOD AND POPULATION

What shall we eat?

The population of the world is now estimated to be about 1,748,000,000, and it seems to be on the increase. Those parts of the world that enumerate their population are definitely on the increase. There is no reason for believing that the rest of the world is decreasing in population. How many people the world, or any large portion of it, will eventually have, no man can predict. One thing is certain, however, and that is that it will never have more than it can support. When that point is reached, or even before, the death rate will balance the birth rate, and there can be no further increase. At that point the maximum quantity of solar energy will be transformed into human energy.

The limiting factor in the problem of population is food. The world can clothe and shelter many more people than it can feed. If we keep in mind the possibilities of increased food production that have been mentioned in the preceding chapter we shall not be worried about the problem of general overpopulation. Even Malthus did not teach that the world was in real danger of overpopulation, though many who have not studied him carefully seem to think that he did.

While there is no immediate danger of general overpopulation, there are several special phases of the popu-

lation problem that the world, or at least portions of it, should consider very carefully. Food prejudices may cause people to go hungry in the midst of plenty. India, for example, as shown in the preceding chapter, has more cattle than any country in the world, and yet large numbers of her people refuse to eat beef.

Cumberers of the ground.

Again, certain races may act as the dog in the manger, neither developing the food possibilities of their lands nor permitting others to do so. If a large portion of the earth's surface were thus held out of use, the remaining portions might easily become overpopulated. There certainly would not be so many people of European blood in the world if they had not spread to the western hemisphere, to Africa and Australia. Europe could not have fed them from her own soil. Not so many of them would have been born. Even if they had been, many must have starved for lack of food. The great increase of people of European descent has scarcely kept pace with the increase in the areas from which they have drawn their food supplies. This increase in the food-producing area has been due to the fact that Europeans did not permit unproductive civilizations to occupy these new lands to the exclusion of people with more productive habits.

Congestion of population.

If Europeans had not been permitted to spread over new areas, Europe might have been really congested. The results so far as they were concerned would have been quite as bad as though the whole world was overcrowded. This might have been called involuntary congestion. If, on the other hand, they had refused to

migrate or to spread over wider areas, this might have been called voluntary congestion, but the results would have been quite as bad as involuntary congestion.

Local congestion of population anywhere, whether it is forced or voluntary, has much the same results locally as general overpopulation would have generally. When someone remarks upon the congestion of population in the East Side of New York, another is likely to exclaim, "There is no congestion; just look at Texas." Merely looking at Texas does not help the people in a congested quarter. Some way must be found to bring Texas to these people, or bring these people to Texas before the congestion is relieved.

Occupational congestion.

Local congestion of population, wherever it exists, is easily relieved. It is simply a matter of transportation and, except in extreme cases, will take care of itself by voluntary migrations. There is another kind of congestion that is vastly more important and much harder to deal with. That is occupational congestion. It may easily happen that more men may be trying to make a living at a given kind of work than can be employed at the time and place when and where they want to work. For them, the world might as well be overpopulated as to have their occupation overcrowded. If, to take an extreme illustration, there should, at any time and place, be more hod carriers than could be used with the existing number of masons, that part of the world is overpopulated with hod carriers. The result to hod carriers is very much the same as though the world were overpopulated with every class. It would not help the hod carriers very much to point out to them that the world is

underpopulated with masons, unless some way is found to enable the hod carriers to migrate from the occupation of the hod carrier to that of the mason.

Balance.

In our highly specialized civilization, with so many interdependent parts, things are continually falling out of balance. If it is not a lack of balance between the number of hod carriers and the number of masons, it is something else. There are thousands of opportunities for similar things to happen. Whenever it does happen, some class or occupation is so overcrowded as to produce unemployment. This is the one and only phase of the population problem that we need to consider for a long time to come, but it is quite the most important social problem of our times. It is the real cause of most of our social unrest. It will never be solved except by those who understand it and appreciate its far-reaching importance.

Commercial self-support.

How many people can the United States feed from its own soil?

This problem may not seem so very important, because no country is compelled to feed its own people from its own soil unless foreign trade is shut off by enemies in war time. Then it becomes very important, but the really important thing is not to have enemies if you can help it. A manufacturing country may, of course, in time of peace buy a part of its food and raw materials from the outside, sell its finished product to outside customers, and live on the profits of the transaction. Nevertheless, in spite of all a nation can do, it may be compelled at some time or other to feed its own people from its own soil. Moreover, the world must feed its people from

its own soil because there is no interplanetary trade as yet. When we have learned how to find out how many people can be fed from the soil of the United States, we shall then be ready to attack the larger problem, how many people can be fed from the soil of the world.

This problem is exceedingly difficult because there are so many unknown factors in it. One way, perhaps as good a way as any, is to reduce it to its simplest possible terms and get an approximate answer, and then proceed to make the problem harder and harder by introducing these unknown factors, one at a time. It is obvious, to begin with, that something depends upon how well the people are to be fed, how much productive land we have, and how much it yields per acre. An American soldier's ration is commonly regarded as a fairly liberal one, being

STANDARD RATION FOR UNITED STATES ARMY WITH ESTIMATED AMOUNT OF LAND NECESSARY FOR ITS PRODUCTION

Articles Consumed	Ounces, etc., Per Day	Pounds Per Year	Good Yield in Pounds Per Acre	Acres Required to Produce Yearly Ration
Beef, fresh	20.	456.25	200	2.28
Flour	18.	410.6	1,200	.34
Baking Powder	.08			
Beans	2.4	55.	2,400	.022
Potatoes	20.	456.25	12,000	.038
Prunes	1.28	29.2	3,000	.009
Coffee, roasted and ground	1.12	25.55	4,800	.005
Sugar	3.2	73.	2,500	.029
Milk evaporated, unsweetened	.5	11.5	625	.018
Vinegar	.16 gill	14.6	3,000	.004
Salt	.64 oz.			
Pepper, black	.04			
Cinnamon	.014			
Lard	.64	14.6	300	.048

abundant, nourishing, well balanced and appetizing when properly cooked and served. In the following table the first two columns contain a standard soldier's ration. Of course the regulations permitted considerable variation from this standard, but there is no reason for believing that the variations would require any more or any less land than the standard ration.

Three acres and subsistence.

According to this table it would take almost exactly three acres to produce a soldier's ration for a year. There were in 1920 roughly 507,000,000 acres of improved land in farms in the United States. If it were all good farm land, which it is not, and if it were as well cultivated as the lands of England, Belgium and Denmark are, which it is not, though it may be some time, we might reasonably expect it to produce the quantities per acre indicated in the third column of figures. The 507,000,000 acres of improved land might then be expected to produce about 170,000,000 soldiers' rations, if it were not necessary to make allowance for several things. But several allowances must be made. In the first place, the average product per acre in the United States is only about half as much as is assumed in the table, though the present product could probably be doubled by better cultivation. In the second place, no allowance is made for land which grows cotton and wool, which supply us with clothing rather than food, though mutton and cotton seed, two sources of food (cotton-seed oil being an important food product), are produced at the same time. In the third place, no allowance is made for the horse feed which is used to produce power for the cultivation of the food

crops. These would considerably reduce the number of soldiers' rations which our improved land would produce.

To offset these factors we have, first, the fact that much of the beef is produced on unimproved land. The great cattle ranges of the West and some of the rough pastures of the East are classed as unimproved land. However, many of the beef animals grown on this land have to be wintered, and most of them have to be fattened on the grain and forage that is grown on improved land.

Again, a part of the beef as well as the milk is produced on cornstalks, wheat straw, bran, tankage, cotton-seed meal, and other by-products and, insofar as this is the case, cannot be said to require any land at all. These considerations will compel us to reduce considerably the amount of land required to produce the beef of the soldier's ration. Since beef is the item that requires the greater part of the three acres of the above estimate, this will make a considerable difference in the total. Whether this will more than offset the allowance made for cotton, wool and horse feed is more than anyone can say at the present time.

Other estimates of the food consumed per family and per person are given in the following tables. Students who feel so inclined may spend some time in estimating how many people can be fed at these rates from the soil of the United States. They need not feel discouraged, however, if they find it difficult to reach satisfactory conclusions because no professional economist has yet reached a definite conclusion.

Of course, it is possible, if it were absolutely necessary, that we could change our habits and consume things that require less land in their production. It takes more land to produce a given amount of food value in the form of

FOOD WEIGHTS—ANNUAL CONSUMPTION PER FAMILY [1]

Beef	350 lbs.
Pork	308 lbs.
Poultry	68 lbs.
Eggs	85 doz.
Flour and meal	807 lbs.
Butter	117 lbs.
Cheese	16 lbs.
Milk	355 qts.
Potatoes	882 lbs.
Rice	25 lbs.
Tea	11 lbs.
Coffee	47 lbs.

The following table, compiled under the directions of Royal Meeker, former Commissioner of Labor Statistics, U. S. Dept. of Labor, shows the pounds of food eaten per person a day in New York and other cities.

Item	Atlanta	Boston	Chicago	Denver	New York	San Francisco	St. Louis
Total meat	0.296	0.350	0.380	0.400	0.356	0.361	0.369
Total fish	.0176	.1130	.0442	.270	.0710	.0628	.0164
Total meat and fish	.314	.463	.424	.427	.427	.483	.385
Milk, whole	.169	1.116	.874	.575	1.407	.950	.317
Total dairy products	.653	1.250	1.033	.833	1.575	1.107	.485
Total cereals	.856	.967	.972	.920	.966	.962	1.097
Total sugar	.163	.161	.186	.164	.152	.152	.165
Total fruits	.427	.277	.375	.423	.212	.435	.386
Total vegetables	1.001	1.185	1.151	1.122	.913	1.057	1.173
Total miscel.	.0944	.0390	.0637	.0606	.0550	.0352	.0860
Total fats	.160	.103	.140	.135	.111	.121	.131

wheat than in the form of corn bread, potatoes, and sweet potatoes, and in the form of beef or mutton than in the form of milk, eggs, pork or beans, though this is offset by the fact that beef and wheat can be grown on arid and semi-arid land, whereas these other crops cannot. Again it is possible to add to the acreage of improved land in

[1] From World Almanac, 1922, p. 195.

farms by clearing land of stones and stumps, by drainage of swamps and by irrigation of dry lands. No satisfactory estimate has ever been made of the possibilities in this direction.

Waste lands.

The lands that need reclamation in this country generally fall into three classes, namely, those that go to waste because of [2]

A. Bad physical conditions	Too wet Too dry Too stony Too stumpy
B. Bad chemical conditions	Too much alkali Too much acid
C. Bad social conditions	Bad taxation Too much speculation Too much luxury

More public attention in this country has been given to the problem of dry land than to any other form of waste land. The reason is that we have more dry land than any other kind. Of course it is difficult to show just where the line is to be drawn between the humid and the arid belts. The 98th meridian of latitude is commonly adopted, though there would seem to be almost equally good reasons for adopting the 100th meridian. Following the 98th meridian from the Canadian boundary to the Rio Grande is about 1500 miles. This line crosses no mountain ranges, being on the edge of the Great Plains. Almost every acre of land in this portion of the Great Plains is tillable and productive except for

[2] Cf. the author's *Principles of Rural Economics*, Boston, 1911.

the lack of moisture. Any improvement in methods of tillage that will extend the crop area one mile westward into the dry belt adds 1500 square miles to the productive area of the country. Figuring on this basis, it would only be necessary to extend the crop area 50 miles westward to include as much productive land as there is in the whole of Great Britain, and 128 miles westward to include as much as there is in the whole of France. These facts should be sufficient to impress one with the importance of reclaiming dry lands in the United States.

Irrigation.

The two characteristic methods of extending crop areas into the arid section of the country are, first, irrigation, and second, dry farming. Wherever irrigation water is available, it is vastly to be preferred to dry farming. The pressure of population upon the food supply is not yet sufficient to justify the immediate development of all our irrigation possibilities. Premature development of irrigation projects would bring failure because the price at which crops could be sold would not be sufficient to pay the cost of irrigation. Eventually, however, the price of farm crops must rise to a level which will justify a great extension of our irrigated area. Anyone with a constructive imagination must foresee a great field for engineers and statesmen as well as for farmers in the development of the irrigation possibilities of such great rivers as the Missouri, the Yellowstone, the Platte, the Arkansas, the Rio Grande, the Columbia, the Snake, the Colorado, the Sacramento and the San Joaquin and all their tributaries. When we consider that the entire cultivated area of Egypt, all of which is irrigated by the Nile, does not exceed six million acres, on which a population of

five million is supported, though on a rather low standard of living, and that there are already under irrigation in this country more than nineteen million acres (in 1919), and that we have as yet only made a beginning, we will be able to form some idea as to the future importance of irrigation in this country.

Dry farming.

But after we have reached the limit of irrigation in the United States by having utilized all our streams to the maximum, only a fraction of the dry land of the country will be under cultivation. Large as the irrigated area will be in the aggregate, it will only form a few green spots in a vast wilderness of desert or semi-desert lands. Of this non-irrigable land, however, some portions can be brought under tillage by what has come to be known as dry farming. Dry farming is merely farming in such a way as to conserve to the utmost the limited moisture that the soil acquires through rainfall. In almost every agricultural region of the world there is some limiting factor which has to be conserved with great care. It may be nitrogen, phosphorous, potash or all three combined. Where these elements of soil fertility are the limiting factors in crop production, the chief problem in scientific farming is to conserve them. In a similar sense the chief problem of the farmer in a dry country is to conserve moisture which, rather than chemical fertility, is here the limiting factor.

Permanent pasture.

Most of this land, however, will probaby continue indefinitely to baffle the best efforts of the tiller of the soil. It must be regarded as the permanent pasture land of the country. An occasional rainfall causes certain grasses to

spring up quickly and mature their seed. These grasses then dry up and furnish a limited amount of forage for cattle and sheep. Though it takes a large acreage to support one animal, there is available such a vast acreage as to support a large number of animals.

Drainage.

The reclamation of wet lands comes next in importance to the reclamation of dry lands as a means of extending our crop area. Here is another field for engineering enterprise and statesmanship that should appeal to the imaginations of our future nation builders. In this case, as in the case of irrigation, there is no reason for haste. A drainage project as well as an irrigation project may be premature. It is only when the pressure of population upon the food supply forces the price of farm crops to a high level that it will be found profitable to drain the larger part of our swampy areas. It has been estimated[3] that there are approximately seventy-four million acres of swampy lands in this country that are of little use. In addition to being practically useless, they are a menace to health and an obstacle to transportation. Most of these lands can be drained and reduced to cultivation when the time comes, that is, when the prices of farm crops are high enough to justify it. Allowing forty acres to a family, these swamp lands would support nearly two million farm families or ten million people in agriculture, aside from the towns and vilages that would grow up in these reclaimed areas.

Next in importance to the irrigation of dry land and the drainage of wet land is the reclamation of the cut-over areas of our northern and southern borders. The

[3] See N. S. Shaler, *The United States of America*, p. 382, vol. I.

clearing of these areas of stumps and occasionally of stones is a process that requires time and patience rather than large engineering enterprises. As farm crops, especially white and sweet potatoes, rise in price owing to the pressure of population on food, individual farmers will doubtless find it to their advantage to clear more and more of this land and bring it under cultivation, thus adding appreciably to our crop area. Even some of the stony land that was abandoned because of the low prices of farm products during the period when our crop area was extending more rapidly than our population, will be brought back into cultivation when our population is expanding more rapidly than our crop area. The sweetening of acid lands by the use of lime is already going on and will be stimulated more and more as prices rise. The problem of dealing with alkali lands is a much more difficult one which will probably have to be worked out in connection with irrigation, inasmuch as it is in the irrigated areas that alkali gives the most trouble.

Repressive taxation.

Oppressive taxation, in some parts of the world, is a greater pestilence than drouth or floods. Of all evils of taxation, probably uncertainty is the worst. When the farmer does not know what the tax gatherer is likely to take, or how much he is likely to have left as the result of his enterprise after the tax gatherer has gone; when he realizes that if he ever succeeds in building up an unusual farm, or if he ever shows signs of unusual prosperity, this will be a signal for an attack by the tax gatherer, he is not likely to be a very progressive farmer. Those parts of the world that have developed a superior agriculture owe their superiority in part to the regularity

and calculability of their systems of taxation. If one of these countries should ever become so orientalized or Bolshevised as to return to that predatory form of taxation or to use its taxing machinery as a means of attacking or wreaking vengeance upon the more successful farmers, the agriculture of such a country will decline quite as rapidly as though drouth, flood or pestilence had destroyed its crops. Some parts of our country today (1924) are suffering because of a speculative mania in farm land that took possession of the farm people a few years ago. General demoralization and bankruptcy follow every period of over-speculation, whether in land, Belgian hares or tulips.

Luxuries.

The use of considerable areas of good land for the production of useless luxuries, such as alcoholic liquors, tobacco and other things of a similar nature, definitely limits the amount of food that can be grown and the number of people that can be supported. Until the population begins to press upon the food supply, this loss may be considered as negligible; but sooner or later it will become a vital issue in every country that hopes not to be left behind in the progress of civilization.

Fighters and utilizers.

When two rival species of animals are struggling for the same food supply, the struggle may take either the militant or the economic form. If it takes the militant form, it is won by the species that is best equipped with powers of destruction. By using its superior power to destroy and to terrify, it may either exterminate or drive away its rival. If the struggle takes the economic form, it is won by the species that has the greatest power of

utilization—that is, by the one that can manage to consume most efficiently. By means of its superior power of utilization it can live where its rival would starve. Sheep, for example, will drive cattle from an open pasture, not by reason of their greater fighting power but by reason of their superior power of utilization. They are better grazers and can live where cattle would starve. Some of the huge creatures of past geologic periods probably disappeared from the earth not because they were poor fighters, but because they were poor utilizers. They were eaten out of house and home, sometimes by smaller creatures—in any case by creatures that possessed superior powers of utilization.

The same principle applies to the struggle between rival human groups. When two tribes, nations or races are struggling for the same food supply, or—which amounts to the same thing—for the same land from which to derive food, the same hunting grounds, pasture lands, farm areas or even for the same markets, the victory may go to the one with superior powers of destruction or to the one with superior powers of utilization. That is, it may be won by military force or it may be won by economic superiority. Among the more highly developed races, powers of destruction have been greatly amplified by means of missile weapons and high explosives. Such races or nationalities can, if they choose, take what they want from lower races without much difficulty. But the powers of utilization are even more highly developed by the civilized races than the powers of destruction. The chief development in powers of utilization lies in what is commonly called the field of production. This means the power to utilize resources rather than food that grows naturally. It means the

power to make a given territory yield more subsistence than is possible to a less highly developed tribe. This power to utilize resources or to force territory to yield more subsistence has become the most important factor in the struggle of races, though the power to consume efficiently is not to be neglected.

Human utilizers.

The struggle between groups or types of human beings does not invariably take the militant form. There is within every sovereign group called the state or nation a rivalry—sometimes conscious, sometimes unconscious—between groups of various kinds. The groups may be formed on religious lines, as when rival religious sects live side by side in the same territory. They may not be consciously struggling for possession of the land, but so long as there is competition for farm land, the rivalry goes on, whether the people are conscious of it or not. If one religious group should prove to be markedly superior to another in its power of utilization, the one will tend gradually to displace the other. The same results will follow if the rival groups are political, cultural, racial or linguistic. There is a rivalry for the possession of land between white and black farmers in the South; between white and yellow farmers on the Pacific Coast; between native and foreign born farmers in the Middle West; between Mormons and Gentiles in Utah; among Methodists, Baptists, Catholics and all other religious sects all over the country. In most of these cases there is no marked difference in the power of utilization; and therefore no marked tendency for one group to displace another. In a few cases, however, there seems to be such a difference in the power of utilization as to

enable one group to displace the other by perceptible degrees.

Efficiency in production and in consumption.

In all these cases where the method of destruction is forbidden by the law of the land and actually prevented by the sovereign state, the victory generally goes to those possessing superior power of utilization. This power of utilization, as stated above, consists in part of the power to produce efficiently and in part of the power to consume efficiently. Both are factors in the determination of the struggle. Two rival groups, whether they be racial, linguistic or religious, possessing the same or equal efficiency in production, may have different habits of consumption. If the members of one group are more efficient consumers—that is, if they have few food prejudices or luxurious habits, and manage to live well and efficiently at small cost, that group will gradually displace the other. If, on the other hand, two rival groups have equal or similar habits of consumption, but one is distinctly superior to the other in the arts of production, the victory will ultimately go to the former.

CHAPTER VI

THE ECONOMIC VALUE OF MORAL QUALITIES

Moral practices have economic results.

The economist has no professional interest in religious or moral qualities as such. If religious and moral practices produce economic results, that is, if they affect the prosperity of the nation or the people, they are of great interest to the economist. The economist who ignores such matters shows a squeamishness that can not be commended from a scientific point of view. It is the belief of the author that religious and moral practices do actually affect the prosperity of the people. Hence this chapter.

Where social life begins.

The ultimate social fact is probably not psychical but physical. It is a physical fact that much more can be accomplished by a given fund of human energy when it is organized than when it is unorganized; when the individuals through whose muscles the human energy expresses itself in mechanical power work together than when they work separately; when there is specialization, each one doing that which he can do best, than when there is no specialization. Any treatise on economics will make it clear that there is great economy in the division of labor.

Survival value of group effort.

If there is great economy in the division of labor, there must be survival value in it. Those who are willing to work together in groups have an advantage over those who can not or will not. In the long periods of intense struggle for existence that preceded our modern civilization, those who could not or would not work or fight in conjunction with their fellows but insisted on working and fighting singly and alone, must have been eliminated. Even under our present industrial civilization, when the struggle for existence is not the dominating factor in human biology, it still remains true that there is great economy in the division of labor. More people can live and they can live better if they are willing and able to work together than would be possible if they insisted on working separately.

Elimination of the anti-social.

The ability to work together comfortably and peaceably is partly psychological. The morose individual, who does not like society, who can not adapt himself to the presence of other persons, or conform his behavior to their requirements, is mentally unadapted to teamwork. In a savage state of society, he will perish because of his inability to hunt and fight in conjunction with others. In a civilized state of society, he will succumb to the operations of the criminal law. The selective forces are and always have been tending to preserve the socially minded and to eliminate the unsocially minded. If man is now a social animal it is because it works better economically to be socially than unsocially minded, because the socially minded people can make a living where the unsocially minded could not, and because the socially

minded can make a better living than is possible for the unsocially minded. This, as suggested above, is due to the physical fact that more can be accomplished with a given fund of human energy by group action than by individual action.

If things had been different.

If the mechanical results of unorganized individual action had been greater than those of organized group action, man would have become progressively unsocial. If it had been true that a hundred men, each one working for and by himself, could make a better living than an equal number of men working in a group, isolated action would have had superior survival value. More than that, those mental qualities and attitudes that make some men prefer to work alone would have had survival value. A social nature that would lead some men to live and work together in spite of the inefficiency of so doing would have been a serious handicap, and would have tended, in the long run, to eliminate such people and to leave the world in the possession of the unsocial. If there had ever been such a thing as a criminal law, as there obviously could not have been in the absence of organized groups, it would have condemned organized effort. If there had grown up a body of moral precepts, as might have been possible, what we now call the social virtues would have been called vices, and what we now call the unsocial vices —some of them at least—would have been called virtues. Creatures, such as the tiger, who find no advantage in associated effort, are as naturally unsocial as we, who find an advantage in associated effort, are social.

All this, however, is academic speculation. We are living in a world where human energy accomplishes more

when it is organized than when it is unorganized; where team work pays in physical terms, and where, therefore, the selective forces of the physical world have been breeding up a social rather than an unsocial race of men. What might have happened had the world been different is of no great practical importance to us.

Economics not primarily psychological.

In this present world, the only world with which we have had any actual experience, there is the verifiable fact that associated and co-ordinated effort is more effective than dissociated and unco-ordinated effort. This is fundamental. The attempt of the behaviorists to make economics a psychological science is as futile as the attempt to make the subject of ballistics a study of the psychology and behavior of marksmen. There are certain ways of doing things that are economical whether any one follows them or not. Wisdom consists in conforming to these economical ways and unwisdom consists in ignoring them. There is also the verifiable fact that it is easier to work in association if we like the society of others than if we dislike it. This is secondary and psychological. These two facts, working in combination, made it certain that man would eventually have become a social animal, whatever he may have been at first. A completely socialized creature probably does not exist, though some of the social insects, such as the bees and ants, seem to approximate closely to it. As to the human species, all we can say is that it is somewhat socialized, or partially socialized, or that it has become a social animal in the sense that it has acquired, in the course of its evolution, a certain predisposition for social life.

In view of this it seems rather extreme to assert that man is not a social animal.[1]

Familistic societies.

The process of socialization involves a great many forms of physical, physiological and psychological adaptation. The primitive form of association seems to have been the physiological group commonly known as the family. The most highly perfected forms of associated life are still of this sort. Probably the most highly developed forms of associated activity are found in the bee hive and the ant hill. These associations are distinctly familistic, that is, they are based on the facts of reproduction and common descent.[2] The morality of these insects is apparently so highly developed that no individual ever has the slightest inclination to do anything except that which it is to the interest of the group that he should do. Complete sanctification seems to have been attained as the result of purely evolutionary forces and, so far as can be determined, without evangelism of any kind. The believers in the perfectibility of human nature may take comfort in these observations, but they must exercise patience because it takes the evolutionary forces a long time to produce such results, especially in the case of the slow breeding animals, where the biological turnover is so very slow. Among the insects that breed rapidly, the selective processes also operate rapidly,

[1] See Dealey and Ward, *A Text-Book of Sociology*, Introduction, chap. I. (1905, The Macmillan Company, New York.)

[2] For a very interesting and discriminating discussion of this point see Lafcadio Hearn, *Kwaiden*, p. 215 f. (1904, Houghton, Mifflin Co., Boston & N. Y.)

See also Marius Deshumbert, *An Ethical System Based on the Laws of Nature*. (1917, Open Court Publishing Co., Chicago and London.)

and adaptive results may be achieved in centuries that would require millenniums among the slow breeding humans.

The proposition that certain ants have advanced in morality far beyond any branch of the human species is supported powerfully by Lafcadio Hearn in his remarkable essay on ants already referred to. He quotes first from Professor David Sharp as follows:

Insect morality.

"Observation has revealed the most remarkable phenomena in the lives of these insects. Indeed we can scarcely avoid the conclusion that they have acquired, in many respects, the art of living together in societies more perfectly than our own species has; and that they have anticipated us in the acquisition of some of the industries and arts that greatly facilitate social life."

Herbert Spencer is then quoted in support of the proposition that ants are in a very real sense ethically as well as economically in advance of humanity. Whatever may be said of their mastery of the arts of production, much can be said for the proposition that ethically they are our superiors.[3] Hearn insists that though their competence is not like ours, yet it is real. He says:

"But it is not especially of these matters that I wish to speak. What I want to talk about is the awful propriety, the terrible morality, of the ant. Our most appalling ideals of conduct fall short of the ethics of the ant—as progress is reckoned in time—by nothing less than millions of years! . . . When I say "the ant," I mean the highest type of ant—not, of course, the entire ant-family. About two thousand species of ants are already known; and these exhibit, in their social organizations, widely

[3] Cf. also *Social Life Among the Insects* by Wm. Morton Wheeler. New York, 1923.

varying degrees of evolution. Certain social phenomena of the greatest biological importance, and of no less importance in their strange relation to the subject of ethics, can be studied to advantage only in the existence of the most highly evolved societies of ants. . . .

"Only in a vague way can we conceive the character of ant-society, and the nature of ant-morality; and to do even this we must try to imagine some yet impossible state of human society and human morals. Let us, then, imagine a world full of people incessantly and furiously working—all of whom seem to be women. No one of these women could be persuaded or deluded into taking a single atom of food more than is needful to maintain her strength; and no one of them ever sleeps a second longer than is necessary to keep her nervous system in good working-order. And all of them are so peculiarly constituted that the least unnecessary indulgence would result in some derangement of function. . . .

"Most of us have been brought up in the belief that without some kind of religious creed—some hope of future reward or fear of future punishment—no civilization could exist. We have been taught to think that in the absence of laws based upon moral ideas, and in the absence of an effective police to enforce such laws, nearly everybody would seek only his or her personal advantage, to the disadvantage of everybody else. The strong would then destroy the weak; pity and sympathy would disappear; and the whole social fabric would fall to pieces. . . . These teachings confess the existing imperfection of human nature; and they contain obvious truth. But those who first proclaimed that truth, thousands and thousands of years ago, never imagined a form of social exisetnce in which selfishness would be *naturally* impossible. It remained for irreligious Nature to furnish us with proof positive that there can exist a society in which the pleasure of active beneficence makes needless the idea of duty—a society in which instinctive morality can dispense with ethical codes of every sort—a society of which every member is born so absolutely unselfish, and so energetically good, that moral training could signify, even for its youngest, neither more nor less than waste of precious time.

"To the Evolutionist such facts necessarily suggest that the

value of our moral idealism is but temporary; and that something better than virtue, better than kindness, better than self-denial—in the present human meaning of those terms—might, under certain conditions, eventually replace them. He finds himself obliged to face the question whether a world without moral notions might not be morally better than a world in which conduct is regulated by such notions. He must even ask himself whether the existence of religious commandments, moral laws, and ethical standards among ourselves does not prove us still in a very primitive stage of social evolution. And these questions naturally lead up to another: Will humanity ever be able, on this planet, to reach an ethical condition beyond all its ideals—a condition in which everything that we now call evil will have been atrophied out of existence, and everything that we call virtue have been transmuted into instinct—a state of altruism in which ethical concepts and codes will have become as useless as they would be, even now, in the societies of the higher ants. . . .

"There may be no gods; but the forces that shape and dissolve all forms of being would seem to be much more exacting than gods."

The heroic theory of morality.

Those who hold to the heroic theory of morality may object to this assumption of high morality on the part of the social insects. By the heroic theory of morality is meant the theory that conduct is not truly moral unless it involves a severe moral struggle on the part of the actor. To feel temptation and to fight valiantly against it, to resist and conquer the evil tendencies in our own nature, these, and these alone, constitute the highest moral conduct. Seeing that we are morally weak, that we are powerfully inclined to do evil, it is, of course, highly important that we should resist, struggle and overcome our own tendencies toward evil conduct. In order to induce us to make the struggle it is wise to praise us when we do. Nevertheless, the possession of evil or

unsocial dispositions is a mark of a low state of moral evolution. Whatever may be said from the evangelistic standpoint, from the evolutionary standpoint it is a great advance when a race is bred up to the point where it has no anti-social tendencies. From this point of view it appears that some of the social insects have evolved to a higher moral level than any branch of the human race.

Domesticity.

With the biological family as the primitive form of human association, certain minor phases of adaptation followed. Parental affection, of course, is a necessary accompaniment of such an association. Such an association must become stable and more or less permanent if it is to gain the full economic benefit of associated effort. In proportion as the family group approaches permanency, the prolongation of infancy becomes a greater possibility. Here is one of the most profound physiological changes or adaptations that have grown out of the economic advantage of associated effort.[4] The different factors begin to work together by a kind of reciprocal action. As infancy is prolonged, it becomes necessary that the family become more stable, and as the family becomes more stable, it is possible for infancy to become more prolonged. Those neurotic rebels against domesticity who pose as advanced thinkers are not only fighting against the moral standards of the time; they are fighting against the evolutionary forces that have produced these moral standards. They might as well revolt against the precession of the equinoxes.

[4] See John Fiske, *Outlines of Cosmic Philosophy,* Part II, chap. xxii, pp. 340-348, 360-362 (copyright, 1874, by Houghton, Mifflin & Co., Boston).

Geographical origin of thrift.

It is not necessary to enumerate all the special phases of mental and moral adaptation that accompany the associated effort that is so economically advantageous. A few will suffice. If our branch of the human race had developed in a region where food supplies were maturing at all seasons of the year, or, to take a somewhat extreme case, if we had developed under conditions described in Exodus where the Children of Israel lived upon manna that was provided every morning, and which could not be stored because it bred worms if kept over night, it is pretty certain that thrift would never have been regarded as a virtue. It certainly would have had no survival value. The propensity to store up, whether in an instinctive, squirrel-like way, or as a result of calculating foresight would have been of no advantage but a positive disadvantage to the individual and the race. Those who behaved in a thrifty way would have been under a real disadvantage as compared with the thriftless, hand-to-mouth people; the former would have been eliminated and the latter preserved until a thriftless, hand-to-mouth race had been bred. But since our race developed under conditions of seasonal variation in the food supply, storing was economically advantageous. Under these conditions, the thriftless were eliminated and the thrifty preserved, until a thrifty race was evolved through the principle of variation and selection. Whether the propensity to save is impulsive, instinctive, or calculated, or a mixture of all, does not matter so far as the present argument is concerned. The fact remains that thrift is economically advantageous both to the individual and the race. Neither the individual nor the race can long survive that does not possess this propensity.

Increasing importance of thrift.

The importance of thrift has probably increased rather than decreased with the advance of civilization. No nation can hope to keep pace with modern progress in any important field except vocal music, painting, sculpture and poetry, that does not make large use of mechanical inventions. Mechanical inventions are merely devices by means of which a great deal of past effort and enterprise can be co-ordinated with present effort and enterprise. Past effort and enterprise invented and made the mechanical devices that are now being used by present effort and enterprise. Unless the inventors and the makers of these devices are themselves very thrifty persons, they would not have invented and made them if there had been no one to buy them. No one but a thrifty and farsighted person will buy one of these devices because he must wait a long time to get his money back. Where there is no willingness to wait, either on the part of the inventors and makers, or on the part of others who may buy their contrivances, there will be no contrivances invented and made. The observed fact is that a vast amount of investment, long in advance of the maturing of a consumable product, is necessary in these days of machine production.

Thriftless people prefer thrifty neighbors.

It is no accident that even thriftless people prefer not to live in a thriftless country but migrate from such a country to a thrifty one. The reason is that a thriftless country is always a poor country, where there is little employment, little product and low wages. In a thrifty country there is likely to be a large amount of wealth produced, an abundance of employment and good wages,

so that even a few thriftless people can manage to live pretty well because of the thrift of others.

Some time ago the writer prepared the following catechism relating to New England thrift:

A thrift catechism.

New England has more people to the square mile than any other part of the country.

Why do so many people live in New England? Not because they were born here; they could move away if they wanted to. Besides, more than a fourth of all our New England people are of foreign birth, and many others came from other parts of this country. Those who are born here do not stay because of scenery or climate, and those who were born elsewhere have generally come from places where the scenery and the climate are better than here. The people are here because they can make a living.

Why can so many people make a living in New England? Not because of soil, minerals or natural resources. These things exist in greater abundance elsewhere than here. Most of our immigrants have come from countries having better soil, more minerals and other natural resources than we have. They are able to make a living here because of our factories.

Why does New England have so many factories? They didn't grow of themselves; the New Englanders built them.

Why did New England people build so many factories? There are two reasons: First, the New England people knew how, and second, they had the money to pay for them.

Why did they know how and where did they get the

money? They didn't know how by inspiration. They had excellent schools and these schools helped make the New England people the most intelligent in the world. The money didn't rain down from the sky, nor sprout up out of the ground. It was saved out of the meager incomes of the old New Englanders. With all their hard study and spreading of knowledge they would not have been able to build these factories if they had spent all their money on immediate enjoyment. They had to cut down immediate consumption in order to have any money to spend on buildings and equipment. In short, it was thrift coupled with knowledge and enterprise that did it. Other parts of the country, with better soil, more water power, minerals and other natural advantages could easily have outstripped New England in factory building if the people had been as intelligent, enterprising and thrifty as the people of New England were. Massachusetts alone has 196 savings banks, some of them very old. Besides the savings banks there are the savings departments of other banks in which New England compares favorably with other sections. To those who understand, there is a close connection between the number of savings banks and the number of productive industries in Massachusetts.

How long will New England remain the most densely populated part of the country? So long as more people to the square mile can make a living here than elsewhere.

How long will that be? So long as the people of New England continue to build more and better factories than other people.

How long will that be? So long as they know how and have the money to pay for them.

How long will that be? So long as they have better schools and practise more thrift than other people.

How is thrift going to help you to live in New England? In two ways: First, your thrift and everybody's thrift must provide the money with which to buy building materials and machinery and hire labor to build and equip more and more factories. These will open more and better opportunities,—that is, more jobs,—for you and everybody else. Savings,—your saving and everybody's,—will help you to a better job. In the second place, you will get interest on what you save if you deposit it in a good bank, or invest it in a productive industry.

Thrift and common sense.

The general common sense of our branch of the human race has always approved thrift. If it had not, it would never have emerged from barbarism, even if it had survived extinction. The destiny of modern society is safer in the control of the general untrained common sense of a capable race than in the control of a few half trained economists who have studied just enough to lose their common sense and not enough to get it back again, and who therefore write books on the fallacy of saving and similar topics.

Subordinating the less to the greater interest.

There is a growing opinion among students of the problem that the moral qualities and habits of a nation have almost if not quite as much to do with its success as its intellectual qualities. Man has been enabled to hold dominion over the rest of the animal creation, not simply by reason of his greater knowledge of and control over the forces of nature, though that is undoubtedly one of

the primary factors in his success. His dominion is also secured in part by his greater forethought, that is, his greater ability to subordinate the lesser interest of the present to the larger interest of the future. It also secured in part by his greater capacity for organization, that is, his ability to work together in groups. This depends upon his ability to subordinate the lesser interest of the individual to the larger interest of the group, the community or the nation. Again, civilized man excels the savage in these three particulars, and because of them he is able to hold dominion over the savage. Furthermore, within a civilized nation, they who possess these three powers in excess of their fellows will hold dominion over their fellows. Scientific knowledge, forethought, and organization, these three working in combination, will doubtless in the future as they have in the past, give dominion to those who possess them in superior degree. The secret of it is that these are the factors which secure the greatest economy of human energy, which enable any group of people to accomplish the maximum with the working energy in their possession.

Correlation of virtues.

These three factors of national success are much more closely related to one another than is commonly understood. Without scientific knowledge there would, of course, be none of those improvements in transportation and communication which have revolutionized the modern world, nor many of those mechanical improvements which have changed almost every industry from a handicraft to a factory. But, with all our scientific knowledge, very little use would be made of such things without that forethought which enables a people to expend labor, years or

even decades in advance of the maturing of a finished consumable product. The co-ordinating of labor expended at different times is quite as essential as the co-ordinating of labor expended at different places. The former is the peculiar function of the capitalist in modern industry. Unless there are individuals with sufficient foresight to undertake this, and unless, which is very improbable, the masses themselves have sufficient foresight to tax themselves for that purpose, that function will never be performed. There will be no coordination of labor performed at different times, which means that expensive machines will not be built.[5]

Calculability of conduct.

Again, even with the combination of scientific knowledge and forethought, if there is no effective organization to protect property and make it safe for any one who is disposed to undertake to co-ordinate labor which is performed at different times, there will be no inducement to undertake that function. But organization means more than the mere police protection of property. It means also the general trustworthiness of the average citizen, his willingness to stand by his word, even when he swears to his own hurt; in short, it means the calculability of human conduct. Where there is no such calculability, where no one can make even a tolerable guess as to what any other man is likely to do, there can be no effective team work among the citizens. Such a nation can never grow strong for the simple reason that it cannot economize its fund of human energy. There is no civilization, in other words.

[5] See the author's chapter on Socialism and the Present Unrest in his *Essays in Social Justice*, Cambridge, 1915.

Confidence and Economy.

Very closely related to the question of intelligence as an economizer of human energy is the factor of mutual confidence. One of the greatest factors in the economy of effort, otherwise called the saving of labor, is confidence. Its greatest value is not found in the stability which confidence brings to the financial market, though this is very important. It is even more important in its effect upon the foundations of the economic structure of which the financial market is the apex. Nor is its greatest value found in the unshackling of enterprise which results from confidence in the government, though this is of tremendous importance. So important is this that it is generally conceded by students that even a bad system of laws, provided they be enforced with certainty, regularity, and precision, may be better than a good system when enforced with uncertainty, irregularity, and lack of precision. In the former case, the citizen knows what to expect and can adjust his plans to the situation. In the latter case, he never knows what to expect, nor how to lay his plans. Of course, a combination of a bad system of laws with an irregular and uncertain administration is vastly worse; but the point is that confidence in the regularity and calculability of the government is of the utmost importance.

Confidence in one's fellow citizens.

The average citizen has more points of contact with his fellow citizens than he has with the financial market or even with the government itself, and the sum total of the dealings among individual citizens exceeds, not only in number but also in the sum total of importance, the dealings with the financial market and the government.

It is in these multifarious relations between man and man that confidence assumes its greatest importance—where its lack results in the greatest waste of effort, or its presence in the greatest economy.

There are said to be certain parts of China where the owner of a rice field must guard his crop every night to keep the crop from being stolen. The waste of energy involved in this process must be tremendous. Unless we have at some time been confronted with the same necessity, we can scarcely appreciate how much energy we save through being able to sleep at night in confidence that the products of our labor will not disappear before morning. But before we waste much sympathy on those Chinese farmers, we should consider the position of the fruit grower and the market gardener in the neighborhood of our large towns. Unless one is able to produce on a scale sufficiently large to permit one to hire a watchman, or unless one is very favorably situated with respect to police protection, one is at the mercy of town marauders. This injures the town consumers as well as the country producers, because it adds to the cost of growing fruits and vegetables, and the town consumer must share in the cost. The sheep grower has his troubles also with the sheep-killing dog, which adds to our cost of living by discouraging sheep husbandry. Until we can create conditions under which every farmer can go to bed at night in serene confidence that his property will not be stolen or destroyed before morning, we shall not achieve the maximum economy of effort.

Confidence and co-operation.

But more important than safety from theft or destruction is that confidence of neighbors in one another which

will enable them to work together for their common good. One of the greatest hindrances to agricultural co-operation is the lack of confidence which neighboring farmers feel in one another. The present writer has talked with and to many hundreds of farmers on the subject of co-operation. He has found very few who doubted that it would be a good thing; but when he has tried to find out why they did not co-operate, he has generally found that it was because of a lack of confidence in one form or another. Sometimes this lack of confidence is due merely to a feeling of uncertainty as to just how to begin. We are all afraid of the water until we have been in often enough to feel certain that we know how to swim. This lack of confidence should, perhaps, be called caution, which, up to a certain point, is a good thing. Frequently, however, it is due to a sheer lack of confidence in the integrity or good will of one's neighbors. Where this lack of confidence is justified by such lack of integrity or good will there is need of a moral or religious reform. The reformer who would create integrity, reliability, and good will where these qualities do not now exist, should be ranked with the mechanical inventor or the engineer who devises labor-saving methods. Nothing could economize labor more effectively than the creation of these moral conditions which would enable the neighborhood to work together rather than at cross purposes. In some respects, a neighborhood may be likened to a large and highly complicated machine. If the various parts are not working in harmony but are banging against one another, there is a great waste of power and efficiency. It would not be streching the meaning of terms very much to say that a highly immoral condition existed within the machine. In the social organism, the harmonious working

of parts is the essence of morality, and, conversely, the inharmonious working of parts is the essence of immorality. It is obvious that the co-operative organization of rural communities, so much needed for agricultural efficiency, is not to be created by merely saying "Go to now: let us work together." There can be no effective co-operation where there is no mutual confidence: there can be no mutual confidence where there is little integrity, reliability, or good will. In a community where every man's word is as good as his bond, where every neighbor can be relied upon to do his part faithfully in the upbuilding of the community, and where there is a neighborhood pride and patriotism and mutual good will among all the neighbors, there will be no difficulty in working together, which is the essence of co-operation.

Closely allied to honesty and the calculability of conduct is the subject of standardization. When human conduct can be so standardized as to remove all suspicion and all necessity for watching our neighbors, we can each proceed with our own work with less fear and distraction than are now forced upon us. The economies which result from standardization are perfectly apparent in the case of material goods.

Fixing of standards.

Whatever differences of opinion may exist with respect to other functions of government, little is said or to be said against coining money and fixing the standards of weights and measures. Though these two functions are grouped together in the same clause of our federal constitution, it is doubtful if it is generally realized how close is the logical connection between them. Both result in great economy of effort in the transfer

of goods. The economy involved in transferring coined money rather than uncoined metal is apparent. Coining the metal merely enables it to pass from hand to hand without the labor of inspection, that is, without weighing it to determine its quantity and without testing it to determine its quality. It "sells"—if we may speak of selling money—on grade and reputation rather than on inspection. It is the most salable of all commodities, and the fact that it is so standardized as to make inspection unnecessary on the part of the "buyer" has a great deal to do in giving it its superior salability. By the same process of standardization, any other commodity may approach gold coin in salability, though it may not quite reach it. At least it is safe to say that whenever it can be sold entirely on grade and reputation, and absolutely without inspection, its salability will be enormously increased.[6]

Standards for measuring quality.

A short step is taken in the direction of standardizing other commodities when the State establishes uniform standards for determining quantity, that is, when it fixes the standards of weights and measures. Without some uniform system even our present methods of selling would be much more clumsy and wasteful. Every buyer would have to have his own system for determining the quantity of his purchases. This falls short, however, in two important particulars, of what is accomplished when metal is coined in a modern mint. In the first place, the government actually coins the money or requires it to be coined according to its own rules; whereas in other cases it only defines the units of measurement and commands conform-

[6] Cf. article on standardization in marketing by the author in the *Quarterly Journal of Economics,* February, 1917.

ity to its definitions. In the second place, coins are standardized, not only as to quantity, but as to quality as well. There is no probability that any government will be called upon to do that which would be analogous to coining money—actually put up other commodities in standardized packages. Something is to be said in favor of fixing standards of quality as well as standards of quantity.

The reasons in favor of fixing standards of quality, wherever it can be done, are identical with those in favor of fixing standards of measuring quantity. They are all summed up in the superior economy of buying on grade and reputation as compared with buying on inspection. The buyer of an unstandardized commodity may have enough confidence in the seller's system of weights and measures to avoid the necessity of weighing and measuring for himself; but he can scarcely avoid the necessity of inspecting the commodity in order to determine its quality. In some cases, the determination of its quality is easier than that of its quantity, but in other cases it is not. In all cases where quality can be standardized, there is economy of effort. So far as buyers can be saved the trouble of inspection, so far will they be enabled to economize the time and effort involved in making purchases, and so far, also, will the salability of commodities be increased. Whether this will reduce the cost of getting the standardized commodities from producers to consumers or merely enable the consumers to use their time more advantageously to themselves, may be open to question; but the ultimate economic effects are much the same in either case.

Not the least among the advantages of a minute division of labor is the fact that each individual can avoid

the necessity of being expert in many things and therefore has time to become a specialist in one thing. One of the advantages of the standardization of commodities is that the average consumer can avoid the necessity of being an expert judge of the many articles which he has to purchase. He may therefore utilize his time and mental energy in his own special field of work. There is, to be sure, something attractive in the custom of the well-to-do burgher going to market and selecting with the eye of a connoisseur the various articles needed by his household; but it is wasteful of time and mental energy. When he or his housekeeper is able to order by telephone, without any inspection whatever, and still get what he wants, more time is left for other things.

Standardization in marketing.

This will help to explain two very distinct tendencies in present day retail marketing methods. The first is to put more and more articles up into standardized packages. The second is to place more and more dependence upon the retailer, who, in many cases, is coming to regard his customers as clients to whom he is bound to give his own expert service. Both tendencies are designed to save the consumer the trouble of becoming an expert buyer. Neither tendency has, as yet, reduced the cost of getting products from producer to consumer. If the consumer utilizes the time saved in earning a larger income with which to purchase goods, it perhaps does him as much good as it would if these tendencies merely reduced the price of commodities.

One reason why these tendencies merely save the time of the consumer rather than reduce the cost of getting

the products to him is that the standardization takes place only in the last stage of the process, that is just before the commodities reach the consumer. In order to reduce materially the spread between the price which the producer gets and that which the consumer pays, standardization must take place early in the process. This will enable the standardized article to go through the channels of trade at a lower cost. If it has to be inspected every time it changes hands, the process is expensive and someone must pay the cost. Some products apparently cannot be standardized, and there must therefore always be a wide spread between the producers' and the consumers' prices.

A good illustration of the effect of standardizing a product early in the process of getting it from the producer to the consumer is found in the marketing of California oranges. They are graded and standardized as soon as they leave the orchards, all subsequent inspection is therefore unnecessary, and the cost of getting them to the consumer is reduced practically to the physical cost of haulage and handling. This has notably reduced the spread between the two prices. Many other commodities, such as wheat, cotton, pig iron and coal are largely sold on grade rather than on inspection. In these cases, the government has very little to do with the standardization. Two recent acts of Congress, however, have brought the government definitely into the field as the fixer of standards of quality. These are the Cotton Futures Act and the Grain Standards Act. Both give the Secretary of Agriculture power to establish grades and to enforce their use in the regular channels of trade. A number of States also have passed grading laws of various kinds.

Regulation may increase freedom.

Such legislative acts cannot be called in any true sense interferences with trade. They are designed to increase the freedom with which commodities may circulate. They are somewhat analogous to the work of the traffic policeman on a crowded corner. He may exercise authority and interfere occasionally with an individual's movements; nevertheless, the result of his so-called interference is greater freedom of traffic.

Uniform standards.

It is a well known doctrine that no man can serve two masters. A somewhat far-reaching corollary of this doctrine is that no country can be loyal to two standards of conduct. Abraham Lincoln pointed this out early in his career when he insisted that this country could not remain permanently half slave and half free. Others have insisted that the country could not remain part monogamous and part polygamous. There have also been skeptics who have questioned each of these propositions. Why cannot those who prefer slavery and those who prefer freedom both have what they want? Why cannot those who prefer monogamy and those who prefer polygamy both have what they want? The answer is fairly clear to those who understand such things. A high or severe standard of conduct can only be maintained when there is a strong feeling in support of it. This strong feeling is always intolerant. There is no such thing as toleration except where there is something bordering on indifference. Slavery would spread itself through the self-interest of a dominant class unless held back by a strong moral aversion. But if a large number of people feel this strong moral aversion, they will not content them-

selves with keeping themselves unspotted from slavery, they will go further and insist on abolishing it completely throughout the whole country. On the other hand, if there is enough tolerance or indifference to permit those who want slavery to own slaves or those who want polygamy to have plural wives, slavery or polygamy is pretty likely to spread and become the general system of the whole community.[7]

Tolerance.

It is easy to be tolerant toward those who oppose you on some question which you do not consider important or toward which you are indifferent. It is very difficult to be tolerant toward those who oppose you on some question for which you care intensely or which you think to be of great importance. One who possesses strong family feeling or who cares intensely for the well-being or the reputation of his family will find it difficult to be tolerant toward one who attacks either. One with a powerful religious feeling or who cares intensely for his religion finds it difficult to be tolerant toward one who attacks it. Even the anarchist, if he cares intensely for anarchy, shows rather bitter intolerance toward government, the opponent of anarchy. The real question is not whether one ought to be tolerant or intolerant; the question is, ought he to care intensely for any of these things or regard them as of great importance. If that question can be answered, the question of tolerance and intolerance can take care of itself.

What is worth caring for.

Is there anything that is really worth caring for? If so, we should cherish it and preserve it even to the extent

[7] Cf. Carver and Hall: *Human Relations*, ch. xiv, D. C. Heath & Co., 1923.

of showing hostility or intolerance toward anything that threatens it. Should one care, for example, for the well-being of his family, his country, his church, or should these all be regarded as matters of indifference? Should one care intensely for honesty, sobriety or any other virtue? If so, he must of necessity show some hostility or intolerance toward dishonesty, drunkenness and other opposing vices.

It is true that a great many people in the past, and perhaps in the present, have cared or are caring intensely for very trivial things. To condemn intolerance in such matters is not to condemn intolerance in general. It is merely to condemn a sense of values which elevates trifles into matters of great importance, mole hills into mountains, conventionalities into virtues. It, of course, does not follow that there are no virtues, mountains or other matters of great importance or magnitude. Lemuel Gulliver has difficulty in explaining to the Hoylyhnhnms the religious wars of his own people:

> Difference in Opinions hath cost many millions of lives: For instance, whether *Flesh* be *Bread,* or *Bread* be *Flesh; whether* the Juice of a certain *Berry* be *Blood* or *Wine;* whether *whistling* be a *Vice or Virtue;* whether it be better to *Kiss a Post,* or throw it into the Fire; what is the best Colour for a *Coat,* whether *Black, White, Red,* or *Gray;* and whether it should be *long* or *short, narrow* or *wide, dirty* or *clean,* with many more. Neither are any wars so furious and bloody, or of so long continuance, as those occasioned by difference in Opinion, especially if it be in things indifferent.

This does not prove by any means that there are no matters of real importance on which men can differ. It proves of course that we should be very cautious in forming our judgments on such questions and be as nearly certain as is humanly possible that the matter which

gives us concern is really a matter of great importance. Any practice, such as lying, stealing or drunkenness, which results in loss of man power is a drain upon the prosperity of the nation. The nation that shows tolerance toward such vices is handicapping itself. In our interlocking civilization, we are all dependent upon one another. Dependability of character is absolutely essential to the maintenance of this kind of civilization. Tolerance toward undependability means national suicide.

Any society or nation that shows tolerance toward undependability in any of its forms can never become a great society. The common liar, the swindler, the dishonest person, must be positively hated and made to feel as uncomfortable as possible in order that there may be the maximum dependability of parts in the great organism. In other words, here is something that is really worth caring for; and if we evaluate it properly and really care for it, there will be no such thing as tolerance toward undependability, whether that undependability takes the form of lying, cheating, stealing, lawlessness, drunkenness or sabotage. If, for example, physicians or surgeons were so undependable as to refuse to serve us in an emergency, every one would at once appreciate the value of dependability on their part. As civilization advances and we develop greater and greater interdependence of parts, we must develop greater and greater dependability of character in order to make that interdependence of parts possible. Anything which tends to reduce dependability of character on the part of citizens really tends to undermine civilization. Here is something that is really worth caring for. Tolerance on such a question as this is a sign of weakness and not a sign of strength, either mental or moral.

CHAPTER VII

HOW MUCH CIVILIZATION CAN WE STAND?

Is civilization worth the trouble?

There is a story of an old savage who, having spent most of his life in civilized surroundings, returned in his old age to his native tribe, declaring that he had tried civilization for forty years and that it wasn't worth the trouble. The reason he could not stand the trouble which civilized life involved was probably because he was the kind of man to whom the taking of trouble was very irksome. If he had been a different kind of man he might not have minded taking trouble quite so much. The choice that really presented itself to him was that between a system of life that involved mental hardship and one that involved physical hardship. A civilized life involves mental hardship in the form of taking thought for the morrow, planning for the distant future, saving seed corn, storing food, working on tools long in advance of the enjoyment of any good that could come from them. To certain kinds of individuals this sort of mental hardship is exceedingly irksome. To others it is not so very irksome. Our old savage apparently belonged in the former class.

Mental versus physical hardships.

On the other hand, to certain kinds of people physical hardship, hunger, cold, exposure, and bodily fatigue are

very irksome. To others these physical hardships are not so very irksome. Probably our old savage fell into the latter of these classes. In general any individual to whom mental hardships are very irksome and physical hardships not, would choose as our old savage did; that is, choose the physical hardships of savagery to the mental hardships of civilization. Another individual to whom mental hardships were not very irksome would choose the opposite course. To such an individual the choice of our savage was a very foolish one, though from his own point of view it was the wise one. He had literally found that he could not stand as much civilization as his adopted community was trying to practice. We shall probably find that we all have our limits, though we may differ as to the amount of civilization we can stand.

Living together in large numbers.

From among the various definitions of civilization, I shall adopt for the purpose of this discussion the one which says that it is the art of living together comfortably in large numbers. I shall not take the time to prove that living together in large groups requires many kinds of behavior that are not necessary for those who live alone, or even in small groups. The only question is, how far are we able or willing to modify our behavior so as to permit us to live together in large numbers? Savages are limited to small groups not because of outward and physical conditions, but because of their inability or unwillingness to behave in such ways as would permit them to live in large groups.

It goes without saying that the ability to procure the means of subsistence is a vital factor in the problem of living together in large numbers. This is not altogether

a matter of technical knowledge of superior processes of production. There have been great civilizations with very little of what we now call technical knowledge. There has never been a great civilization without the willingness to give up the wild, free life of the plains or the woods and to accept the humdrum, routine life of settled agriculture and industry.

This requires a fundamental and somewhat irksome change in human behavior. Some of us are only enabled to accept the change gradually. We stick to our routine jobs and behave like civilized men during the greater part of the year only on condition that we can break away and behave like wild men for a few weeks of vacation. Every spring, about the time the frost is out of the ground, every urbanite with a rural ancestry is seized with an impulse to dig. If this impulse is thwarted, it may break out in worse forms. Even where it is gratified there is danger that the dregs of his still more remote ancestry may be stirred. When he begins to dig, he will find worms and they may arouse a still more primal impulse to go fishing—to the ruin of his garden!

Doing what we like.

If it were possible for each and every one of us to do exactly what he liked, and at the same time to get exactly what he desired we should be a most fortunate people. In fact, we should have a real earthly paradise. We could all live by giving and receiving gifts. For every desire there would be an appropriate gift offered for the pleasure of the giver. But if there are desires which can not be satisfied with gifts which are the products of purely spontaneous and pleasurable effort, one of two things is necessary. Either some desires must remain

unsatisfied, or some one must do something that he does not like to do. The chances are that both will be necessary.

Doing what we don't like.

This alone would necessitate a modification of human behavior in the interest of civilization. To exercise frugality and discrimination in the satisfaction of desires is a kind of behavior which is very irksome to some people, and yet it is necessary if we are to be civilized. To work when we would rather rest or play, or to do one kind of work when we would rather do some other kind is likewise irksome and necessary. A race or a people who can not modify its behavior in either of these directions is not likely to produce subsistence enough to support large numbers, to say nothing of satisfying other desires than for subsistence.

Inducements to do what we don't like.

How can men be induced to do things which they do not like to do? There are only two ways: one is to offer them a reward; the other is to compel them by authority. The civilized world has come to rely more and more upon the offering of rewards, and less and less upon the use of authority and force, though there has been a fundamental relapse in Russia. Moreover, it has been customary among the more civilized races to leave the matter largely to the people concerned. The individual who desires something which no one cares to supply for the pleasure of it, is left to offer such rewards as he feels like offering as a makeweight to overcome the disinclination to work; and the individual who is asked to do the work, to accept such rewards as he feels like accepting. If these two individuals can agree, the work is done and the desire

satisfied; otherwise, the work is left undone and the desire unsatisfied.

In general, where the average individual does not regard work as too irksome, or is willing to do work for a reasonable consideration, a great deal of work will be done, and many desires will be satisfied. This will generally mean that a large population can be supported,—in short, that men can live together comfortably in large numbers. Where the average individual is not willing to behave in this way, civilization is impossible.

Under this system of free bargaining there will, of course, be a few very fortunate individuals who enjoy doing what others desire to have done and are willing to pay for. To such a person the world is a paradise where he can get what he desires as a result of doing what he likes to do. The improbability of a perfect harmony between the inclinations of all workers and the desires of all consumers is so great as to amount to an impossibility. This is what makes it necessary to do one of three things, first, to pay for work and products; second, to command men to work and produce; or third, to go hungry.

Producing for pleasure.

Any society that chooses to repudiate the method of getting men to do what they do not like to do by paying them enough to overcome their disinclination, has only two of these alternatives left. It must conscript an industrial army and carry on production under authority and compulsion or it must reduce production to such limits as men will carry on for pleasure and reduce its consumption accordingly. There is no other choice. To limit production to such things and such quantities as

can be produced for pleasure is to limit satisfaction considerably, and reduce populations to very small numbers. The thinning out process would involve wholesale starvation, as in Russia in the early days of Sovietism, which has serious disadvantages, in spite of its obvious advantages.

Conscriptive workers.

The other alternative, namely, the industrial army, whose conscripted laborers work under authority and compulsion, also has serious disadvantages. It has, of course, certain obvious advantages, such as the enforced equality, at least of all privates, and the elimination of unemployment. But the adjustment of supply to demand, or of the stock in the commissariat to the desires of the consumers, is notoriously imperfect in any sort of an army, whether industrial or militant. The motivation of the worker must consist largely of fear. That is, in order to induce him to do work which he would rather not do, he must be commanded, and there must always be penalty for disobedience. On the whole, it seems rather more irksome to have to do disagreeable work under command, with the fear of a penalty for disobedience as a spur, than to do it under voluntary agreement, with the hope of a reward as a spur.

When we consider that it is, as yet, physically impossible to support large numbers without a certain amount of disagreeable work, and that there are only two things that will induce men to do disagreeable work, the hope of reward—either material or immaterial—on the one hand, and the fear of punishment on the other, we get a fairly clear idea as to the penalties of civilization. One penalty or the other must be accepted; we can only choose

between them if we are to remain civilized. To choose neither is to fail to support large numbers, through failure to produce sufficient quantities of subsistence.

How much will the hope of reward stimulate us to produce if we are a free people, or how much authority and compulsion will we stand if we are not free? Upon the answer to these questions hangs the answer to the question, how many people can we support and how well, or how much civilization can we stand?

Interdependence.

As pointed out in the preceding chapters, one of the most important characteristics of civilized man is his dependability. Without this we could achieve none of the advantages of specialization, of the division of labor or social organization. Specialization and interdependence obviously go together.

Many writers have taken pains to point out how dependent we are upon one another in a highly civilized state. One way of illustrating this mutual dependence is to compare a higly developed society with a complicated machine or a highly developed animal organism. There are many striking resemblances, among the most important of which is the interdependence of parts.

It is a commonplace that the interdependence of parts increases as we ascend in the scale of organic life. The same change is noticeable as we ascend in the scale of social life. Each individual tends to specialize in some particular kind of work and to depend upon other individuals who have specialized in other kinds of work to supply him with goods and services which he cannot produce or perform for himself. Every elemenary treatise

on economics sets forth the reasons why this is so advantageous under the heading of The Division of Labor.

Dependability.

It is rather obvious, is it not, that there can be no great amount of dependence of one upon another where the people are not dependable? This is equally true of a machine or an animal organism, but we do not attribute moral qualities to the parts of any of them. The wheel in a machine has no choice. It must of physical necessity do whatever its construction requires it to do. Although there is no physical necessity compelling a person to be dependable, as is the case with the parts of a well-made machine or the organs of a healthy body, yet it is just as important that he should be absolutely dependable; otherwise civilization cannot advance at all.

If it is once understood that dependability is equally essential in the parts of a well-made machine, a highly developed organism, and a highly civilized society, we can then consider, advantageously, the factors which create dependability in each of the three cases.

In the case of a well-made machine, the very framework is so constructed, and the mechanical pressure so applied, as to compel each working part to work with precision and accuracy. In the case of an animal organism, in addition to the purely mechanical parts which operate very much as the parts of a machine, there are other sentient parts that respond to stimulation or irritation; but the stimulation or irritation comes by contact. When for any reason one of these organs ceases to respond to its customary stimulation it ceases to be dependable, and the whole organism suffers. In the case

of the parts of a complex society, dependability is secured less and less as civilization advances, by mechanical or biological methods. That is to say, men are seldom compelled to be dependable, or to function dependably, by mechanical force. Nor are they stimulated by physical contact as are the parts of the animal body. They are stimulated rather by anticipation. Pressure, stimulation, anticipation, are the progressive stages of motivation upon which we must rely for dependable behavior in machines, organisms and societies. There are certain resemblances, of course, between the response of a crowd to the appeal of the orator, the musician or the salesman, and that of the muscles to the chemical stimulants generated by excitement, yet there are also certain obvious differences.

However, it is not my purpose to dwell upon these resemblances and differences. It is sufficient for our purpose to note that when the individuals who constitute the working parts of a complex society cease to respond in their customary ways to their customary stimuli, they cease to be dependable, and society suffers as definitely as the body suffers when its organs cease to respond to their customary stimuli.

A rough approximation to the real truth is suggested by certain old expressions, in spite of their inaccuracy and inadequacy. I refer to such expressions as a "*tender* conscience," a "*sense* of duty," a "*feeling* of moral responsibility." These accurately enough convey the idea of sensitiveness to stimulation, though they fail to express the idea that the conscience, the sense of duty, and the feeling of moral responsibility are easily modified or determined, though not necessarily created, by custom and tradition.

Response to stimuli.

The influence of custom and tradition in determining the character of the response of the people to the stimuli of experience introduces, doubtless, one important difference between the behavior of individuals in a society and that of cells in an organism. This difference, however, has been vastly overrated and has led to serious confusion of thought among certain social psychologists, who profess to see no reason for assuming that one set of customs and traditions is any better than any other. A physiologist would scarcely say that one kind of response on the part of any organ in the human body was just as good as any other. If for any reason an organ fails to respond, or responds in such a way as to injure or cause the death of the body, he would probably say that the organ was diseased. Any one who would tell him that one kind of response was just as good as any other, would not appear either clever, original or scholarly. An economist is likely to recognize that one kind of behavior is better than another if it works better. Consequently, a custom or tradition that leads to such responses to stimuli, that is, to such behavior, as will add to the life of the society, is better than a custom or tradition that leads to responses or behavior that weakens or injures the society. He is no more likely to think it clever, original or scholarly to assert that one kind of response is as good as another, regardless of the results on the life of the social organism, than the physiologist would be if such remarks were made regarding the behavior of the parts of an animal organism.

Among the necessary forms of custom or tradition for those who are to live comfortably together in large numbers, are those which promote dependability, or cause

us to respond in a calculable manner to the stimuli of experience. It is only thus that a civilization involving a great deal of mutual dependence can be maintained.

Our mutual dependence is of various sorts and degrees. If someone fails to do that which he is expected to do, he may imperil the lives of hundreds of his fellowmen, as in the case of a switch tender or a locomotive engineer; he may occasion the loss of valuable property, or he may, as in the case of an unpunctual person, merely upset our calculations and cause many of us to waste our time waiting for him or guessing what he is likely to do. In all these cases, in greater or less degree, the undependable person occasions loss to the nation. The time we waste on account of his lack of dependableness is as truly a loss as the property which is destroyed. Aside from the direct loss of time and property there is the greater loss which comes from the discouragement of enterprise, the lack of confidence, and the general demoralization which ensue when men can no longer rely upon one another. When we can no longer depend upon others to do their special work well and regularly we shall have to learn to do everything for ourselves. We thus lose the advantages of specialization.

Why it is better to tell the truth than to lie;

The first element in dependableness is, of course common honesty. Men who will not keep their word, fulfill their contracts, or do business without cheating are not only morally odious, they are also obstructions to the progress and prosperity of the community. Perhaps this is why they are morally odious. A community made up of such people, no matter how gifted they might be mentally, could scarcely prosper. No one could trust

any one else; consequently, there could be no credit. Nothing could be bought or sold without the closest and most minute inspection, and this would be laborious and therefore wasteful of time. There could be no co-operation or teamwork, but everyone would have to look after himself and spend a great deal of time watching his dishonest neighbors. Among the many advantages of honesty, therefore, not the least is that it is a great lavor-saving device when it is practised throughout a community. Where the customs or traditions of the country are such as to make its people sensitive on the question of honesty, and ashamed of dishonesty as of nakedness, you have at least one important factor in dependability. Such a people can stand a good deal of civilization.

To be sober than drunk.

Next to honesty, sobriety is probably the most important element in dependableness. In a rudimentary state of society, where each individual works and acts most of the time alone and where, therefore, there is little interdependence, drunkenness may not be so vicious as it has now become. In our interlocking civilization no personal habit or vice, except lying and stealing, so unfits a man for usefulness as drunkenness. If you had to take your choice between riding behind a locomotive engineer who was addicted to drunkenness and riding behind one who was addicted to any other vice, there is not much doubt as to which you would choose. If you had to take your choice between having chauffeurs on the street who were in the habit of getting drunk and having those who had formed any other bad habit whatsoever, you would not be likely to prefer drunkards.

Apply a similar test to any one in any of the hundreds of responsible positions (and all positions are coming to be responsible positions) and you will reach the conclusion that the person who is strongly addicted to drink is about the least dependable, and therefore the least desirable, citizen you can name. There are fewer places where he is of any use and more where he is a menace than is the case with the victims of almost any other vice except lying and stealing. Whatever you may think when you are discussing, in the abstract, the relative harmfulness of various vices, you are not likely to be much in doubt when you come to a concrete case like that of a locomotive engineer, a switchman, a driver of an automobile, or even a janitor or any one else whose lack of dependableness might endanger your life. Sobriety must obviously rank high among the virtues which go to make up what we have called dependableness.

Time would fail us to more than mention courage, the father of many virtues, as fear is of many vices; fidelity, which is closely related both to honesty and to courage and serves much the same purpose; loyalty, which is the best kind of social cement for the binding together of the parts of a complex social organization; and good sportsmanship which will take a beating rather than break the rules of the game.

There is a very large sense in which fidelity, loyalty and good sportsmanship are required of those who would live in a highly developed civilization, or in which fidelity may be said to limit the amount of civilization which any people can stand. I refer to the willingness of those upon whom we have come to depend to stick to their jobs and not leave us in the lurch, to fulfill the trust

which they have assumed and not desert their posts and expose us to danger.

From our point of view the proposition that any man or group of men has the right at any time to stop work belongs to a lower order of civilization, in which the present degree of interdependence had not developed. Without more fidelity than the proposition recognizes, we can not live the complex life of the present. If, by way of illustration, any organ of the human body were to insist upon the right to stop functioning at any time, no such highly developed organism could continue to exist. The processes even of biological growth can proceed no further than the dependability of the parts of an organism will permit.

Fidelity.

In extreme cases, the obligation to be faithful, not to quit or to stop work, has always been recognized. The sentinel who would desert his post, the switchman who would decide to stop working when a passenger train was due, the pilot who would quit before he had brought his ship through the channel, the physician who would quit before his patient had passed the crisis, would all be condemned for their faithlessness. Are these exceptional cases? Perhaps they were at one time, but, as civilization advances, we all come to depend upon one another in almost as vital a sense as we ever did upon the sentinel, the switchman, the pilot or the physician.

If we do not develop a fidelity that is commensurate with the degree of interdependence, we simply can not have a social system in which interdependence is a striking characteristic. If, for example, we can not depend upon those who are engaged in transportation, that is to say,

if they are likely to leave us at any time without those necessaries of life which we have been depending upon their bringing from distant sources, we must manage some way to make each section of the country independent and self sufficient, however wasteful and inefficient it may be. If we can not depend upon those who supply us with fuel from distant sources, each neighborhood must manage to grow its own fuel, and remodel its stoves and furnaces accordingly. Proceed through the list of specialized occupations upon which we have come to depend, and apply the test of fidelity to each in its turn, and you will be convinced, not only that it requires a great deal more fidelity to be civilized than to be uncivilized, but that the degree to which we can be civilized depends very directly upon how faithful we are, or how high the virtue of fidelity ranks in our hierarchy of virtues. When we develop a moral system that will permit a high degree of interdependence, all forms of dependability will be highly approved and all forms of undependability will be strongly disapproved. The striker will be classed with the liar, the thief and the drunkard.

Staking success upon usefulness.

A most fundamental characteristic of civilized man is his willingness to stake his prosperity upon his ability to make himself useful rather than upon his ability to make himself feared. The person who expects to get what he wants by making himself so useful that others will be glad to pay him well for his usefulness, is civilized; the person who expects to get what he wants by making himself so dangerous that others will be afraid to refuse him what he demands, is not. In proportion

as the method of usefulness prevails among a people, in that proportion is that people civilized.

This is a rather more satisfactory test of our capacity for civilization than any that can be applied to test our degree of self-interest or altruism. So far as can be told, civilized men are no less self-centered in their interests than savages. We are just as strongly inclined to prefer the satisfaction of our own wants and the wants of our immediate family and friends as any savages ever were. The only real difference is in the methods by which we seek the means of satisfaction.

There are, fundamentally, only four methods of struggling for an advantage in this world. These are the methods of destruction, deception, persuasion, and production. The first two, namely, destruction and deception, are the methods of brutes and savages. The last two, namely, persuasion and production, are the methods of civilized men. In any civilization worthy of the name and under any government worthy to stand over night, men are actually restrained by their own moral feelings, by the respect for the good opinions of their fellows, and by the fear of legal penalties from attempting to promote their own interests by destruction or deception. To say that men are restrained from doing these things is not the same as to say that they are absolutely prevented. Crime is the name we give, in civilized countries, to destructive and deceptive methods of struggling, and it still flourishes, though all civilized governments are trying to stop it. We are trying to raise the struggle for existence to a higher plane than that on which it is waged in the subhuman world. The aim is to prevent destruction and deception and to compel men to succeed, if they succeed at all, by persuasion or production. There

are, however, some more or less refined methods of deception which have not been declared illegal by legislation. If we can so improve our legislation as to prohibit every form of deception as well as destruction, and if we can so improve our executive and judicial systems as to prevent absolutely the violation of law, we shall have reached the ideal system of government control over the struggle for existence.

Competition and ethics.

There are a few people who object on principle to all forms of competition, who believe that the whole competitive system is morally wrong. This feeling, however, is probably due to a failure to discriminate, as we have tried to do in the preceding pages, between different kinds of conflict. The horrors of war and other forms of destructive conflict, and even the jealousies and heart-burnings which result from many forms of persuasive conflict have so impressed certain sensitive spirits as to cause them to revolt against the very idea of competition in any form. Such people ought never to engage in athletic contests because there is competition even there. An election, moreover, is as truly competitive as any form of business.

During the entire life of man on this planet he has had to struggle in one way or another against a multitude of enemies, human and non-human. The reason why we are here today is because our ancestors were successful in their struggles. They succeeded in living and reproducing their kind in spite of all the enemies and dangers which surrounded them. One reason why they struggled so successfully was that they were valiant enough to wage their fight with vigor and with

spirit. That spirit we have inherited to such an extent that we cannot even amuse ourselves without some kind of competition or struggle. That is why most of our games are competitive. Competition is as the breath of life to our nostrils. It will be well for us if we can harness this spirit to productive work rather than allow it to waste itself in destruction, deception, or even in some fruitless kinds of persuasion. The nation which succeeds best in harnessing this spirit to production is the nation which should normally grow rapidly in wealth, prosperity and power, and be able to support the largest numbers.

Have we reached our limit?

Anyone who has followed the discussion thus far may have been led to wonder whether we may not have reached, if we have not already passed, our limits in each particular. Why should anyone do anything unpleasant? is a question which, in one form or another, is asked with increasing frequency. Every day our ears are filled with some new tale of the horrors of the humdrum, routine work which a civilized existence requires of most of us. The wild, free, unrestrained life of men who do not have to specialize, or to do anything except what they like to do, is pictured in new colors every week. This, more than anything else, is creating discontent with the life of civilized men.

Again, it is doubtful whether any people in the world today is showing that dependability of character upon which alone can be maintained that specialization and interdependence of parts which an efficient system of production requires. Finally, it is doubtful whether, at any time during the last thousand years, men and women

were so willing to fall back upon the method of fear to accomplish their purposes as at the present time, or even as they were before the war broke out. Everywhere we saw people, in all ranks of life, endeavoring to win by making others afraid to refuse their demands when they had failed by the methods of peaceful persuasion and usefulness. Anyone who then thought, or who now thinks, that war was or is an anachronism, had simply failed to understand the moral attitude of the people around him.

The peculiar function of every educational institution is to train men for the functions of civilized life. As a result of the training secured in such an institution, men and women ought to be able to stand more civilization than most of us are now able to endure. One expression that adequately summarizes the ability to stand civilization is self-discipline.

Self-discipline.

The self-disciplined individual is one who is able to adapt his behavior to the necessary conditions of civilized life. The individual who lacks self-discipline is unable thus to direct his behavior. He is either the football of circumstances, the weathercock registering every shift in the winds of popular feeling, or he pursues the whimsical variations of his own will, regardless of the necessities of a wholesome and successful life under circumstances in which he is compelled to live. Such an individual cannot stand much civilization. A nation made up of undisciplined individuals may disturb the peace of the world for a time, but it can never, by any possibility, lead the world. In order that our universities may be genuine leaders in civilization they must be centers

of self-discipline. The chief object of their work must be to give to men and women that power of concentration—the power of giving attention, the power of doing the thing that has to be done, instead of the thing that one feels like doing.

War and crime.

This is a peculiarly important subject at the present time, when the severe discipline imposed upon our people by the war has been lifted. Directors of athletics are familiar with the tendency of men to break training as soon as the athletic season is over. The whole world is showing the same tendency. Every great war has been followed by a period of increased unrest, violence, crime and political corruption. Nearly every great war has been followed by a veritable outburst of constructive patriotism and productive enterprise, accompanied by a genuine increase in all social virtues. Yet those two statements are not contradictory. A war puts a great strain upon the moral natures of men, bringing out the best and the worst that is in them. Those who are strong enough to stand the strain grow stronger under it. Those who are not strong enough break under it. Thus, a war usually increases both virtue and vice by accentuating the real differences among men. In that respect, it is like any other severe test, physical, mental or moral. An ice-cold shower bath, for example, benefits those who are strong enough to stand it; it injures those who are not.

It is natural that war should tend to increase crime and violence. There are always opportunities for violence and temptations to use it in order to get what you want, or to have your own way, even in the most

peaceful and law-abiding community. Even the most peacefully disposed person is sometimes tempted to use force rather than patience and persuasion when some cherished interest is at stake. It has taken centuries to build up the habit of resisting that temptation and of relying upon persuasion and good will to gain our ends. The development of clean sport, for example, is very much like the development of peaceful habits in industry, in politics and in all other fields of action. In any game there are abundant opportunities for violence and temptations to use it. Whenever the players yield to these temptations there is dirty sport; when they resist them, there is clean sport. The same resistance is necessary for cleanness in politics, in industry and in everything else.

The salvation of the country, and the very existence of civilization itself, lies in the hope that the great majority are made of the stuff that is strengthened by the terrific ordeal of war, whose loathing for violence and love of peace and order are increased, and who may be relied upon to hold the turbulent minority in check.

CHAPTER VIII

WHERE HUMAN NATURE BALKS

The Cain and Abel story.

Abel was a keeper of flocks. Cain was a tiller of the soil. Tilling the soil is a more productive use of land than pasturage; consequently the tiller of the soil drives out the keeper of flocks. We have seen this happen on our own western prairies. It has happened or is certain to happen sooner or later wherever the soil is suitable for tillage. The business of plowing literally kills the business of herding. Figuratively, the plowman kills the herdsman by killing his business. That is probably how Cain killed Abel.

If tillage is a more productive use of land than pasturage, why should not pasturage give way to tillage? There is only one satisfactory answer. It should. Wealth is increased, more people can be supported and can be supported more comfortably if this change is permitted than would be possible if it were prevented.

The romantic vs. the wise.

This obvious economic answer, however, was never satisfactory to the romantic mind. The change from herding to plowing seemed as undesirable to the romanticist as a change from handicrafts to machine production does today. Until recently the practical economist has had very little to say in literary form regarding such

changes. The romanticist has done most of the writing. The practical economist has gone ahead and effected the change. That is why the literary account of the story of Cain and Abel makes out a bad case for Cain and has given the world the impression that he was a bad lot. Their successors are today and have been, since the industrial revolution, writing in much the same vein regarding capitalism and machine production. The economic forces, however, have given the victory to the economically superior system, from the time when tillage displaced pasturage in the days of Cain and Abel, down to the present moment.

Plowsmen displacing herdsmen.

Even on our own continent the same struggle has been carried out with the same results. From the settlement of Jamestown to the present day, the herdsmen have preceded the plowmen in the movement of our population westward. On the great natural prairies the herdsmen flourished amazingly at one time, but wherever the soil and climate are suitable for tillage, the plowmen have already displaced them. In parts of this area the displacement is so recent as to lie within the memory of men now living. They can remember how the cattlemen grumbled and expressed poor opinions of the "dry hides," "clod hoppers" and "squatters," in other words, the farmers, who were settling the ranges and plowing up the sod. Many of our citizens, even those who had no interest at stake, expressed regret that the change had to come. The free riding cowboy was so much more picturesque and interesting than the commonplace farmers! Neither the novelist nor the artist found as good material among the tillers of the soil as among the

riders of the cattle ranges. Some doubtless felt that the change was a distinct step backward. True, said they, plowing the soil may increase the material wealth, but think of the human cost, think how it degrades human nature to force it to turn from the free life of the ranges to the plodding, unromantic life of plowing!

Slaves of the cow.

The same complaint has been made against every great change in the ways of getting a living. Long before the plowmen displaced the herdsmen, the herdsmen had displaced the hunters. No romanticist who knew how to write was present to record his protest. Otherwise we should probably have had some literary expressions of the human cost involved in the transition from hunting to herding. It would have been pointed out that it is degrading to human nature to make it the slave of the cow. Yet herding is superior to hunting in that it produces more food and enables more people to live in the same territory and to live better than would be possible by hunting alone. The claim of the huntsmen that it was degrading to a free man to have to wait upon cows could not prevent the transition from hunting to herding. The claim of the romanticist that herding tended to make men the slaves of cows could not persuade men to remain hunters. If any tribe had by law interfered with the process in order to preserve hunting as a method of getting a living, it would soon have been eliminated. Such a tribe could not support as many people as a tribe that turned to herding, and the latter would sooner or later be able to expand its pasture lands into the hunting grounds of the hunting tribe.

Adaptability of human nature.

Tillage is superior to herding for the same reason that herding is superior to hunting. It enables more people to live in a given area and to live better. In both cases human nature shows its adaptability. It was found that men could actually turn from hunting to herding and suffer no degradation and loss of self-esteem, and again it was found that they could turn from herding to tillage without actually degrading and demoralizing human nature in any way. An ingenious huntsman and his sympathizers could of course invent numerous reasons to show that this could not possibly be true; that degradation and demoralization must necessarily follow. An ingenious cattleman and his sympathizers could also show rather plausibly that a man who had to make his living by following a plow could not possibly be as good a man as one who made his living by herding cattle. They could point to numerous facts which, by careful manipulation and suggestion, could be made to convince the uncritical that the "dry hide," the "clod hopper" or the "squatter" was a rather poor specimen and was made so by the kind of work he had to do.

Slaves of the machine.

We are now in the midst of another transition of the same kind. The transition from hand work to machine work comes for the same reason that the other came. Machine production is superior to hand production in that it enables more people to live and to live better. But the old charge is made against it, namely, that it degrades human nature, or that it makes a man the slave of a machine. The arguments for this position are all *a priori*. That is, they are designed to show that it must

necessarily be true, without looking about to see whether it is actually true or not. As a matter of observed fact, human nature is showing its adaptability in this as in the other cases.

Who are the superior men?

Even if it were proved that many individuals could not adapt themselves to an economically superior method of production, it would not prove that the superior method should be discarded. The man who can adapt himself to a superior method of production, that is, a method that enables more people to live and to live better, is probably a superior man, or a more desirable one from the standpoint of the nation. The man, if he exists, who cannot adapt himself to the economically superior method is an inferior man; that is, he is a less desirable member of society. A nation made up of individuals who can adapt themselves to superior methods of production will certainly be a greater nation, and one in which we would all rather live, than a nation made up of men who cannot adapt themselves to the superior methods. To think otherwise is to think not only that a nation of hand workers is superior to a nation of machine workers; but also that a nation of herdsmen is superior to a nation of farmers, and a nation of hunters superior to a nation of herdsmen. If this opinion had prevailed in the past, we should still be hunters; few in number and living meagerly on the limited products of the chase.

It is not improbable that there were some hunters in every tribe who could not adapt themselves to the hundrum, unexciting work of herding, who became demoralized when they tried it, or rebelled against it and killed the flocks of the herdsmen. If these misfits in the new

economic order had been permitted to wreck it and force the tribe back to the hunting stage it would have been the end of progress for that tribe. It is quite certain that there were herdsmen, both in ancient and recent times, who could not adjust themselves to the life of the plowman. They were misfits in the new economic order and would have wrecked it if they could. If they had been permitted to do so, it would have made an end of progress. There are now misfits in the present economic order who rebell against the whole system of machine production, and would wreck it if they could. If they are permitted to do so it will be the end of progress. Yet some of them call themselves progressives.

II

What is natural and what is wise.

One of the mysteries of human nature is the propensity to do things under the spell of strong emotion that are to our own hurt. It is not difficult to understand why men do things that are contrary to law and bring punishment. A man really wants something that, according to the law of the land, belongs to some one else. If he takes it he is acting in his own interest except insofar as the law may inflict punishment. If one is threatened by an enemy, it is easy to understand why he will fight and try to injure or even kill the enemy. It is one's interest to have destructive enemies eliminated or thinned out. The man's emotions drive him to do that which it is to his interest to have done, namely, to thin out these destructive enemies. All this is easily understood.

But we find men doing other things under the spell of emotion that are injurious to themselves. It is as though

a man should, in a rage, bite or otherwise injure himself. These extreme cases are not very common and need not occupy much of our attention. There are numerous cases, however, in our modern economic system that are quite as foolish, if not so extreme.

A new kind of an "enemy."

Farmers in a new community, where there is not enough capital to equip their farms, need more capital. It would be to their advantage to attract more capital to that community. If more capitalists would come, bringing more capital with them, the farmers could get plenty of capital at moderate rates. So long as there are only a few capitalists with very little capital, there will not be enough for all the farmers. They will have to bid against one another to get it. Only a few can get capital, they will have to pay high rates and feel lucky to get it on any conditions, and the other farmers must do without capital altogether. If the farmers acted wisely they would try to make that community as attractive as possible to capitalists, and try to induce as many as possible to send their capital to that community or to come and bring their capital with them. Instead of that, they will sometimes do the very opposite. They will behave as though they wanted as few capitalists and as little capital as possible in that community. They will try to make it as uncomfortable as possible for capitalists. They might as well bite themselves. Why do they behave in such a way?

Russian behaviorism.

Soviet Russia, for example, has been trying to borrow capital from other countries. The Soviet leaders apparently have intelligence enough to see that it would be to

the advantage of Russia to have more capital than the country now possesses. It would enable them to buy equipment instead of waiting for the slow process of making their own equipment. If they want more capital why don't they encourage their own people to accumulate it instead of depending upon outside sources? The only explanation is that they have not intelligence enough. They have shown such hostility to capital and capitalists that no one is encouraged to become a capitalist by accumulating capital. That makes capital scarce instead of abundant. The consequence is that they have to try to borrow it from the outside. Their economic behaviorism has led them to make things as uncomfortable as possible for capitalists. Economic intelligence would have led them to make Russia as attractive as possible to capitalists. If they had done that there would be an abundance of capital in Russia. Industry would have been well equipped, goods abundant, wages high and interest rates low.

There was a man whose chickens were shy and would not come when they were called. His natural behaviorism led him to throw clubs at them. Intelligence would have led him to treat them kindly. Some of our economic psychologists would justify his conduct because it was natural. A real economist would comdemn it because it was foolish. The same difference of opinion exists regarding the treatment of capitalists in Soviet Russia and other countries.

In another neighborhood, producers find it hard to find consumers enough to buy their products. It is obvious that they need more consumers. If they acted wisely, they would try to attract more customers by making things as comfortable as possible for them Instead, there

are some cases where producers in that situation become enraged and try to make things as uncomfortable as possible for consumers. They bite off their own noses to spite their faces.

The higher strategy of labor.

The worst example of all is found in the case of certain laborers. There are so many laborers and so few employers that the labor market is glutted. What the laborers obviously need is more employers. If they acted wisely they would try to encourage as many employers as possible to start new enterprises where laborers could be employed. In order to do this they should make things as comfortable as possible for employers. They should protect the property and the lives of employers, and show some appreciation of the work of a competent employer who manages to pay wages out of product, a thing which very few can do. Instead of that, we sometimes find laborers doing the exact opposite. We find them making things as uncomfortable as possible for employers. Instead of protecting life and property they threaten both with destruction. Instead of showing appreciation for those few who have shown themselves competent enough to keep an industry going and to pay wages out of receipts, they frequently give way to anger and show hatred and dis-esteem for the very men they need. This offers scant encouragement to young men seeking new careers to fit themselves for careers as independent employers.

Unless more encouragement is given to the rising generation of young men seeking careers to train themselves for the kinds of business that will expand industry and give more employment, the only other alternative

would seem to be the emigration of the manual workers who are unemployed. This is the method actually followed by multitudes of workers in old countries where aristocratic traditions have prevailed and where the best talent does not go into business. Even in so democratic a country as England, business careers are sought by a smaller percentage of the talented young men than in this country. There cannot be much doubt that this is one factor in the unemployment problem in that country.

Emigration of labor or immigration of employers.

The unbalanced condition in that country where there are more manual workers than can be employed in conjunction with the existing number of business men can only be brought to a state of balance by either increasing the number of business men or reducing the number of manual workers. In fact it has been rather frequently stated in that country that the best solution of the problem of unemployment would be the emigration of the surplus labor population to the colonies. If enough were to emigrate, this would undoubtedly create a balance. If only as many laborers remained as could be steadily employed in the existing industries, there would obviously be no problem of unemployment for the time being. But if the existing industries could be expanded sufficiently, they could give steady employment to the existing laborers, and there would then be no problem of unemployment. If this could be done, it would have some advantages over wholesale emigration. Why can't it be done?

There is always more business to be done.

The first excuse is based upon the common belief that there is only a fixed amount of business to be done.

and it is therefore impossible to expand industries beyond that limit. This is a poor excuse because there is always more business to be done so long as people want more goods than they have. 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 Britan 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.

The remedy, of course, is obvious. The extra burden of the business man in the form of taxes must be reduced to the lowest possible limit. The best talent of the country must be encouraged to go into business, and the universities must train men for it. Those who succeed in running an industry and paying real wages to real employees must be encouraged by the highest esteem which the people can bestow. These are the most needed men in any country where there is unemployment and they should be honored accordingly. They are the only men who can solve the real problem of unemployment by giving real employment to definite numbers of real laborers.

A different and much more intelligent attitude is shown

by the Society of Technical Engineers. Their policy is set forth as follows in J. St. Loe Strachey's *Economics of the Hour:*

The constant pursuit of more money for less work so vigorously engaged in by practically every other organization of a Trade Union character can lead us nowhere unless it be to the Bottomless Pit. The only thing that can save us and those who come after us is the establishment of industry on a basis so sound that the constant fluctuations of supply and demand can be, if not eliminated, at least damped down to a point where such unemployment as does occur can be readily dealt with. It must not be thought, however, that the Society does not intend to concern itself with such questions as an adequate payment to the Technical Engineer for the work that he performs. On the contrary, it does and will insist that proper remuneration should be forthcoming for its members; but it believes that this desired end can be obtained in other and better ways than those usually adopted, and it is convinced that this end is an inevitable consequence of the carrying out of its policy. Our immediate need is Membership. Our Policy will commend itself to the great majority of the technically trained men in the Engineering Industry. Every effort should be made to induce those men who have reached positions of eminence in the industry to join us and to lend a hand to those of their fellows who have been less fortunate. To those who are younger, or are, perhaps, necessarily anxious about material things, we say that, while we can do little for them yet, their ultimate gain is none the less sure, and we ask their support, also for a policy which has now received the almost enthusiastic approval of the engineering and the lay Press of the country. The greater our membership the more quickly can we give force to our policy and secure the advantages it will give to our members. We have sufficient faith in the good sense of engineers as a whole to feel assured that they will realize that no body which hopes ultimately to secure the support of all those engaged in technical work can achieve its full aims by devoting itself to the pursuit of more money for less work. Now, while Parliament is anxiously projecting remedies for saving

the country from industrial ruin, it is worth while to reiterate that if we can make our Industry a better Industry the benefit will be not only for us but for the nation as a whole; but a condition of such an effort must be that the technicians in the Engineering and Allied Industries are able to maintain equality with, or superiority to, those of other nations.

On this, Strachey comments as follows:

"This is a very able announcement and a very important one. It is a direct challenge to that awful attempt to produce the abundance we all desire by the artificial stimulation of what we all dread so deeply—Scarcity. It is a challenge to the hateful policy of "Ca'canny," which, alas! is often adopted, not through Macchiavellism, but out of a pathetic belief on the part of the worker that the less he produces the more he will help his comrades. Yet all the time he is surely, if not openly, bringing them to misery, ruin, and starvation. Was there ever tragedy more poignant! It is a challange, too, to those besotted sophists who do not realize that you can build nothing upon a foundation of paradox, but who rather seem to think that the more you pile paradox on paradox, fallacy on fallacy, the more swiftly you will arrive at the individual paradise where everybody may live in a splendid repose upon the idleness of everybody else."

CHAPTER IX

THE ECONOMIC COST OF IMMORALITY

Mechanical appliances not the only labor savers.

One of the first things of which the average man will think when you mention the economizing of human energy or labor power is that group of labor saving devices known as engines, tools and machines. Probably the widest difference between modern civilization and ancient civilization, or between a modern civilized people and an uncivilized people, is the enlarged use, in the civilized natons of the present, of labor saving devices of a mechanical nature. These are simply devices for the economizing of human energy, for enabling a given fund of that energy to do more work, to produce more of the objects of desire and destroy more of the objects of repugnance.

It is not the purpose of this chapter to discuss in detail the economies effected by the use of these labor saving devices. It will be sufficient to point out that it is the intelligence and adaptability of the people which enables them to make large use of these appliances. Scientific knowledge, inventiveness and ingenuity are behind which enable a people or a race to adjust themselves to the modern conditions of machine production. He points out that there is little room in a modern industrial state for men of nomadic type. "No man who only works

by fits and starts is able to gain his living nowadays; for he has not a chance of thriving in competition with steady workmen. If his nature revolts against the monotony of daily labor, he is tempted to the public house, to intemperance," etc. . . ." "By this steady riddance of the Bohemian spirit of our race, the artizan part of our population is slowly becoming bred to its duties, and the primary qualities of the typical modern British workman are already the very opposite of those of the nomad. What they are now was well described by Mr. Chadwick as consisting of great bodily strength, applied under the command of a steady persevering will, mental self-contentedness, impassivity to external irrelevant impressions which carries them through the continued repetition of toilsome labor steady as time."

Idleness as a source of waste.

We must go much deeper than we have yet gone before we find the ultimate causes of waste. The lack of scientific knowledge may be due to a multitude of causes, as may also the lack of foresight or of organization.

Before going into, this, let us consider some of the conspicuous forms of wasted human energy which result from a lack of knowledge, a lack of forethought and a lack of organization. These conspicuous forms of wasted energy, or wasted life,—for life is energy,—are idleness, ignorance, dishonesty, luxury, vice and distraction. Idleness may be subdivided into two main forms, the involuntary and the voluntary.

The unemployed.

The most conspicuous form of involuntary idleness is that which we sometimes see in the army of the unem-

ployed. In good times this army becomes merely the army of the unemployable. In hard times it is something more. Nevertheless, there is a shading off from the unemployable to the unemployed even in hard times.

The involuntarily idle, or the unemployed, form a less vicious kind of waste than the voluntarily idle or the leisure class. There are two main reasons for this statement: first, the involuntarily idle are, broadly speaking, the least valuable members of society. They are the people with the least capacity for doing useful work—with perhaps many brilliant exceptions such as an unappreciated genius who might be doing valuable work if the people whom he could serve only had the wisdom to appreciate his services. Generally speaking, however, it is safe to say that the army of the unemployed is not made up in the majority of cases of geniuses. If a piece of sterile or stony land lies idle, we do not consider it much of a loss, for the reason that, even if it were in use, its product would be very low. If, on the other hand, a piece of rich and fertile land lies idle, we have a right to consider it a much greater loss, because if it were in use, its product would be large. The same process of reasoning would lead to a similar conclusion with respect to human talent, or working capacity, or human energy as it is called in this essay. Men of little capacity, men whose productive energy is limited or merely oversupplied, are not capable of producing much even if they are busy; therefore, the community does not lose much when they are idle. But men of great capacity, who might contribute largely to our national wealth, are the men whose labor we most need; therefore it is a great loss if they are idle.

Surplus labor.

The only question that is likely to be raised with respect to this conclusion is whether the mere fact that a certain kind of labor is over-supplied tends to make it unproductive. If we were discussing anything else than labor, I think even this would not be questioned. The confusion with respect to labor is partly sentimental and partly due to defective analysis. One form of defective analysis is embodied in the statement that since labor produces all wealth, therefore labor can never be over-supplied. The reply to this is that the kind of labor which is unemployed does not produce all wealth. It has to be combined with certain other kinds of labor before it can produce anything to speak of. The miller could not produce flour unless there were farmers growing wheat. There might easily, therefore, be an over-supply of millers in any community. Again, the millers could hardly sell their flour if there were no bakers; and a scarcity of bakers might therefore make an over-supply of millers in any particular time and place. So the men who are on the bread line in the time of unemployment may represent kinds of labor which are over-supplied even though labor in general is not.

It takes several kinds of labor to produce wealth.

If the proposition that labor produces everything really meant very much and were capable of practical application, one ought to be able to go to the men on the bread line and say to them, "Gentlemen, you are laborers; labor produces all wealth; therefore, produce wealth." The utter senselessness of this proposition would at once appeal to every hearer. It takes several kinds of labor to produce

real wealth; and a scarcity of one kind may make a superabundance of another kind.

Too much fertilizer.

This is the method of reasoning and analysis which we apply to everything else except labor. Not long ago I was at the home of a professor of agriculture in one of our leading agricultural colleges. The grass was growing up through the cracks in the brick walk in front of his house. He put fertilizer in the cracks to kill the grass, and it worked effectually because there was too much fertilizer and not enough of the other elements of plant growth. With an abundance of soil and moisture and other elements of plant growth, the fertilizer would have made the grass grow faster. In that particular case, where the other elements were absent, the fertilizer was not only non-productive but absolutely destructive. Cases of a similar character are continually coming to our attention. Some of our soils are already too rich in nitrogen and deficient in potash. The ordinary fertilizer rich in nitrogen is not only useless on such soil; it may be destructive. Yet nitrogen in its proper proportion to other things is a highly productive ingredient in fertilizers.

Too much water.

But we need not go into soil chemistry to find similar illustrations. In some parts of the country water has to be drained off the soil because there is too much; in other parts water has to be put on the soil because there is too little. To attempt to sell water to a farmer whose land is already too wet, on the statement that water is necessary to all plant growth, would be no more futile than to try to sell a certain kind of labor to a man who

has a surplus of it, on the ground that labor produces all wealth. Therefore, even if the members of the army of the unemployed are not less capable on the average than the members of the army of the employed; if they merely represent an over-supply of special kinds of labor, their labor becomes of as little value to the community as water to a farming community in the humid belt. To be sure, it might be said that this labor would be valuable if it could be trained to do something else. These phases of the question will be discussed under the heading of ignorance.

Speaking of the superabundance of water in one place and scarcity in another suggests a certain analogy to the labor market. If there is too much labor of a certain kind on one spot, it does not solve any problem merely to point out that there is an abundance of land in Texas, unless some measure is taken to get that labor removed from the spot where it is overabundant to the spot where it is underabundant or scarce. It is true that much of the talk about moving labor from one place to another is exceedingly unintelligent, because the speaker frequently has no real knowledge as to the opportunities for labor in other places. To point out that there are many vacant acres in the Desert of Sahara is not conclusive evidence that there is an opportunity for labor there. Before we attempt to move labor from one place to another, we must be quite certain that there is an opportunity in the other place for the particular kind of labor we are about to move.

Occupational redistribution of labor.

There appears to be a much greater need for the occupational redistribution of the labor supply than for

the territorial redistribution. By the occupational redistribution, I mean the training of labor for those occupations where men are scarce and hard to find, and out of, or away from, those occupations where labor is abundant and easy to find. This again will be taken up under the subject of ignorance.

A great deal can doubtless be done also by finding work suitable for the involuntarily idle, in the place where they are forced to live. The Massachusetts School for the Feeble Minded has carried out a very successful experiment in this direction. About three hundred of the more capable men and boys of the institution are placed on a farm where their labor can be utilized in the work of clearing stones, draining the land and doing other rough work. The result is that the State now has several hundred acres of highly productive land where formerly it had nothing but rocky land grown up to brush and briars. The fund of labor which is thus utilized is about the most unpromising kind of labor which any State possesses. But it serves as an illustration to show what can be done toward the utilization of waste labor power when we go at it intelligently. In some of the European labor colonies the same principle is applied.

The superannuated.

Another class of waste labor power is found in the aged men who have become incapacitated for the work to which they were trained in their youth. The inventor who can devise methods of utilizing this considerable fund of human energy will be a large contributor to the civilization of future generations, referring again to the definition of civilization as the progressive elimination of waste. We are not likely to be over-cautious, however,

against the mistake of saving at the spigot while wasting at the bunghole. It is sometimes cheaper to support men in idleness than to give them work; that is, we may lose more on their work than it would cost us to support them. A bungling or inefficient laborer who is handling valuable machinery or perishable materials may destroy more than he produces. The problem of the inventor is, in this case, to find the kind of work for waste labor which will at least reduce rather than increase the cost of keeping it.

The leisure class.

As to the voluntarily idle, that is, the leisure class; it is generally true that its members possess large natural capacities. Occasionally, it is true, there may be an imbecile living on inherited wealth, just as before stated there might be geniuses out of work; but on the average and in the long run, they who have achieved a fortune which enables them to retire and live in idleness must have possessed considerable ability. If that ability is misdirected, it is as truly wasted as if it were idle. This ability is like the rich and fertile land which lies idle. If it is put to some productive use, its product would be great. Therefore, the loss is great when it is idle.

One section of the leisure class consists of the retired farmer or the retired business man. Fortunately, in this country the retiring habit is not so general as it is in older countries. Our business and professional men of conspicuous talent are more inclined to keep at it than are similar men in older countries. This is greatly to our advantage as we are therefore better supplied than we would otherwise be with working energy of a high grade.

That Indiana farmer.

There is a story in wide circulation, with such variations as suit the locality, of a farmer, usually an Indiana farmer, whose chief ambition in life was to grow more corn to feed more hogs, to buy more land to grow more corn to feed more hogs, etc. No one with a well-developed sense of humor is supposed to require an explanation to enable him to see the joke. It seems so futile to the average mind, to spend one's life growing corn and hogs in order that one may grow more corn and hogs that, aside from the tragedy of such a wasted life, it seems positively funny—that is, until one stops to ask one's self what there is funny or absurd about it. Then one begins to be haunted by the suspicion that the joke may be on the teller of the story and not on the farmer. Possibly the farmer was functioning as a very useful member of society, possibly he was more useful even than any of those humorists who have so often repeated the story about him. If so, is not the joke reversed?

Corn and bacon.

It might be difficult to convince certain high-browed idealists that growing corn and hogs is useful work; but I have known several such persons who showed a liking for breakfast bacon, and would have registered pained surprise if their supply had not been forthcoming when they casually appeared at the breakfast table at a late hour in the morning. Now, it is not necessary that a high-browed idealist should be either well-informed or consistent; but if he were well informed he would know that corn and hogs are necessary to the production of breakfast bacon, and if he were consistent he would

not affect to despise the humble producer of his breakfast. However, it is quite conceivable that our high-browed idealist may not despise the production of bacon as such, but that he may think that the farmer should not make that his chief ambition. Then the question would arise as to whether we are likely to have as good bacon, or as efficient production of corn and hogs, by men who think poorly of their work as by men who make it their chief ambition. In almost every other field, it is generally assumed that we get better results when men specialize and give their lives to the mastery of one trade or occupation. Why, then, should we withhold our admiration from the man who chooses the growing of corn and hogs as his life work and devotes his life to it—that is, assuming that corn and hogs are useful products? Our idealist's objection, however, may be on the ground that the farmer should have spent a part of his time, at least, in cultivating idealism in himself. This, I shall maintain later, is precisely what, in the terms of the story, that farmer was doing in the best possible sense.

Why work when you don't have to?

Another type of man, with no great disposition toward any kind of idealism, but with a strong desire for his own amusement, would probably criticize that Indiana farmer because he wasted his time in producing wealth which he never took time to enjoy. If, instead of continuing in business, he had retired he might have spent the latter part of his life in ease and comfort—perhaps in a moderate degree of luxury. At any rate he could have avoided work. Since men who reason thus very likely outnumber the high-browed idealists, it is probable that it is this aspect of the case which appeals to the

average sense of humor when the example of that farmer is cited. Wealth is so obviously intended for consumption that it seems absurd for a man to go on producing after he has accumulated more than he can consume. Since we are in the world for the purpose of having a good time, to get as much as possible out of the world rather than to put as much as possible into it, no one with any sense of humor could help laughing at that farmer. One may remark, parenthetically, however, that no great religious or moral teacher ever had that kind of a sense of humor, for none of them ever said that we were here for a good time, or that it was our purpose to get as much out of the world as possible. They have even gone to the absurd length of suggesting that we should put as much into and take as little out of the world as possible, which means literally that we should produce or serve as much as possible and not stop serving in order that we might consume.

That other farmer.

There is a story of another farmer who did precisely what the average man probably thinks that Indiana farmer ought to have done. After he had prospered and builded his barns larger in order to hold his produce, he decided to retire from business and enjoy his well-earned competency. That is, he remarked to his soul, "Soul, take thine ease; thou hast much goods laid up for many years. Eat, drink, and be merry." But, strangely enough, this story, which may be set over against that of the Indiana farmer, was not told for the purpose of furnishing an example for us to follow. In fact one of the principal teachings of the Teller of this story was that men should continue to produce; that is, serve

and not give themselves over to useless consumption, which is self-indulgence. He certainly would not have appreciated the humor of the story of that Indiana farmer. Perhaps, however, he lacked a sense of humor.

The volcanic genius.

Of course, corn and bacon are commonplace, and their production is a more or less plebeian occupation. Still another story might be told of a certain great artist, Michaelangelo by name, who, in another field of production, worked all his life with a kind of demoniac energy. There is no evidence that he ever showed any inclination to slow up, to retire from work in order that he might consume his earnings. Somehow we do not speak of him as having wasted his life in mere work when he might have had a good time, nor do we think it particularly funny when we hear how he kept on working even when he might have enjoyed elegant leisure and graceful consumption. To be sure, Michaelangelo was a genius and that Indiana farmer was not; but the fault of not being a genius is very wide-spread. If that be an unpardonable sin, few of us will ever be saved. Most of us, in fact will have to be content with some commonplace or plebeian occupation. We may lay unction to our souls if it is as useful as producing corn and bacon.

When we find a great genius working all his life, getting more joy out of his work than he could possibly get by stopping to consume his earnings, none of us is so irreverent as to make a joke of it. Is there any reason why a lesser mind should not get joy out of a lesser work, even the producing of corn and hogs? In short, should not the same general rule of action govern the genius and the plodder? If it would have been a

great loss to the world if a Michaelangelo, or a Thomas A. Edison, had stopped working in order to "loaf and invite his soul," is it not with equal certainty a loss to the world, though a smaller one, when a commonplace man stops a humble though useful work, for the purpose of self-cultivation or self-amusement?

I desire to take up the gauntlet as the champion of that Indiana farmer, and to maintain that he illustrates precisely what every man is in duty bound to do, whether he be an inspired producer of works of genius or a commonplace producer of plebeian products. There is no higher ideal of conduct than to keep on producing as hard and as long as one can, provided one is producing that useful thing for which one is best fitted. It has never been suggested that that Indiana farmer could produce anything better than corn and bacon. If so, it would be a different story. Somebody must produce corn and bacon so long as we need them. The more efficiently farmers can be induced to work, the better the world will be supplied. The more farmers there are who follow the example of that Indiana farmer, the better corn and bacon we shall have; the more there are who follow the example of that other farmer who said, "Soul, take thine ease," the poorer farming we shall have, and the poorer our supplies of corn and bacon. What has been said about farming applies equally well to every other occupation, from that of the most transcendent genius to that of the humblest laborer. Show me a community where this ideal prevails and I will show you a prosperous, a progressive and even a cultured community. Show me a community where the opposite ideal prevails, and I will show you an unprosperous, a decadent, and, in the end, an uncultured community.

The retiring habit.

It will be remembered that the farmer who after having builded his barns bigger decided to retire from business had joined the leisure class. Now, it is here maintained that where that is the normal ambition of all men throughout the community, the result will be that the highest and most productive talent will go most to waste. The most successful would be the one who would earliest acquire a competency and who would, therefore, retire from business earliest in life and waste in unproductive living the largest portion of his potentially productive life. The less competent farmer might have to work all his life, for the simple reason that he never could accumulate a competency. The same would apply to the business man and the professional man. The very men, who, in the interest of the community at large, ought to remain active, are encouraged by this false ideal to become inactive, and the men whose activity is least valuable to the community are the men who would be compelled by necessity to keep on working. We must conclude, therefore, that its fund of human energy is not only the most precious possession of any community; but also that a general and widespread desire for leisure is a means of wasting the most valuable portion of that fund. In order to avoid this we must cultivate the productive ideal. We must uphold the idea that because a man is preëminently successful in any kind of useful work is the greatest and most cogent reason why he should keep on working: he is the man most needed. If that Indiana farmer was a successful grower of corn and hogs, that was the very reason why he should have kept on growing corn and hogs. If he had been unsuccessful, there might have

been some reason for encouraging him to retire from business.

The carnal mind, however, is so prone to the opposite theory that this theory of life will seem revolutionary. What is wealth for except to consume? When one has builded one's barn larger, why should not one say "Soul, take thine ease"?

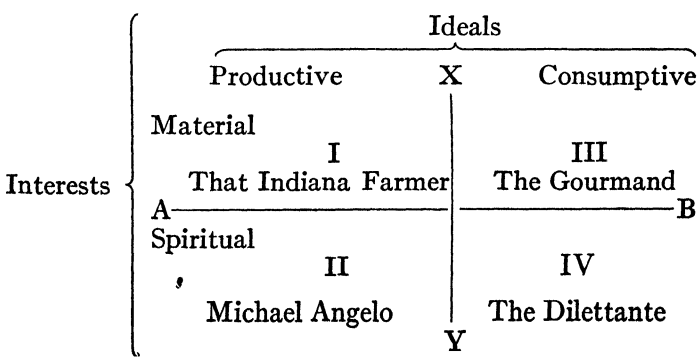
Peons and others who retire.

In certain low states of civilization it has been observed that the only way to keep laborers at work is to pay them low wages, keep them in debt, or keep them poor in some way. If, for example, a laborer in that civilization can earn enough in three days to keep him for seven, he will work only three days a week, whereas, if it takes six days' wages to supply his needs for a week, he will work six. This principle of conduct, however, is not confined to southern negroes and Mexican peons. It shows itself in different forms in different places, but the principle is the same. If a man can earn enough in four hours to keep him in twenty-four, he will sometimes work only four,—that is, he will go to his office at ten o'clock a.m. and work till two p.m. and then play golf or go to his club for the rest of the day. Or, if a man can earn enough in twenty years to keep him for the rest of his life, he will only work for twenty years,—that is, he will retire from business and spend the rest of his life in self-enjoyment. Will anyone undertake to maintain that there is any economic or moral difference between the attitude of the laborer who works only three days a week because he can earn enough in that time to keep him the whole week, and the business man who works only four hours a day because he can earn enough in that time to keep him the whole day, or who works

only twenty years because he can earn enough in that time to support him for the rest of his life? They who see so much humor in the story of that Indiana farmer are asked to ponder this question very carefully, but they are asked not to confuse the man who retires from business in order that he may work equally hard at some other and more useful occupation with the man who retires merely to indulge in the passive enjoyment of using up his accumulated wealth.

Productive and consumptive ideals.

A particularly erroneous ideal permeates our so-called cultured or highly-educated classes. This ideal emphasizes the distinction between material and spiritual interests, with the consequent tendency to despise material products and those who produce them, and to appreciate only the products of the spirit and those who produce them. There is another distinction which is very much more important than this and which cuts straight across it. That is the distinction between the ideal of production and the ideal of consumption. One's production is one's contribution to the world. One's consumption is one's substraction from the world. These two distinctions may be visualized by the following diagram:



In this diagram the line AB, we will assume, represents the division between material and spiritual interests, whereas the line XY represents the distinction between the productive and consumptive ideals. The crossing of these two lines makes four compartments in which we may place people of varying characteristics. One may have a productive ideal of life, but his field of production may be material rather than spiritual. This would place him in the first compartment, along with that Indiana farmer. One may also have a productive ideal of life, but one's field of production may lie within the spiritual zone. This would place him in the second compartment along with, let us say, the Michaelangelos. On the other hand, one's ideal may be that of a consumer and his form of consumption may be material. He belongs in the third compartment along with Falstaff or that farmer who "builded his barns bigger" and then retired from business. Again, one's ideal of life may be that of the graceful consumer, but his field of consumption may lie wholly within the spiritual zone. This places him in the fourth compartment along with such spiritual Sybarites as the aesthete who regards it as his chief mission to "loaf and invite his soul."

Now, it is the contention of the present writer that the line XY is very much more important than the line AB; in other words, that the distinction between the productive and the consumptive ideals of life needs very much more emphasis than does the distinction between the materialistic and the spiritual zones of action. Moreover, it is his contention that there is a strong tendency among the so-called cultured and highly-educated to emphasize the line AB rather than line XY, and that this tendency is vicious and should be combated. Because that

Indiana farmer is found on the productive side of the line XY, it is contended that he is an idealist in the proper sense.

Retiring from business.

The habit of retiring from business as soon as one has accumulated a competency has the peculiarly disastrous effect of wasting the talent which is scarcest and most needed. The more valuable an individual's talent, the sooner on the average and in the long run, will he be able to accumulate a fund of wealth to support him during the rest of his life. The earlier, therefore, he will be able to retire, and the greater portion of his life will be wasted. I have in mind, for example, a great surgeon whose knowledge and skill have blessed large numbers of people. He was so successful and so much in demand that he could easily have retired from active work years ago. He is the sort of man which society can least afford to spare. If he were less skillful and less successful, it would be no great loss if he should retire from active work. Because his skill is so scarce and so precious, it is a great loss if it is allowed to go to waste, that is, to remain inactive.

Again, it may be said that there is a difference between the work of the genius and that of the plodder; that the growing of corn and bacon does not appeal to the imagination as does the healing of the sick or the artistic work of a great genius. Yet it is useful work, and the same principles of conduct should apply to all. This economic principle which we see with such clearness when applied to the work of the great surgeon or the great artist applies equally well to the work of all. It is doubtless this economic principle which was in the mind of the

Teller of the story of the farmer who builded his barns bigger and then retired from business.

The case of the great business organizer, the successful investor and the captain of industry, ought to be quite as clear.

Pensions.

There is a real danger at this point in the system of pensioning university professors. Of course it was intended, when our various pension systems were devised, that a retired professor who was still in full mental and physical vigor, should be able to devote the last end of his working life to research or to the publication of the ripened fruits of his scholarship. But it seldom works out that way, as might have been foreseen. The man who late in life undertakes to make a complete change in the character of his work seldom makes a success of it. The retired farmer who has been active in outdoor muscular work all his life soon loses his health when he tries to lead a life of ease. The university professor who has been for many years in active teaching, has had to meet his classes regularly, and to keep himself in sympathetic touch with an ever changing body of young men, has come to depend, more than he himself suspects, upon that contact for his stimulus. When he retires from teaching he breaks his contact with his chief source of stimulation and inspiration and seldom does any first rate work afterward.

Of course, if he has reached an age when he is no longer an efficient and inspiring teacher, his room is worth more to the university than his work. Then it is economical for all concerned that he should be got rid of; and a pension seems to be more satisfactory than the other

proposed solution of the problem, namely, chloroform. Besides, he may easily earn his keep by devoting himself to what Victor Hugo called the gentle art of being a grandfather, especially if he combines it, as is commonly done by men of reverend years in China, with the work of growing morning glories. Having passed beyond the years when he can be a leader in the ways of strenuosity, he is now peculiarly fitted to become a leader in the Way of Contentment. Like Isaac he may go forth in the evening to meditate. This may, after all, be the most valuable work of his life.

Pensions sometimes waste the best years of a man's life. But his fitness for leadership in the way of contentment is not achieved until he has achieved his unfitness for leadership in the ways of strenuosity. There is the danger. If he is retired while his physical and mental force are still unabated, he is more likely to eat his heart out in impatience than to walk the way of contentment. What is more to the point, several of his best years are wasted which might have been very productive.

It is sometimes argued, however, that it is better for the younger men to have their elders retired early. They can be promoted more rapidly and are therefore encouraged by this prospect to fit themselves for academic careers. It hardly needs to be stated that universities are not run to give attractive positions to ambitious young men. If a smaller number of men, by working a greater number of years, can do the necessary teaching without in any way deteriorating the quality of the teaching, there are then more capable young men available for other kinds of work which need to be done. If every talented man could work for a longer period of years without

loss of quality, it would have the same effect upon the total available supply of working talent as an increase in the total number of talented men. That increase in the supply of working talent is the very thing of which society stands most in need. No other need deserves to be mentioned in the same breath with this one.

One of the dangers in the present agitation for old age pensions is that it will beget the vicious and demoralizing idea that the chief ambition of the average man should be to be able to do nothing. That idea is too widespread now and needs to be combated rather than supported. It is too commonly assumed that a man ought to stop working and begin to loaf as soon as possible. It is sometimes put euphoniously in this way, "Having worked all my life, I am now going to 'live.'" Aside from the shamelessness of this method of beclouding the issue, it is an error to suppose that a man "lives" more or better when idle than when working. Instead of pensioning men indiscriminately, which is a cheap and easy method of taking care of them if one looks at it short-sightedly, it would be very much better to see first whether some other kind of work might not be found for the man who has become too old for his job. It would be, in most cases, very much better for the man himself, besides being more economical for society. This would be a little more trouble,—would require us to undergo the painful process of thinking a little more than the crude policy of old age pensions, but it would yield much better results in the end. It would also be much more welcome to the type of man whom it should be our chief concern to benefit,—that is, the strenuous and productive type.

Enough emphasis has never been laid by any economist on the principle of "joint demand" as Marshall calls it,

or "complementary goods," or "non-competing groups," as others have called them. With respect to commodities, we are all familiar with the fact that frequently the supply of one commodity creates the demand for another; whereas, the lack of one commodity may destroy the demand for another. This holds true wherever several different commodities have to be combined in the production of the same result. In order to make gunpowder, for example, it is necessary to have charcoal, saltpetre, and sulphur in certain fairly definite proportions. If it should happen in any community that there was an abundance of charcoal and scarcity of saltpetre, a good deal of the charcoal would be unemployed or unused, at least in the powder-making industry. Charcoal would be going to waste primarily because there was not enough saltpetre to mix with it. Anything which would increase in that community the available supply of saltpetre would increase the demand for charcoal, assuming, of course, that there was a demand for gunpowder as a finished product. Anything which would still further reduce the supply of saltpetre would still further reduce the demand for charcoal. Under such conditions it would be natural and just that saltpetre should command a high price and charcoal a low price—a high price for saltpetre being society's method of calling forth a larger supply; a low price for charcoal being society's method of discouraging an over-supply. Now if, as a result of this, all the producers of salpetre were so well paid and so desirous of leisure as to induce them to take advantage of their prosperity by retiring from business, things would go on from bad to worse. The higher the price of saltpetre the more prosperity to the producers of saltpetre; and the more prosperity the earlier they would retire from active

business. The retiring habit would, in that situation, be a serious interference with the process of readjustment.

Precisely the same principle applies to labor as to commodities. It frequently happens that different kinds of labor have to be combined in the production of a given commodity. Spinners and weavers, for example, are both necessary in the production of cloth. If we could imagine a situation where there were many spinners but few weavers, the scarcity would limit the demand for spinners just as effectually as the scarcity of saltpetre, in the foregoing illustration, limits the demand for charcoal. Anything which would increase the supply of weavers would increase the demand for spinners; and vice versa, anything which would diminish the supply of weavers would diminish still further the demand for spinners. It is true that men can be taught new trades, and therefore an oversupply of spinners could be relieved by training more weavers. But when we consider occupations which require vast differences in skill and training, the process is not so easy. Recently a glass manufacturer desired to develop a new branch of his industry. In order to do so, he required one or two men with a highly specialized technical training. He tried to find these men and offered as high as twenty-two thousand dollars a year salary. He failed to find them. As a result of this failure he did not enlarge his establishment. Therefore he did not give employment to several hundred men to whom he would have given employment had he been able to find these two men with a high degree of technical skill. Here was a case where scarcity of one kind of skill reduced the demand for other kinds. The operation of the principle is just as clear and con-

cise in this case as in the case of the charcoal and saltpetre.

There is no reason to believe, however, that a scarcity of this particular kind of skill is due to the retiring habit. It is due, rather, to the lack of that specialized technical training which would aid in redistributing human talent, in other words, to ignorance. Ignorance here, however, is used not in the sense of a crass and degraded state of mind, but merely in the sense of a lack of knowledge. The problem of ignorance will be discussed later.

Inherited wealth.

Another cause of the waste of human talent, as things now work out, is found in the institution of inherited wealth. They who join the ranks of the leisure class or the voluntarily idle are less likely to be the individuals who themselves have accumulated a fortune and retired from active work than their descendents of the second or third generation. In order to consider this phase of the problem it is not necessary that we assume any attitude either friendly or hostile toward inherited wealth as such. The writer certainly has no grievance against those who are living on inherited wealth. They are not depriving him of anything which is his or which he has earned. But the fact can hardly be disputed that the individual who lives in idleness is going to waste. If it is inherited wealth which enables him to live in idleness, it is the inherited wealth which causes him to go to waste. The present writer has elsewhere classified wealth as consisting of earnings, stealings and findings. The fortunate possessors of wealth which is merely found and not stolen, such as inherited wealth which comes to them through the accident of birth, are not in any sense reprehensible,

nor has anyone else a real grievance against them. But the question is not one of grievances. The question is one of the economy of human talent or the conservation of human energy.

Whenever it becomes a general observation that inherited wealth is made, more frequently than not, the means of enjoying leisure, or in other words, of wasting human talent, it will then be time to consider seriously the question of limiting inheritances or even of abolishing them altogether. So long as the possessors of inherited wealth continue to use their talents productively, no possible harm can result, and there would be no reason for an agitation against them.

Lawlessness.

In times past, before the outbreak of the European War, we Americans were in the habit of thanking our stars that we were not compelled to support vast standing armies or to waste two or three years of the productive period of young men's lives in unproductive military service. All this time we needed to be reminded that we were very dark pots engaged in the pastime of calling kettles black. It is not at all improbable that these same young men would acquire discipline which would more than compensate for the time spent; that is to say, during the total life-time of the average man he may have been able to contribute more to the national wealth and progress by reason of those three years' discipline than he would have been if he had not had them. While we have maintained a smaller standing army than European nations, the general rowdyism and ineptitude which characterize our people are topics on which we have not cared to speak. Even if we never needed an army, it is not im-

probable that it would be a good thing for us to have compulsory military service for the sake of the discipline which it would bring with it, provided, of course, we could not find another means of discipline which would answer the purpose equally well.

Lawyers and priests.

Again, we have not cared to expand much on the fact that we support more lawyers than any other country. What is even worse, much of our very best talent goes into the legal profession instead of going into productive work. If international war is wasteful, so also, in a lesser degree perhaps, is private ligitation among the citizens of the same country. We have to support not only an army of lawyers, but to waste a great deal of other valuable talent in these unprofitable litigations. This is not saying that the profession of the lawyer is not one of the most respected and honorable of all occupations. So long as litigation exists and rights and obligations have to be enforced by law, we must have men who devote their lives to this work. The same argument applies to the profession of the soldier. So long as we cannot escape the necessity of national defence, the military profession is one of the most, if not the most necessary and honorable of all occupations. Nevertheless, it is highly desirable that we should, and everyone, even the soldier, hopes that we may very soon, eliminate the necessity of fighting. Among other advantages it would release for other work much splendid talent which now goes into the military profession. The same may be said regarding litigation. No one, not even the lawyer, believes that litigation and legal disputes are desirable. Everyone will agree that it would be better if we could, and most of us hope that

we may, greatly reduce the amount of work for lawyers to do. Among other advantages this would release for other necessary work much of the splendid talent which now goes into the legal profession.

Travelers in Southern Europe must have been impressed by the large numbers of priests and their high average ability. Except where this talent is employed in constructive leadership, it is a serious drain upon the human resources of those countries. If it were the stupid and inefficient who were thus withdrawn from productive work the loss would be vastly less. Every one of those countries is suffering from the lack of constructive talent in such fields as scientific agriculture, engineering, and business.

One must not be unmindful, however, of the splendid service performed by the monks of an earlier day in preserving the learning of the ancient world and handing it down to the newer civilization of modern Europe and America. Their part in the civilizing of the rude barbarians of Northern Europe entitles them to the respect of all mankind. The laboring monks especially call for our admiration. The clearing of the land, the draining of the swamps, the preservation of the arts of horticulture and agriculture, and the further development of both, was constructive work of the very highest order. Moreover, it was performed at a time when constructive industry was all but submerged by the general brutality and violence which prevailed over the whole of Europe. In those countries where the priests are still doing that kind of work, they deserve the highest commendation. The countries with the largest numbers of such priests are the countries which are advancing most rapidly, not only in the arts of civilization, but in wealth and power

as well. The way in which they are using their influence to decrease the number of holidays is of the highest utility and must have a profound influence upon the national efficiency. One cannot help being impressed also with the fact that much of the co-operative work among the farmers of Ireland, Belgium, Holland, Denmark and Germany is fostered by the priest in Catholic communities and by the pastors in Protestant communities. The president of the local co-operative society is usually the priest or the pastor.

Ignorance as a source of waste.

Coming to the subject of ignorance, we have to charge it with a vast amount of wasted human talent, that is, of talent which goes to waste because it is imperfectly employed. We have men who are compelled to do a lower grade of work than they might otherwise have been compelled to do, had they been properly educated. He who is compelled by circumstances to do a less useful work when he might have been doing a more useful work, is going to waste in part at least. He is like a Raphael painting a barn or a Beethoven playing a mouth-organ. There is a very close analogy between a sound educational policy and a productive industry. All industry, as was pointed out long ago, consists in moving materials from one place to another. Back of this process of moving things from one place to another is a fact which does not appeal to the physical eye, namely, that we are moving things from places where they are useless or less useful to places where they are useful or more useful; and other things from places where they are harmful or more harmful to other places where they are useful or less harmful. This implies, in other words, that in any time and place

in which a man finds himself, there are some things which are too scarce and others which are too abundant for his comfort. He must immediately set to work readjusting things, and this readjusting takes the form of moving things. Of any great society the same is equally true. It finds itself in the presence of some things which are too abundant and must therefore be thinned out; it finds itself in need of other things which are scarce and must therefore be increased in quantity. All industry is directed towards these ends.

Our whole process of valuation, whether it be in the commercial, the moral or the intellectual field, is determined and directed by this primordial situation. Anything, whether it be a material commodity, a moral quality, or a mental attainment of which the community can say that it would be better off if it had more of it, is highly esteemed, that is to say, is valued. Anything, on the other hand, of which the community can say it would be better off if it had less of it, is disesteemed. This also is true whether the thing in question be a material commodity, a moral quality, or a mental trait. The purpose, therefore, of industry is to diminish the things which are disesteemed, that is, the things of which the community feels that it has too much or of which it thinks it would be better off if it had less, and to increase the things which are scarce, that is, the things of which it feels that it would be better off if it had more.

Similarly, the purpose of morals and religion is to decrease those moral qualities of which the community feels that it has too much or that it would be better off if it had less, and to increase those moral qualities of which it feels a scarcity, or thinks that it would be better off if it had more. Following this parallelism a step

further, we may say that the purpose of all education is likewise to diminish those mental traits, tendencies or capacities of which we seem to have too much, and to increase those of which we seem to have too little. This is the great law of economy in all fields of endeavor, and it brings commercial valuation, moral valuation and mental valuation under one and the same law.

The correct theory of education.

The correct theory of education is embodied in the inscription on the west gate of Harvard Yard:

AFTER GOD HAD CARRIED US SAFE TO NEW ENGLAND
AND WE HAD BUILDED OUR HOMES
PROVIDED NECESSARIES FOR OUR LIVELIHOOD
REARED CONVENIENT PLACES FOR GOD'S WORSHIP
AND SETTLED THE CIVIL GOVERNMENT
ONE OF THE NEXT THINGS WE LONGED FOR
AND LOOKED AFTER WAS TO ADVANCE LEARNING
AND PERPETUATE IT TO POSTERITY
DREADING TO LEAVE AN ILLITERATE MINISTRY
TO THE CHURCHES WHEN OUR PRESENT MINISTERS
SHALL LIE IN THE DUST

It will be noticed that nothing is said about the dread lest some young men should fail of self-development, or lest they should fail to get the most out of life. It indicates, on the other hand, that the founders of Harvard felt that there was a distinct social need. After the present ministers should lie in the dust there would be a scarcity of the kind of talent which they regarded as very necessary. In other words, the institution was created to train men for what they thought to be a genuine social need—to make the kind of talent abundant which would otherwise be scarce. Whether we agree that their diagnosis was right or not; that is, whether we agree or not

that the colony did need ministers, we can hardly afford to reject their theory of education, namely, that education should aim to supply the kind of ability which society needs. It must have been apparent to these founders that every time a man was trained for the ministry there was one man less for some other job. Still, this would not have deterred them if they had felt that they would train men out of less useful into more useful occupations. Any educational system, on the other hand, which professes merely to give men a gentlemanly appreciation of the ornamental things of life, or to train them in order that they may get the most out of life, or to give all-around self-development without much regard to what society needs, is necessarily a perversion of all sound educational theory.

The redistribution of human talent is a phrase which comes as near summarizing a sound educational policy as any single phrase can. Of course it requires further explanation and qualification. To redistribute human talent without regard to social needs would possess no merit whatever; but the redistribution of human talent with respect to social needs is a summary of all the law and the prophets so far as education is concerned. The ideal which probably can never be attained, but which may be approximated, is such a redistribution of talent as to make each kind equally abundant with every other in proportion to the need for it. If we could bring it about that hand laborers were so scarce and business managers so abundant that the community would gain or lose about as much by the gain or loss of a single hand laborer as it would by the gain or loss of a single business manager, then we would have the ideal redistribution of human talent. Incidentally, of course, we should

have an ideal distribution of wealth, because one kind of talent would be approximately as well paid as another. As has been said before, this ideal condition can be approached, however, only by training men out of, or away from, those occupations where men are abundant into those where men are scarce.

Ignorance can hardly be defined in absolute terms. The barbarian, the savage, or the backwoodsman, possesses a wealth of knowledge which the modern academician lacks altogether. The unskilled laborer possesses a skill and technique which is unknown to his employer. He who possesses a kind of skill or technique which is oversupplied is called an ignorant man; he who possesses a kind of skill or technique which is undersupplied or scarce is called an educated or a trained man. Ignorance is, therefore, a relative term. It means a lack of the kind of knowledge which is scarce at the time and place under discussion.

Here again we must be on our guard and remember that it is always a question of more or less. More accurately, therefore, we should say that ignorance is a lack of that kind of knowledge of which society feels that it wants more than it has got. This may involve the possession of another kind of knowledge of which society does not feel that it needs much more than it has got. However much of this kind of knowledge a man possesses, he will still be classed as an ignorant man, and properly so, because he is not equipped with the kind of knowledge which would enable him to function as an indispensable or even highly useful member of society.

Generally speaking, he is the greatest man who happens to possess the kind of knowledge which makes him the most nearly indispensable to the rest of the com-

munity. In a military régime, the indispensable man is the man who knows how to manoeuvre armies so as to win victories. The presence or absence of such an individual may make all the difference between national glory and national shame. One man more or less of the kind who knows how to fight in the ranks, or to handle the implements of warfare, may make very little difference. One man more or less who knows how to manoeuvre armies may make all the difference in the world. In an industrial régime it may easily happen that the captain of industry is one of the most indispensable of men.

He who can devise educational systems and educational methods which will increase noticeably the kind of talent of which there is a felt scarcity, and diminish the kind of talent of which there is a felt superabundance, is one of the greatest conservers of human energy that any country can possess. He deserves to rank ahead of the statesman, the business manager, or even the investor. Generally speaking, his work consists primarily in training men for skilled work who would otherwise be compelled to do unskilled work; for mental work men who would otherwise be compelled to do physical work; for work requiring judgment and discretion men who would otherwise be compelled to do routine work; for work requiring courage and initiative men who would otherwise be compelled to work under direction. The reason for this is not that these so-called higher kinds of work are inherently superior to the others—it is simply because the supply of laborers in these so-called higher occupations is scarcer relatively to the need for them.

There is doubtless much bad distribution of wealth which is due to exploitation and injustice. The present writer will go as far as anyone in the effort to remove

these causes of bad distribution. However, he is distinctly of the opinion that the bad distribution of wealth is mainly due to the bad distribution of human talent, and that the most constructive program for improving the distribution of wealth is an educational program for improving the occupational distribution of human talent.

Social values.

There is another sense in which ignorance is a great waster of energy. This may be called a kind of social ignorance expresses itself is in the contrast sometimes methods of working together. One form in which this ignorance expresses itself is in the contrast sometimes drawn between human rights and property rights. It does not require a great deal of intelligence to see that all property rights *are* human rights. Things have no rights; human beings have rights in things. These rights in things are sometimes called "property rights." Where these human rights in things are clearly understood and wisely safeguarded, you have some of the most important factors in social prosperity. Wherever property rights are respected, there you find better conditions, other things equal, than you find in communities where property rights are not respected. Where property rights are respected you find conditions which attract people away from communities where property rights are not respected. Unless there be free land or great undeveloped natural resources, people do not migrate into a community where property rights are disregarded. Communities which are approximately of equal age, with approximately equal opportunities, can almost be classified on the basis of the efficiency of the protection of property rights. Where property rights are not respected and safeguarded, there

is little prosperity, and the people, even the wage workers, to say nothing of the talkers, must leave such a community in order to find employment and go to another community where property rights are respected.

Instead of attempting to contrast human rights with property rights, which is no contrast at all, there might be a real question as to the relative importance of human rights in certain kinds of property and human rights in certain other kinds of property; or human rights in property as compared with human rights that have no relation to property. These contrasts would present intelligible questions which could be discussed by rational beings. The other contrast cannot be discussed because there is no question stated.

Conflict.

Ignorance with respect to the nature of human conflict, particularly as to the nature of the different forms of economic competition, is responsible for a good deal of waste. Of all forms of human conflict, that which is known as economic competition is the highest. In no other form of conflict does success depend so much upon productivity or service, and so little upon destruction and deception. There are three kinds of economic competition—competitive production, competitive bargaining and competitive consumption. Competitive production always works well, competitive bargaining sometimes works well and sometimes badly, while competitive consumption always works badly. Competitive production is, therefore, the highest form of economic competition, as competitive consumption is the lowest form, while competitive bargaining occupies a middle position. Competitive consumption has to do with private life rather than with

business, therefore it lies outside the field of our present discussion.

We include under the word production any handling of materials which renders them more usable or useful. Thus, even the retail mercantile house stores goods, thus adding to their time-utility. It receives them in large lots, such as are convenient for the producer to sell, and hands them out in small lots, such as are convenient for the purchaser to buy, and, finally, it sometimes delivers goods to the customer, thus adding to their place-utility. All this is productive service. But, in rendering this service, it must buy and sell. Here skill in bargaining counts.

Many of the supposed economies of large scale business turn out, upon examination, to be advantages in bargaining rather than economies in production. If the large concern can control a source of raw materials and thus get them on more favorable terms than it will allow its smaller rivals, it may beat the latter in competition, but its success is, in that case, due to superior bargaining power rather than to more efficient production. The large concern may succeed in getting better transportation rates than the small concern, but this is superior bargaining power rather than superior producing power. Again, it may be able to handle the labor situation in such a way as to gain an advantage in hiring its labor, but this is also a form of bargaining power rather than a form of producing power. Finally, the large concern may be able to maintain a better selling organization or to advertise more lavishly than a small concern. This, like the others, is an advantage in bargaining rather than in production.

There is, in almost every line of business, a certain size

which gives the maximum efficiency in production. How large the size should be depends upon a variety of circumstances of time and place. There is also a certain size which gives the maximum efficiency in bargaining, that is, in buying and selling, borrowing and lending. As a general rule, the size which gives the maximum efficiency in bargaining is larger than the size which gives the maximum efficiency in production.

This has a very important bearing upon the problem of agricultural development. The most efficient producing unit is the one-family farm, that is, the farm which supports one family, and is cultivated by the labor power of one family. It should, of course, be a farm large enough to occupy the full working time of the family when equipped with the best teams, tools and general equipment which are available. Man for man, or in proportion to the total number of persons engaged, this is the farm which gives the highest average product as distinguished from profits. Under normal conditions, this type of farm will hold its own in competition with all others. But under abnormal conditions, it may be beaten out.

Large scale bargaining.

Where the large farm has some special advantages in securing a cheap supply of labor, such as slave labor, coolie labor, or masses of immigrant labor, the large farmer may beat the small farmer in competition. The latter, having to sell the product of his own labor in competition with the products of this cheap labor may be run out of business, or reduced to a condition of poverty. This, however, is an advantage in bargaining. They who work on the land sell their labor at so low a price, or, in

the case of slaves, their labor costs the owner so little, that the large farmer may make a large profit in spite of the low average productivity of the persons engaged. The worst and most dangerous enemy of the small farmer, therefore, is he who tries to foist upon the rural districts a large supply of cheap labor. This is designed to give the large farmer an advantage in purchasing his labor. It will force the small farmer to sell his own labor, or its products, in competition with that cheap labor, to his own impoverishment or extinction.

Again, in buying his supplies, in selling his products, especially if they be perishable, the large farmer usually has an advantage. Coöperation among small farmers, however, may give them the same advantages in buying and selling which is otherwise the exclusive possession of the large farmer. The small farmer of the present day is the only large class which regularly buys its raw materials at retail and sells finished products at wholesale. In the borrowing of capital, likewise, the small farmer is usually at some disadvantage. This, likewise, can be overcome by collective bargaining, or coöperation.

We need not indulge in any poetic rhapsodies over the small farmer. If he is inefficient, he must go. But we should be very careful to diagnose his case and find out where his inefficiency lies. It seems that he is efficient in production, but inefficient in buying and selling. This inefficiency can be overcome by the organization of small and efficient producing units, into large and efficient bargaining units. Organization, therefore, should be the watchword of the small farmers of the next generation.

Before leaving this subject of agriculture it ought to be pointed out that much of the advocacy of intensive agriculture is misdirected and calculated to waste human

energy, that is, labor, while trying to economize land. It often happens that the most economical use of one factor involves a necessary waste, or uneconomical use of another. Where the one is dear and the other cheap, this is good economy. The intensive use of land means the application of so much labor and capital in its cultivation as to approximate the maximum product per acre. This involves, in nearly every case, a low product per man, or per unit of labor employed in its cultivation. So generally is this the case that it is usually the rule, taking the world as a whole, that intensive agriculture and poverty go together. That is to say, wherever agriculture is carried to a high degree of intensity one finds, as an observed fact, that the workers on the land are poor. The reason is not far to seek. Where land is so intensively cultivated as to bring it to its highest productivity it is because a great deal of labor is combined with very little land. This means that each unit of labor has very little land on which to work. An intensive use of labor requires that it shall have an ample equipment in the way of both tools and land. This will enable each unit of labor to produce its maximum. But when each unit of labor has an ample supply of land, each unit of land cannot have an ample supply of labor. As between the two, it is more important that each unit of labor should produce its maximum than that each unit of land should produce its maximum. In other words, an intensive use of labor is very much more important than an intensive use of land.

Vice as a source of waste.

The subject of vice has not generally been considered as a subject for the economist, but has been reserved

mainly for the moralist. If vice could be defined in such a way as to divest it of all economic significance, this might be a justifiable neglect. But we should not then have a rational conception of vice. Vice is, after all, nothing in the world except waste of human energy. Nothing is vice except that which wastes or dissipates human energy. This brings vice definitely within the scope of the economist's study. So-called vice, that is, conduct which is condemned by the conventionalities of society, but which is harmless in itself in the sense of causing no waste, is merely evidence of social ignorance as to the real content of vice.

Of all vices there are probably none except lying and stealing, which are so wasteful as drunkenness. Therefore, there is probably no other vice which is so reprehensible from a rational point of view There may be people who would dispute this and insist that there are other forms of vice which are more odious to themselves than drunkenness. However, if the question were put to them in a practical way, they would probably agree without knowing that they were agreeing to this proposition. If they had their choice between riding behind a locomotive engineer who was addicted to drunkenness, and one who was addicted to any other vice, which would they choose? If they were compelled to choose between a chauffeur who was addicted to drunkenness and a chauffeur who was addicted to any other vice; between switch-tenders, train dispatchers, bank-cashiers, drug-clerks, or men in any other position of responsibility in our inter-locking civilization who were addicted to drunkenness, or to those who were addicted to any other vice, they would not hesitate as to the choice. In our moments of high spiritual exaltation, especially if we are in a talk-

ing mood, we may express more hostile opinions regarding wrong views on baptism, or predestination, or sexual virtue, or profanity, than against drunkenness. But in our practical choices we make no such mistake.

One of the most hopeful signs of the times is the way in which the great mass of the serious thinking people, though perhaps somewhat commonplace in their views, are taking hold of this problem. No movement of popular opinion of the present day has shown such steady, consistent and widespread increase as the prohibition movement. Though it is opposed on the one hand by many of the so-called intellectually élite, and on the other hand by the so-called radicals in a social and political sense, still the great mass of the common people who are neither intellectually gone-to-seed nor windy radicals, are definitely for it.

There is, of course, something to be said in favor of a fool-killer which would eventually tend to rid the world of those unstable natures who succumb to the temptation to vice. Where the vice is one which affects the vicious individual alone, or even mainly, the argument is overwhelmingly in favor of allowing individuals free access to that form of vice; but a vice which so quickly destroys the individual's responsibility and his fitness for functioning in an interlocking civilization as does alcohol, is quite as likely to be a killer of the wise abstainer as of the unwise indulger. No one is safe where men in all sorts of responsible positions become so habitually irresponsible as do those addicted to the vice of alcohol. The restricting of this vice,, or the closing of opportunity for it, is, therefore, as much for the protection of the strong members of society who can resist temptation as for the weak members who cannot.

One of the great dangers of modern society is the growth of a maudlin sentiment in favor of weakness rather than in favor of strength. What is sometimes called "the cult of incompetence" is becoming practically a religion with some people. Men cannot resist temptation; therefore temptation must be removed from them. Men cannot be self-supporting; therefore a State must care for them. This is sometimes called a "paternal" State. It should rather be called a grandmotherly State. To protect weakness against itself is to cherish weakness—to bid it be fruitful and multiply. To compel strength to sacrifice itself in the interest of weakness, beyond certain rather definite limits such as are involved in the domestic relations, is to discourage strength, especially if we show a positive antipathy toward the success which comes of strength.

CHAPTER X

TAPPING NEW SOURCES OF ENERGY

Power.

It has often been pointed out that man's work, on the physical side at least, consists in moving material objects. This requires power. The first source of industrial power was, of course, the human body, and it was exercised through human muscles. One of the great achievements of human intelligence, however, has been the harnessing of other forms of power and directing it to human uses. The secret of the industrial success of civilized nations does not lie in their superior muscularity, but very largely in their ability to utilize other sources of power.

Animal power.

Probably the first of these other sources of power was animal power, though it may have been in some cases the winds or the streams. Animal power is still one of the most important of these sources. There were about 26,000,000 horses and mules on the farms of the United States in 1920 in addition to those in use on the streets of our cities and towns. It is not very accurate to compare the rated horse power of the steam engine with an equal number of actual work horses, but we have no other unit that is any more accurate. On this basis of comparison the animal power in use in the United States was, until after 1910, greater than the total steam and

water power used in manufacturing. In recent years steam power has increased until it exceeds the total animal power in the country.

Urban economists who have not familiarized themselves with the extent to which agriculture has been dependent upon animal power are likely to underestimate its importance both in the past and in the present. All things considered, looking at the matter as a world problem, and taking the past as well as the present into view, animal power has probably played a larger part in the conquest of nature than any other single source of power, not even excepting steam.

The ox.

A great variety of animals have been used in different places, depending mainly on the kind of forage available for their support. It is difficult to estimate statistically the relative importance of different animals, but there are ample reasons for believing that the ox, from the most ancient times, has been the chief source of power. His anatomy fits him better for drawing loads than for carrying burdens on his back. In his wild state he fought by pushing with his head and horns, which has probably developed an anatomy that was peculiarly well fitted for this form of exercise. Man's ingenuity made use of this by yoking him, either by the horns or by the neck, and utilized his pushing power. He literally pushes upon the yoke, though through the use of tackle he was made to pull a load. His docility and patience, his great strength, the cheapness of his harness and the cheapness of the forage which supplied the fuel to this living motor, all combined to make him a most valuable assistant to man in his early struggles for the conquest of the earth. He

supplied the kind of power that was needed for the crude and heavy implements of primitive agriculture. The cumbersome wooden plows and harrows that were in use before the modern steel tools were invented, the lumbering carts that were in use before modern vehicles were constructed, did not require speed so much as ponderous power. Wherever this kind of agriculture prevails the ox is still the chief source of power. As a matter of fact, this is the type of agriculture that still prevails over large portions of the earth. The only notable exceptions are northern Europe, the United States, Canada, and some of the British colonies. It is probable, therefore, that if the whole world were taken into consideration, the ox is still the most important single source of power in agriculture.

The horse.

In more advanced agricultural countries several factors have combined to displace the ox by the horse, the mule and the tractor as a source of power for farm work. One is the development of large and heavy breeds of horses of such strength and docility as to fit them as well as the ox for the pulling of heavy loads. It is a significant fact that all large breeds of horses originated around the North Sea—that is, in Northern France, Belgium, Holland, Denmark, England and Scotland. They have spread, of course, to other countries where agriculture of an advanced type has developed. Russia and Hungary are also horse-breeding countries and use horses to a certain extent for traction purposes, but they have not produced such huge draft horses as countries around the North Sea. The United States and Canada have become breeders of draft horses, but the original stock was im-

ported mainly from France, Belgium and Great Britain. The United States surpasses all countries in the number, quality and speed of its trotting horses. Before the invention of the automobile they furnished an important source of power for pleasure vehicles. It is difficult to see any large use for them in the future. Southern Europe and the southern part of the United States have made extensive use of the mule. This hybrid, combining something of the patience and endurance of the ox with the more rapid gate of the horse, is admirably adapted to farm work in those climates to which the huge draft horses of the North are not suited and where the lighter horses of southern origin are too nervous and excitable for the slow and heavy work of the farm.

Farm machinery.

Both the horse and the mule have one great advantage over the ox, namely, their more rapid gait. This is a valuable quality where farm machinery is used. The invention of farm machinery is, therefore, another factor in the displacement of the ox in advanced agricultural countries. The horse not only walks faster, but can be started, stopped and turned more quickly, thus economizing the time of an expensive machine. When the farmer has his money invested in expensive machinery, it is important that he get as much work out of it as possible during the very short period in which it can be used. He cannot afford to allow it to run so slowly and ponderously as would be necessary if it were driven by oxen. A third factor in the displacement of the ox is the higher wages for farm labor that prevail in Northwestern Europe, more particularly in the United States and Canada. If the farmer were hiring labor at a very low

wage it would not be so important that he get the largest possible amount of work from his hired man. But when labor becomes expensive, the farmer must economize it. This makes it necessary for him to make use of labor-saving machinery and also to provide it with a superior source of power. The fact that the horse walks faster than the ox enables the farmer to get more work out of his hired man when he uses horses than when he uses oxen as a source of power.

The Tractor.

These factors that formerly displaced the ox by the horse are now displacing the horse by the tractor. The tractor has the advantage not only of consuming cheaper fuel than the horse; it can concentrate more power in small space. An expensive hired man can accomplish more with it than with a team of horses. In those farm operations where a great deal of power is required, the tractor is already displacing the horse. However, there is still a large number of farm operations that require power in more flexible form than can be furnished by a tractor. As a source of flexible power adapted to a great variety of farm needs, the horse still remains superior to the tractor.

Even though animal power has become less important than steam, we must remember that animals were used for thousands of years before the steam engine was invented. Therefore, the use of animal power has been a most important factor in the building of civilization or in aiding man in his conquest of the earth.

More acres or more per acre.

It is well to remember that the use of non-human power in agriculture in the past has done little to increase

the food-producing capacity of an acre of land. The great advantage of using non-human power, either animal or mechanical, has been that it enabled a given population to cultivate a larger area. In any part of the world where the opportunities for expanding the area of cultivation have been exhausted or in which they are nearing exhaustion, the use of animal power is not so very economical; and as a matter of fact, comparatively little animal power or non-human power of any kind is used in agriculture under such conditions. One of the possibilities of the growing use of mechanical power will be that it will save for human consumption a great deal of food that is now required by animals, and at the same time may permit deeper plowing and more thorough preparation of the seedbed, and thus increase the food-producing power of each acre of land. If this should result it will make possible a much denser human population than could be maintained by the use of animal power alone.

Winds.

The use of the winds to propel ships and also to turn windmills and drive machinery is almost, if not quite, as old as the use of animal power. The water wheel also is of great antiquity. Next in order of development, however, is the use of explosives. Long before steam was harnessed to do man's work, gun powder had been invented. Unfortunately it was used mainly for destructive rather than productive purposes, nevertheless it was an important step in the history of man's use of power. By means of this invention he could hurl projectiles with vastly greater force than had ever been possible before. On the productive side it proved of incal-

culable value in mining and quarrying, as it could be used to break up and loosen stones and other materials that human muscles alone could scarcely have conquered. It was the forerunner of modern high explosives which have practically displaced it both in war and industry. In spite of this fact, however, it has played a very important part in modern civilization.

Steam.

Next to the yoking of the ox the most important event in the history of man's use of new sources of power was the invention of the steam engine. The importance of this event, however, is due mainly to the fact that the coal beds furnish the cheapest fuel that has yet been discovered. In these vast coal beds was locked up a seemingly inexhaustible source of energy; it was only waiting for the inventor to release it and harness it to man's purposes. The steam engine was apparently the only cheap and easy method by which this vast fund of energy could be utilized.

Man power and steam power.

Various estimates have been made as to how much the tapping of new sources of power has added to man's ability to move materials. It is not easy to arrive at accurate figures. The thirty million horses and mules now in use in the United States probably exert as much power as a hundred and fifty million men exert, assuming that one horse will do as much work as five men, which is a very conservative estimate. It is true that one horse will eat as much as five men, but he is able to eat rather cheaper food than men would be willing to get along with. If five men will do as much work as one horse, and if we could find a kind of man who would be willing to eat as

cheap food and live otherwise as economically as horses will live, and if they were willing to serve us on this basis, there might be no economy in the use of horse power, but this would require the enslavement of a race of men; and this is abhorrent to our modern ideals. We have not yet decided to emancipate the horse. There are humanitarians who are willing to treat all human beings alike, but outside of certain oriental sects, there are none whose sympathies have expanded far enough to be willing to treat all living creatures alike.

The horse and extensive farming.

The economy of horse power lies in the fact that the horse, though he eats some food that men might consume, enables us to cultivate so much more land than we could otherwise cultivate as to give us really more food for ourselves. If we were forced to live under the conditions of a pent-up civilization where there was barely land enough to produce food for human beings, we could probably not afford to use horses. There would be man power enough to cultivate all the land without the use of horse power and men would need the feed that would otherwise be used for horse feed, or at least need the soil that now produces horse feed to grow food for human beings. Densely populated countries, as a matter of fact, do not make as much use of horse power as sparsely populated countries do. The economy of steam power lies primarily in the fact that coal, the source of the power, could not be used as human food at all. The only subtraction that we need to make is the labor that is used in mining the coal. The fifty million horse power of the steam engines of the country easily do the work of two hundred and fifty million men, so far as mere footpounds of work are con-

cerned. A few thousand coal miners, therefore, provide us with enough energy to do as much work as could be done by five times the present working population of the United States.

Petroleum.

A new source of power, namely, petroleum, discovered less than a hundred years ago, has come mainly through the development of the internal combustion engine which is, after all, only a new development of the same principle as was embodied in the cannon. Substitute the cylinder of an internal combustion engine for the barrel of the cannon; substitute a piston for the cannon ball, and hitch this piston to a crank; then substitute a mixture of air and gasoline for gun powder, explode the mixture by an electric spark instead of a percussion cap, and we have turned the power of an explosive to productive rather than destructive uses.

Solar energy.

The greatest physical source of power, so far as man has been able to develop it, is understood to be the sun. The amount of solar energy that comes to the earth in the form of light and heat is so stupendous as to bewilder the imagination. Its most important service is to promote the plant growth upon which animal life and human life depend. It is also the source of most of the non-human power used in the industry of growing food. In the first place, it evaporates water which then rises into the higher atmosphere where, under certain conditions, it is cooled or congealed, and falls in the form of rain or snow. Some fraction of it falls on mountains or other high portions of the earth's surface. Through gravitation it runs downward through the streams, which, when harnessed, may

be made to turn waterwheels and furnish mechanical power to do man's work. While it is gravitation that does the immediate work, it was solar energy that lifted the water upon which gravitation operates in furnishing the immediate power for turning the waterwheel.

Again, solar energy, through plant growth, is stored in the bodies of trees or plants which may be released through combustion. The accumulation and submergence of vast masses of combustible vegetable material in previous biological ages gave us our coal beds which are now a principal source of power. It is generally supposed that petroleum is of animal origin. If so, it is, like coal, the product of solar energy and may be used, like coal, to transform water into steam. The internal combustion engine is a later development and is in many ways a superior method of transforming combustion into mechanical power.

Solar engines.

Since the sun is the source of so much of our mechanical power, it has long been the dream of physicists and mechanicians to transform solar energy into mechanical power more directly than through the use of water or plant growth. According to tradition, a great mathematician, Archimedes, burned the Roman ships that were besieging his native city of Syracuse by the use of a large number of mirrors. By reflecting the sun's rays from all these mirrors upon a single spot a vast amount of heat was concentrated. When the reflected rays from all these mirrors were focussed upon one ship, that ship was set on fire; thus, one after another, the ships were destroyed. Whether there is any foundation for this story or not, there is no doubt as to its physical possibil-

ity. Given enough mirrors, and, assuming that they can all be converged upon a given point, enough heat can be concentrated to raise the temperature to any conceivable degree. The same thing can be demonstrated on a small scale with a common burning glass. This principle has been made use of in an experimental way in the construction of solar engines. Converging mirrors can produce heat enough to boil water and convert it into steam, which steam can move a piston.

Radium.

The discovery of radio activity has opened up a new field for the genius of inventors. Perhaps the most startling inventions of this inventive age have to do with radio activity. Men are already investigating the possibility of using hitherto untouched stores of energy for the moving of ponderous materials. Dr. Charles E. St. John, a noted solar physicist, has recently been quoted as saying that "our study of the sun is aiming towards the discovery and mastery of great sources of energy stored up in the sun and stars for man's use. We are using up our sources of energy in the world, and we must learn to store up the sun's energy, or learn to get energy out of matter. The world is going to be up against it some day, unless we can find out how to do some of the things going on in the sun—that great unexplored engine of energy."

The future of power.[1]

With all these sources of power, and possibly others which may be developed, there is no likelihood that our ingenious race will ever be compelled to fall back upon its own muscles, or even to depend exclusively upon animal power. In that distant day when our coal beds and

[1] See the author's Principles of Political Economy, p. 139.

oil fields are exhausted, the sun's rays will still continue to strike the earth. That being the case, trees and other plants will still grow, though wood could scarcely take the place of coal and petroleum. Alcohol can scarcely become as cheap as gasoline has been in the past, but it can be manufactured in considerable quantities from a variety of plants. Again, the rains and the snows will continue to feed our rivers and turn our waterwheels. Electrical transmission will enable us to utilize many streams now running idly to the sea, and to distribute the power over wide areas and send it long distances from the streams. Solar engines may be so perfected as to enable us to utilize the inconceivable and inexhaustible flow of energy which comes to us in the form of direct rays from the sun. The winds will continue to blow and push our sails and turn our windmills. And so long as the earth continues to revolve about its axis, the tides will continue to ebb and flow, and these may furnish us considerable quantities of power.

Even if it should happen that none of these sources, nor all of them combined, should furnish power quite so cheap as that which we now enjoy through the use of coal, still we may become so well-to-do, through improved agriculture, improved technical processes for utilizing power, and more rational habits of living, as to enable us to bear the extra cost of these other kinds of power with no great inconvenience. Even if this should not happen, it must not be forgotten that a considerable number of civilizations have been built up and multitudes of people have lived comfortably and happily with no power except that of their own muscles, their domestic animals, the winds, and the waterfalls.

CHAPTER XI

ORGANIZATION AS A MEANS OF ECONOMIZING HUMAN ENERGY[1]

The division of labor.

Adam Smith begins his great inquiry into the nature and causes of the wealth of nations with a description of the division of labor. No other writer had gone into such detail or had shown so clearly just why a minute division of labor was economical. His statement of the case has scarcely been improved upon, though some of his illustrations are interesting primarily because of their historical value. They were chosen from the industries of his day and would scarcely apply to any industry of the present. The principle which he expanded, however, applies even more clearly to the industries of the present than they did to those of his day.

By the division of labor several things are meant. In the first place, it means that no one produces everything he needs. Each one confines himself to the production of one thing or a part of one thing, doing the work for which he is best fitted or for which he has the best location, and exchanging his surplus for the surplus products of others who are specializing in other things. It means, in the second place, the process of dividing the work of making a given article. In every factory today each

[1] See Principles of National Economy, chapter x, by the author. Ginn & Co., 1921.

workman is doing a very small part of the total work of making a complete article. The work is so organized that everyone's work supplements that of every other worker, and the different pieces and parts are finally assembled and fitted together to make a complete product. Adam Smith mentioned nail makers of his day as illustrating the first meaning of the division of labor. He pointed out that a given blacksmith, having to do many other kinds of work, could never become very skillful at nail making, while the nail maker who did nothing else except make nails could become very skillful and could make several times as many as a common blacksmith in a given time. He mentions boys under twenty who had never learned to do anything except to make nails who could make 2,300 nails in a day, whereas a common blacksmith could seldom make over 800 or 1,000 in a day. He finds an example of the second meaning of the division of labor in the making of pins. As he described it, the work of making a pin was divided into eighteen different operations, each operation being performed by a different workman. Today both nails and pins are made by automatic machines. The machines themselves, however, are made somewhat as pins were made in Adam Smith's day; that is, they are made by a large number of different workers, each one working on a separate part.

Territorial division of labor.

The division of labor, however, is carried much further than these illustrations would indicate. We have what is called the territorial division of labor, in which certain territories are given over to certain industries and other territories to other industries, and the products exchanged partly by means of transportation. Improvement in trans-

portation facilities has made this possible; and wherever it is economical for one region to specialize, cheap transportation makes it possible to do so. Even transportation would not effectively co-ordinate the efforts of producers who are working in widely separated regions unless there was organization and markets to direct the transporting of goods from one place to another.

Adam Smith names three economies that result from the division of labor:[2]

> First, the improvement in the dexterity of the workman necessarily increases the quality of the work he can perform; and the division of labor, by reducing every man's business to some one simple operation, and by making this operation the sole employment of his life, necessarily increases very much the dexterity of the workman. . . . Secondly, the advantage which is gained by saving the time commonly lost in passing from one sort of work to another, is much greater then we should at first view be apt to imagine it. It is impossible to pass very quickly from one kind of work to another that is carried on in a different place and with quite different tools. . . . Thirdly and lastly, everybody must be sensible how much labor is facilitated and abridged by the application of proper machinery. It is unnecessary to give any example. I shall only observe, therefore, that the invention of all those machines by which labor is so much facilitated and abridged, seems to have been originally owing to the division of labor. Men are much more likely to discover easier and readier methods of attaining any object, when the whole attention of their minds is directed towards that single object, than when it is dissipated among a great variety of things. But, in consequence of the division of labor, the whole of every man's attention comes naturally to be directed towards some very simple object. It is naturally to be expected, therefore, that some one or other of those who are employed in each particular branch of labor should soon find out easier and readier methods of performing their

[2] Wealth of Nations, chap. 1.

own particular work, wherever the nature of it admits of such improvement. A great part of the machines made use of in those manufactures in which labor is most subdivided, were originally the inventions of common workmen.

One important phase of the territorial division of labor is what is sometimes called international division of labor. If military considerations could be left out of account, the same economies result from international division of labor as from any other phase of the territorial division of labor. There would be no more reason for interfering with free exchange between two intelligent nations than for interfering with free exchange between two states or other sections of this country.

Temporal division of labor.

In some respects the most important phase of the division of labor has to do with time rather than with space. It is easy to see that if labor performed in widely separated places is ever to be co-ordinated, it must not be left to accident, but must be carried out by somebody. It ought to be equally apparent that if labor performed at different times is to be co-ordinated, the co-ordinating cannot be left to accident, but must be done by somebody. A thousand examples of labor performed at different times could be cited. One will do.

Some years ago, the leather in the shoes you are now wearing existed in the form of skin on an animal, let us say, on one of the western ranges. The animal was herded, branded and cared for by some western cowboys. Sometime later the animal was slaughtered and skinned. Still later the skin found its way to a tannery where other workmen made it into leather. Still later the leather found its way to a shoe factory where other workmen

made it into shoes. It passed through the hands of others on its way to the retail store, where it was handled and sold by some shoe clerk. This process was spread over a period of years.

Co-ordinating labor that is performed at different times.

There are various ways in which the material in your shoes might have found its way through all the necessary stages in the process. The crudest and least efficient, perhaps, would have been for the cowboys to retain ownership in the animal as it went to the slaughter-house; then for the cowboys and the butchers to have held joint-ownership in the hide when it went to the tannery; again, the cowboys, butchers and tanners could have retained their ownership while it went to the shoe factory; and finally, the cowboys, butchers, tanners and shoemakers could have retained their ownership in it until it was sold to consumers. Then they could all have divided the money among them. This would have been a very cumbersome way, but there would have been no separate person called a capitalist to intervene between the workers and the consumers. They would have done their own coordinating. The point to remember is that unless somebody did it, it would not have been done.

The rôle of the capitalist.

If the workers did their own co-ordinating, they could have eliminated capitalists; but if they turn the work of co-ordinating all this labor that is performed at different times over to somebody else, that person becomes a capitalist. They must choose between the somewhat cumbersome method described above, or the less cumbersome method of buying and selling; between waiting until the shoes were actually sold to a consumer and then dividing

the proceeds among themselves or receiving their wages soon after their work is done. In a very strict and exact sense the capitalist is the co-ordinator of labor that is performed at different times. Whether this work is productive or not may depend upon how one defines the word productive. If one will compare the cumbersomeness of the method where the laborers do their own co-ordinating with the one where it is done for them by somebody else, one will see very clearly that they save themselves a great deal of trouble by letting somebody else do it. If they are not convinced by this kind of reasoning, but insist on eliminating the capitalist, they will certainly be convinced by their own experience that it is much more trouble to get along without the capitalist than to get along with him.

The state as capitalist.

It is sometimes proposed, however, that the State should become the capitalist. Instead of proving that the capitalist is unnecessary, this proposal proves that he is necessary. Otherwise why have the State do it? The most that could be proved by a supporter of this proposal would be that the State might do the work of the capitalist better than it can be done by private individuals. But the *work* is necessary and if private individuals do not do it, the government must. Conversely, if the government does not do it, private individuals must. If the States does it, it must hire officials to do it and pay them salaries. If private individuals are expected to do it, they must be paid also. What they get is called interest. The question is, is it better to pay salaries or to pay interest for this work? General experience seems to show that it is better to pay interest.

Voluntarism vs. compulsion.

Another question that always comes up when the organization of industry is discussed is whether the organization shall be based on authority and obedience, as in the case of an army, or on voluntary agreement, as in the case of an ordinary business. There is much to be said on both sides. For quick results, or where everything else is to be sacrificed for immediate results, the authoritarian method seems superior. For the long run and for durable results, the voluntary method seems superior. It is much more pleasant, to begin with, to work with and for whom you choose than to be commandeered. If time be taken and patience exercised, volunteers can be secured to man an industry and it is not necessary to commandeer them. If too many want to do one kind of work and too few another, some of the former can be commanded to change. Under the voluntary system the only way to get them to change is to make the overmanned occupation less attractive, the undermanned more attractive, or both.

Choosing one's own form of "slavery."

It is sometimes asserted that this so-called voluntary system leaves men no freer than the compulsory system, that the only difference is that in the one case men are coerced by circumstances and in the other by human authority; that, at best, the voluntary system merely enables a man to choose his own particular form of slavery. Very well, even this is less unpleasant than to have one's form of slavery chosen by some one else. Let us grant that, after a man has chosen his occupation he becomes a slave to the circumstances surrounding that occupation. If he chooses a mechanical trade he must walk

the straight and narrow path of mechanical skill and efficiency; if he chooses a scholastic trade he must become the slave of the midnight lamp; if he chooses a profession he is bound by the rigid conditions that make professional success possible; if he chooses a business career he is thereafter driven by circumstances and not by his own preferences. Nevertheless, he is a free man and not a slave in the sense that African negroes were formerly slaves. They could not even choose their form of slavery. They were coerced not simply by the circumstances of their work, but by the authority of their owners. It is difficult to fathom the motives of those who refuse to see a vast human difference between these forms of so-called "slavery";[3] or who insist that every one who is rewarded for doing that which he does not like to do is "coerced" by the hope of the reward.

Voluntarism not anarchy.

Anarchy in industry is even applied to the present system of industry, under which new enterprises are undertaken by individuals here and there, actuated by the hope of profit, with no conference or connivance one with another, and no single co-ordinating intelligence directing them all. It is difficult for some people to see that there may be a very perfect organization, a highly integrated industrial system, with each industry fitting into the whole system, and all working in a state of balance, when each participant is motivated mainly by the hope of individual advantage in the form of wages, interest, rent or profit. One only needs to consider from what widely different sources and through what a multitude of chan-

[3] See article entitled "Coercion and Distribution in a Supposedly Non-Coercive State," by Robert L. Hale, in the *Political Science Quarterly* for September, 1923.

nels the various articles arrived at his breakfast table, and with how little noise and confusion they were assembled, to convince himself that there is organization in this system. On the whole, the organization is more generally perfect, all the odds and ends are more intelligently looked after, when every individual is looking for opportunities to do something for which he can be paid, than when all this is left to some supreme, directing intelligence that undertakes to see that everything is properly co-ordinated. The Bolsheviki found that no supreme intelligence existed that could look after all this vast array of details as well as they could be looked after by a multitude of intelligences, each one looking for a chance to do something for which some one else would pay him.

Danger of overlooking needs.

The reason lies at the foundation of all economics. Where a conscious need exists there is a market for the thing needed. This makes it fairly certain that no real need will be overlooked by the person who feels it. If he has anything to offer, he will at once begin offering something for the thing that he needs. While the supreme intelligence may overlook many such things, the people who need them are not likely to. The people who want money will pretty generally be offered money for the supplying of needs, however minute or detailed those needs may be. At least needs are less likely to be overlooked under this system than under a more ostensible type of organization where everything is directed from the top.

CHAPTER XII

THE INVESTOR AS THE DIRECTOR OF HUMAN ENERGY

The greatest social service.

A few years ago some Radcliffe students came to the writer for his opinion as to the most important kind of social service open to women. After safeguarding himself by saying that a great deal depended upon the woman's capacity and training, he affirmed that investment banking was probably the most-needed kind of social service at that time. The students were somewhat taken aback and asked if that was not a money-making occupation. The answer was that it would be a money-making occupation to any one whose wisdom and training would justify her in entering the field, whereas if she lacked adequate wisdom and training, it would be a money-losing occupation, but that would be a sufficient reason why she should not enter the field.

Loss through bad investments.

This conference took place shortly after the failure of several large banking institutions in Boston that had been started and managed by men who lacked financial wisdom, but who relied mainly upon their demagogic skill. Through demagogic appeals they had secured a great many millions of deposits of the hard-earned money of large numbers of poor people. These poor people lost

their money. Of course, some one else had the money; the money itself was not destroyed, but there had been a terrific economic waste nevertheless. The essential nature of the waste, as of all real waste, was a waste of man power, or of human energy. The money had been used to hire men to do things that were not worth doing, to start enterprises that were doomed to failure, to buy buildings or hire men to erect them where buildings were not needed—in short, a vast amount of man power had been misdirected, and there was nothing to show for it either in the assets of the banks or in the community at large. If those millions and millions of dollars had been put into the hands of sound investment bankers, they would have been used to hire men to do things that were worth while—that needed doing. Not only would the banks have had valuable assets to show for the money spent, but New England would have been many million dollars richer in real resources—that is, the work done by the man-power hired with all this money would have been embodied in buildings, machines, tools, equipment, etc., that would produce enough to pay for what was expended upon them. There would have been more industries or better-equipped industries in New England. This would have given more employment or better employment to the New England laborers, and the general economic condition would have been much improved. Since all this was wasted, practically everybody was worse off by reason of the bad financial management of the fair-weather banks. That was the reason for the answer to the question of the Radcliffe students. The same answer is generally applicable to most times and places.

The most-needed man.

The writer desires to emphasize still more, if possible, what he then said with respect to the importance of the investor. He is convinced that the most-needed men at the present time, and at practically all times in our modern industrial system, are wise investors. Any one who does a kind of work that is needed is doing social service. It is not necessary for one who is doing a much-needed work to stop doing that and do something else in order to perform social service. It is not even necessary that his work should be philanthropic.

How to give to the poor.

If you happen to have a few hundred dollars and to know some people who are in need, it is a very simple matter to give them your money. But after you have given them your money, that is the end of your power to help them with money. If, on the other hand, you happen to have some productive work which they can do, you can give them the same amount of money in exchange for their work. This will do them just as much good as though you had given them the money outright. If the work you give them is really productive, you will have their product in return for your money. When this is sold, you will have more money to give them. Again, you can give this new money to them outright, or you can give it to them in exchange for more labor, with the same results as in the first case. No matter how often it is repeated, you will be able to give them more money and do them more good over longer periods of time if you continue to hire them to do productive work than if you try to give them money outright.

It is hard to give productively.

It is very much harder to find productive work for poor people to do than to give them alms. It takes a much smarter man to organize and direct them so as to get back from the sale of products the money paid them as wages than to give them money without expecting any return. The man who can do the former is much harder to find, and, when found, is of more benefit to the poor than the man who merely doles out gifts. Consequently, the man who gives people productive work is more worthy of honor, respect and everything that men care for than the man who gives them alms. If the people are in the habit of giving more esteem to the almsgiver than to the workgiver, it is due either to their ignorance or to their perverted notions as to what is good for them.

A laboratory test.

Let us imagine two towns which we shall call Worktown and Doletown. In Worktown the prevailing idea is that it is better to find productive work for people than to give them alms, whereas in Doletown the opposite idea prevails. In Worktown, every one who gets a little surplus money is encouraged by the prevailing sentiment to invest it in some productive industry, which means to hire men to develop and run industries. In Doletown every one who has a little extra money is encouraged to give it in charity. Worktown will soon be filled with productive industries, whereas Doletown will be filled with charitable institutions. Worktown will become attractive to people who want work and they will migrate from Doletown and other places to get it. Doletown will become attractive to people who want charity rather than work and will be filled with such people. However,

Worktown will soon be so filled with prosperity, and the people will have so much money that the charitable institutions of Doletown will soon be going to Worktown asking for money to pay their deficits.

What to do with money.

It is impossible to escape the conclusion that, generally speaking, the best thing you can do with any surplus money you happen to have is to invest it in a productive industry if you know how. That is, if you really know how to hire men to produce something which you can sell for enough or more than enough to replace the wages you pay them, that is the best way to help them. Your power to help is not exhausted but is preserved or increased. If you do not yourself know how to do this, and there are not many who do, you may know of some productive industry which can use your surplus productively. If so, that industry can and will pay you a reasonable interest. But unless you are something of an expert in such matters, you would do better to entrust your money to some tried and proved expert. In other words, you would do well to deposit your money with some savings bank that has been running successfully for a long time, and has weathered a number of financial storms without loss to its depositors. It is the special business of such an institution to find men or industries that can use your money productively, that is, hire men to produce things that can be sold for more than enough to replace the wages.

The place for charity.

There is still room, however, for charity. If you know a poor person for which neither you nor any one whom

you know is wise enough to find productive work, nothing but outright charity will help that person. If wages or other stipends are paid for anything but productive work, whether by the State or by an individual, it is charity. At best, charity is a confession of lack of sufficient wisdom to do anything better; but there is a plentiful lack of wisdom in the world and we might as well confess it. Meanwhile we should study to acquire the wisdom that will make charity unnecessary, either by public or private agencies. There is only one possible way to do that, and that is to find ways of paying people for productive work that will not diminish your power to keep on paying them.

The lengthening process of production.

Investment has become one of the most important and delicate of all economic functions. As we saw in the preceding chapter the modern age of machinery has greatly lengthened the process of production. Labor performed at widely different periods of time must be co-ordinated. The investor of capital is the co-ordinator. It requires a higher degree of intelligent foresight to co-ordinate labor that is performed at widely separated periods than to co-ordinate labor that is performed at less widely separated periods of time. The opportunities for successful co-ordination are great; but the danger of making mistakes is correspondingly great. The country with the largest number of wise investors or with the wisest group of investors will waste less of its man power than the country with a smaller number, or with less wise investors. The country that wastes the least possible man power is the country that will prosper most.

The wise investor is an economizer at the source of all economy.

The writer is convinced that the most-needed men at the present time in our industrial system are the wise investors. An investor is merely one who buys producers' goods instead of consumers' goods. He who spends a dollar or a million dollars for consumers' goods virtually turns the productive energy of the community toward the production of consumers' goods to the extent of his purchase. He who buys tools to the extent of a dollar or a million dollars, similarly turns the productive energies of the community toward the production of tools to the extent of his purchase. Provided he was wise in his choice of tools, the world is a great gainer because of his purchase. That is to say, if he selects for purchase the kind of tools which are needed to set labor to work and to provide the necessaries of life, the investor is a great benefactor. If he is unwise in his choice, that is, if he purchases tools which are not needed and cannot be profitably used, he is a waster of the energies of the community. Nothing can be more important, therefore, than that there should be a good many wise purchasers of tools, that is, wise investors. The more such men there are and the wiser they are, the more rapidly will our industries expand, the more employment there will be for labor, and the higher the laborer's wages will be. The fewer such investors there are and the less wise they are, the less will our industries expand, the less employment there will be for labor, and the less well will our people be supplied with the necessaries of life. Because there are so few really wise investors, and because so many more are needed than we have got, the few who are really wise in their purchases of tools become very pros-

perous. The cure for this is obviously not to attack them and make them still scarcer, but to encourage them and make them more abundant.

Where man power is needed.

That the labor power of the community should be directed into those channels of production where it is most needed and where its productivity would be highest, is too obvious to need much discussion. To allow a part of the limited supply of any factor to be used for a less productive purpose when it might have been used for a more productive purpose is only a little less wasteful than to allow it to remain unused altogether, or to be destroyed absolutely. For purposes of illustration, let us take the case of an irrigation project where there is more land to be irrigated than can be irrigated with the limited supply of water. Let us also think in terms of the whole community and its growth and prosperity rather than in terms of any individual or group of individuals and his or their prosperity. The problem would be so to use the limited supply of water as to produce the maximum supply of the products needed or demanded by the whole community.

Irrigation water may be used ineffectively unless it is conserved.

Assuming that all the water available is stored and utilized in irrigation, four particular forms of waste would have to be guarded against. In the first place, there would be the possibility of using some of the water on poorer land while better land was left without water. To use water on land which would yield only twenty-five bushels of wheat per acre when it might have been used on land which would yield fifty bushels per acre would be

exactly as wasteful as to allow half of it to run away unused and use the other half on fifty-bushel land. In the second place, there is the possibility that some of the water would be used in growing a less valuable crop when a more valuable crop might be grown. To use water in the growing of a crop which is worth only twenty-five dollars an acre when it might have been used in growing one that would be worth fifty dollars an acre is, again, exactly as great a waste as to let half of it run away unused and use the other half on the fifty-dollar crop. Reservations must be made, of course, in favor of less valuable crops, when evaluated under a short-sighted policy, which under a far-sighted policy, are seen to be valuable for purposes of rotation and the preservation of soil fertility. Other reservations must be made against crops which are valuable because of a popular demand, when superior wisdom would pronounce the demand to be vicious. In the third place, there is the possibility that some of the water would be used by a less skillful farmer. Continuing our comparison: To allow water to be used by a farmer who can only make it produce twenty-five dollars worth of stuff when it might have been used by a farmer who could make it produce fifty dollars' worth is exactly as great a waste as to allow half of it to run away unused and allow the other half to be used by the fifty-dollar farmer. In the fourth place, and this is the greatest danger of all, there is the possibility that certain fields will receive so much water as to make the marginal productivity of water low, while others receive so little as to make the marginal productivity of water high. In such a case the total product of the community would be increased if the water could be more evenly distributed between these two classes of fields.

Marginal productivity.

Marginal productivity is a term perfectly well understood by academic economists, but not in current use among the laity. When applied to the use of water on a given irrigated field, it means the additional crop which results from the last inch of water used, over and above what would have resulted if one less inch had been used. If, for example, forty-eight inches are used on a given field, how much larger crop will be grown than would have been grown if forty-seven had been used? Or, if forty-eight are used on one field, and forty-seven on another in all other respects alike (if that can be imagined), how much more will be grown on the one field than on the other? Now there is a limit to the quantity of water which can be advantageously used on a given field. Let us assume that on the irrigation project which we are now discussing, seventy-two inches is the maximum quantity of water which can be advantageously used on any of the land. Seventy-one inches would be almost as good as seventy-two; that is, the difference in the product would scarcely be perceptible; whereas seventy-three would produce actually less, though very little less, than seventy-two. At this point, the marginal productivity of water is very low, practically nil. That is to say, the fields that are receiving seventy-two inches of water yearly would produce practically as much with seventy-one inches, and if they were cut down to sixty inches it would not greatly reduce their productivity. Suppose, however, that there were other fields for which there were left only forty-eight inches. This quantity is so small that the land only yields half the crop of which it is capable. Twelve inches more would make a great difference. Then it would be more economical to cut down to

sixty inches the quantity on the land which had formerly been getting seventy-two inches, in order that the land which had formerly received only forty-eight might be raised to sixty likewise. If this would reduce by ten bushels per acre the crop on the land which had been getting seventy-two inches of water, and increase by twenty-five bushels the crop on the land which had formerly received only forty-eight inches, there is a gain of seven and a half bushels per acre on the average of both classes of fields.

How can these forms of waste be prevented? The farmer with the poor land wants water just as badly as the farmer with good land and will clamor just as loudly for it. The farmer who is growing a less valuable crop wants water as badly and will clamor as loudly as the farmer who is growing the more valuable crop. And especially is it true that the unskillful farmer wants water just as badly and will clamor as loudly as the skillful farmer. Finally, the farmer who is getting sixty inches of water, if he is convinced that seventy-two inches would increase his crop by ten bushels per acre, will be quite anxious to get that extra twelve inches. He is likely to be less concerned over the increase of the average crop of the community by seven and a half bushels per acre, than over the increase of his own crop by ten bushels per acre.

Administrative distribution of water is cumbersome.

If these various controversies were to be settled by any kind of political action, or by commissions or arbitration boards, there is no certainty that the owners of the poorer land or the growers of the less valuable crops would not command more votes and therefore get more consideration that the owners of the better land or the

growers of the more valuable crops. Since unskillful farmers always outnumber the skillful, and are generally poor while the skillful are rich, there is almost a certainty that the former could outvote the latter, and create more general sympathy besides among the non-agricultural classes. The only one of the four forms of waste which any kind of political control would be likely to prevent would be the last; but even this would be uncertain. A political or popularly controlled board or commission would almost of necessity be compelled to decide in favor of an equal number of inches for all lands. This would work well enough if it were true that all lands required equal quantities of water, or that the marginal productivity of water were equal on all lands. This is by no means true, and in case it is not, this rough and ready rule of equality would prove to be uneconomical. That is, the probabilities are that some land ought, in the interest of a larger product for the whole community, to have more water than the other land. The same may be said of men. Some men know how to use water more productively than other men. In the interest of the maximum production for the whole community, those men who can use water most productively should have it, or, at least, have more of it than others.

The argument may thus be summarized by saying that the available supply of water should go into the better rather than the poorer land, should irrigate more valuable rather than less valuable crops, should be used by more skillful rather than less skillful farmers, and that it should be so distributed among the various fields, crops and farmers as to give it approximately the same marginal productivity wherever it is used. If one field, crop, or farmer is getting so much water that a little less would

make very little difference, while another is getting so little that a little more would make a great difference in the crop, then the water should be redistributed so that one inch more or less in one place would make as much or as little difference as it would anywhere else. How can some approximation to this result be secured?

Competitive purchasing has its drawbacks, but is economical.

In parts of Spain, as well as in other countries where irrigation has been practiced for thousands of years, a certain portion of the irrigation water is sold at auction or by some form of competitive buying. It would be too much to say that this method prevents all the forms of waste which have been mentioned above. That is too much to say of any system or plan which man devises or operates. It is probable, however, that this method comes as near eliminating waste, or securing the maximum economy of water as any method that has ever been devised, or is likely to be devised very soon. When water is sold to the highest bidder, the cultivator of good land can, other things being equal, afford to pay more for it than the cultivator of poor land, the grower of a more valuable crop can pay more for it than the grower of a less valuable crop, the skillful farmer can pay more for it than the unskillful farmer, and the farmer whose crop would be greatly benefited by a little more water can pay more than the farmer whose crop would only be slightly benefited. Since each unit of water should go where its productivity would be greatest, and since the highest price can be paid without loss on the investment by the one who has the most productive use for it, it follows that the water ought to be distributed to the highest bidders, as-

suming, still, that the purpose is to secure the largest total crop for the whole community. No other method or system has ever been invented, even on paper, much less put into successful operation, which comes so near the realization of the highest economy of water as this time-honored method.

The principle involved here is very much the same as in the European versus the American plan of dining at a hotel. The American plan, where the guest pays a fixed sum and then eats whatever he wants, is notoriously wasteful. The European plan is more economical of food, though it sometimes leads thrifty or impecunious persons to take insufficient nourishment. When the farmer pays a fixed sum for water, he is likely to use it somewhat uneconomically unless he is closely supervised by some public authority. Where he pays for just what he uses, it may sometimes lead to over economy. The choice, therefore, is between administrative supervision on the one hand and competitive buying of water on the other, as means of preventing the wasteful use of water.

Productivity of water not likely to be questioned.

This rather long illustration has been used for two reasons. In the first place, the buyer of irrigation water is an investor in the strictest sense. He buys a productive agent in the expectation that the sale of its product will recoup him for its purchase price. Moreover, the price which he is willing and, in the long run, able to pay for the productive agent, is determined by the anticipated value of the product. In the second place, water is tangible and its productivity in a dry country verifiable: more water, more crop, less water, less crop. No irriga-

tion farmer is ever bothered by quibbles as to whether water is productive or not. The perception that an increased crop follows an increased application of water furnishes him as good a theory of economic causation as he needs in his business.

Every investor is a purchaser of productive agents.

Every investor is the purchaser of productive agents of one kind or another. His inducement is the hope that he may sell the products for enough to recoup him for the purchase price and leave him a surplus besides. If the product does not materialize or prove as valuable as he had anticipated, he loses rather than gains. As with water, so with every other productive agent: It is for the interest of the community as a whole that it shall be used as productively as possible. Society is injured whenever any agent of production is used less productively when it might be used more productively, whether the agent in question be water, mowing machines, steel rails, or labor.

Hiring labor and buying water are somewhat similar operations.

The purchasing of labor to be used in the cultivation of land bears a pretty close analogy, so far as our present discussion is concerned, to the purchasing of water to be used in the irrigation of land. Certainly, all four forms of waste are found here, and need to be guarded against. The maximum productivity is secured only when it is used upon better rather than upon poorer land, in the cultivation of more valuable rather than less valuable crops, when it is directed by more skillful rather than less skillful employers, and when it is distributed among the various fields, crops and employers in such

proportion as to give it approximately the same marginal productivity wherever it is used. On the last named point, another way of saying the same thing would be to say that the laborers of a given class should be so distributed as to make each one worth, where he happens to be working, as much as any other is worth where he happens to be working. Or again, if it can be said of any one of them that his productivity would be greater if he were removed to another farm, to another crop, or put under another employer, then the labor force is not being utilized with the maximum economy. One reason why a given laborer may be uneconomically employed would be that there are too many others like him working on one farm, while too few are working elsewhere. A better distribution of the laborers, so that none of them could be moved advantageously to other employment, would give the highest advantage.

Competitive hiring of labor likely to be economical from the social point of view.

How can this advantageous distribution of the labor supply be secured? Not by boards or commissions, apparently, but by the time-honored process of competitive bidding. Let each laborer work for the employer who can pay him the most, and the chances are that he will find the place where his productivity is the highest. Of course it cannot be said that this is absolutely certain. Nothing in this world is absolutely certain except death. It is a question of a greater or less approximation to certainty. No other method has yet been devised which, even on paper, approximates so nearly to certainty. The farmer with good land can, other things being equal, pay more for a given quantity of labor, or the same for a

larger quantity than the farmer with poor land, for the simple and sufficient reason that labor is more productive on good than on poor land. The farmer who is growing a more valuable crop can, other things being equal, pay more for labor than the farmer who grows a less valuable crop. The skillful farmer can, other things being equal, pay more for labor than the unskillful farmer. And finally, the farmer who is under-supplied with labor can, other things being equal, pay more for *additional* help than can the farmer who is over-supplied with labor. In fact, the former can afford to hire a fragment, more or less large, away from the latter because the former can pay such a price for it as would cause a loss to the latter if he continued to hire it at that price.

A bad investment almost the most wasteful thing short of absolute destruction.

All investments are fundamentally alike in these respects. They consist in buying agents or instruments of production and directing them into special fields of production. All investors are therefore automatically charged with the responsibility of preventing the productive energy of the community from going to waste. To turn any kind of productive energy in the wrong direction is the one great social waste involved in a bad investment. The mere fact that the investor loses his money is of no social consequence. The money is not lost to society unless it gets into the hands of a greater waster than the one who lost it. But if as a result of the bad investment, a lot of productive energy has been misdirected, or a quantity of labor has been misapplied, there is a fundamental, irreparable loss to society. For example, if one is persuaded into paying a vast sum

of money for something which cost nothing to produce, and is of no use, there is very little social waste; but if one is persuaded to buy a million dollars' worth of labor and to apply that labor in the production of something which is of no use, it is all wasted. To be more specific: If you are persuaded to spend a fortune on a gold mine that never existed, on which no labor has been spent or will be spent, somebody gets your money and you lose it. Society has lost nothing unless the other man will use your money even more wastefully than you have done. But if you are persuaded to spend your money hiring laborers at great expense to dig a hole in the ground seeking gold when there is no gold there, or digging for brass as was actually said to have been done by an Ohio woman, all that labor is wasted. It should have been used in producing something that would have benefited society. If you are such a poor investor as to misuse your power in that way, it is to the advantage of society that you be put out of the game, that you lose your power of investment, that is, your power to misdirect and waste the productive power of the community; in short, that your money be taken away from you. The more speedily you, and others like you, can be eliminated the better, because the more bad investors there are like you, the larger the proportion of the productive energy of society which will go to waste in futile and unproductive work. The smaller the proportion of such bad investors the less the fund of energy which will thus go to waste.

Another point to be observed is that one of the functions of the investor is to act as a shock-absorber or an insurer of society against waste. The fund which you

invested, in the foregoing illustration, has been put up as a kind of insurance fund to recoup society for the loss of the labor power which you misdirected. Whether it be a hundred dollars or a million dollars which you have used to purchase labor for unproductive work, the shock of its loss falls upon you primarily; whereas before the investment you possessed a fund of value, after the investment you possess it not. It has gone to replace the waste which you have occasioned.

Investing is competitive purchasing of productive power.

There are two very strong reasons why the direction of investing should be left primarily and mainly to private investors. Investing is competitive bidding for the productive energy of society. In this process of competitive bidding, they who direct the energy of society most productively win and stay in the game; they who direct that energy least productively become bankrupt and are eliminated, leaving the direction in the long run in the hands of the more efficient directors, or those who have managed in some way to make the productive energy which they have directed produce more than it has cost. There is no automatic method or any other method that has ever been devised by means of which men in a government office, working on a salary, can be thus selected for the direction of the productive energy of society. In the first place, since such public officials would not be investing their own but other people's money, they cannot act as shock-absorbers or insurers of society. They put up nothing with which to recoup society for the loss occasioned by their mistakes or their misdirection and misapplication of the labor power of the community.

Some men have a genius for inventing, others for investing.

A great deal has been said about the genius of the inventor, the man who devises mechanical improvements which add to the productive power of the community. Some men seem to have a genius for invention; and it would be difficult to calculate the benefits which they have brought to society. We sometimes think, however, that it is unfortunate that they do not themselves reap pecuniary rewards commensurate with their contributions. We have not often stopped to ask ourselves what would have happened if large funds of wealth had been put into the hands of these men who have a genius for invention but who, in some cases at least, have lacked the genius for investment. If they have lacked a genius for investment it means that they would have spent their wealth in such ways as to waste the productive energy of society. Whether this productive energy is misdirected by a saint or a sinner, a genius or an imbecile, makes very little difference. Waste is waste. The productive power put into the digging of a hole in the ground is thrown away as absolutely if it is directed by a scientific inventor as it would be if directed by a superstitious old woman.

Comparatively little has been written about the genius of the investor, for some men have a genius for investment. They seem to know almost intuitively the difference between an expenditure of productive energy which will be highly productive and an expenditure which will be less productive. The more such geniuses any country can produce the more productively will the energy of that community be directed; or, with a given quantity of this kind of genius, the more control over investment they can be given the more prosperous will the country become.

If, therefore, there should be an inventive genius who is absolutely lacking in the genius for investment, it is rather fortunate for the community that he should be kept busy with his inventions and not be diverted from the field in which his genius lies into a field where he would be a bungler. On the other hand, if there can be such a thing as a man with a genius for investment who is absolutely lacking in genius for anything else, it is highly important that he should be kept busy with the work of investing capital and not be allowed to turn aside into some field where he would be a bungler. So much is almost self-evident.

The real question then is: How can we pick out the men who have a genius for investment? Going back to our illustration, how can we pick out the men who have a productive use for water and know how to use it productively? The only method is, the method of trial and error. They who succeed in the long run in making water produce abundantly will stay in the game; they who fail will be eliminated. In a larger sense they who succeed in the long run in so directing any kind of productive energy through their investment, that is, through their purchases of productive energy, as to make it highly productive will stay in the business; the others will be eliminated and forced into other fields where they cannot do so much damage, or possibly where they may prove to be highly efficient.

What is wealth for?

This whole argument is based upon the assumption that wealth is to be used for the purposes of further production rather than for the purposes of immediate self-gratifica-

tion. From the standpoint of immediate self-gratification we may all feel, and probably do feel, and rightly feel, that the inventive genius has as much right to the immediate gratification of his appetites as has the genius for investment. If our chief concern is, therefore, with immediate self-gratification, or the general use of wealth for gratification, then we might quarrel with this situation and hold that the inventive genius should be given more wealth than is given to the investor to use for his own pleasure; but if we hold that wealth should be used as far as possible for the purposes of further production—for nation building—for future generations—then we must agree that it is important that its direction should be in the hands of those who are most skillful in that work, who can pick out more skillfully than others the industries which need expansion and turn the productive energy of the community into their expansion; who can pick out better than others the locations for the new productive establishments and the men to superintend the detailed work of those establishments. We must agree that these men should have the power to determine the industries to be established, their locations, and the men who are to superintend them.

On the choice of the investor depends the whole question of the direction in which the productive power of the community is to be turned. A mistake on his part occasions greater economic loss than a mistake on the part of anyone else. A wise decision on his part brings greater economic gain than a wise decision on the part of anyone else. It is of the highest social importance, therefore, that power shall be given to him that hath this wisdom and shall be taken away from him that hath it not.

This is not an unqualified endorsement of big business.

So far, this argument may seem to be an unqualified endorsement of the methods of big business, or a laudation of the successful man. It is, provided the big business is genuinely productive and not merely acquisitive or predatory, and provided the successful man has earned his success by methods that enrich the community as well as himself. This is a very important proviso. We do not always distinguish as sharply as we should between efficiency in production and efficiency in bargaining. As applied to the question of the successful investor, we need to know very clearly whether his success is due to his wisdom in selecting genuinely productive enterprises, or to his ability to beat someone else in the bargaining process. If, for example, in his dealings with the inventor, he merely takes advantage of the latter's inexperience and swindles him out of his invention, the investor is not an investor at all. He is a swindler. The fact that the inventor was swindled merely proves that he was a poor bargainer, not that he was a bad investor. It is scarcely necessary to say that no social purpose is promoted by putting wealth and power into the hands of swindlers, or taking it away from poor bargainers.

If you are a skillful bargainer and able therefore to buy a productive agent for less than it is worth, and sell its product for more than it is worth, you may succeed as a quasi-investor in spite of the fact that you are not directing the productive energy of the community in the most productive channels. There are many ways by which you may gain an advantage in bargaining which bears no relation to your skill or efficiency as an investor. The most conspicuous of these at the present time is monopolization.

Monopolization not investment.

The problem of monopolization is complicated by the fact that every monopoly must produce something useful or render some genuine service. The power of the monopolist, however, does not consist in the power to produce or render service. Others beside monopolists have that power. The power of the monopolist consists essentially in the power to prevent anyone else from producing the same thing or rendering the same service. That and that alone distinguishes the monopoly from the business which operates under competitive conditions. This power to prevent others from producing the same thing or rendering the same service is always a destructive power. In these fundamental particulars every monopoly is essentially like that of the man who operated a ferry boat across a western river, and increased his business and his profits by using his Winchester to prevent anyone else from starting a rival ferry boat and to prevent emigrants from fording the river at low water. Running a ferry boat was genuine service. His use of his Winchester was disservice. His ferry boat added to his efficiency as a producer, but gave him no monopoly; his Winchester added to his efficiency as a bargainer. It was his Winchester which gave him his monopoly power. His investment in a ferry boat was a good investment both for him and the community. His investment in a Winchester was a disadvantage to the community, though it may have contributed for a time at least to his success. When a deeply conscientious band of emigrants paid him for ferrying them across the river and hanged him for not allowing them to ford the river, they had solved the monopoly problem in strict accordance with the principles of ideal justice.

Bargaining skill.

This kind of discriminating logic needs to be applied in our judging the success of all investments. It is probable that no large success is achieved in this world without some elements of productivity or serviceability. Too frequently there is also a large element of bargaining skill as well. This is the reason that one is in great danger of being misunderstood by undiscriminating minds when one undertakes to show that the investor has a real and very important function to perform. Nevertheless, and at the risk of being misunderstood, one must conclude that the community which manages to put great investing power in the hands of wise and skillful investors (not bargainers) will prosper out of all proportion to the community which keeps investing power out of their hands and puts in into the hands of mere vote-getters. The community where genuine investors are encouraged to exercise their skill, to profit by it, and to reinvest their increasing incomes is the community where production increases most rapidly, where the opportunities for other people expand most rapidly, and to which other people as well as investors flock in the greatest numbers. Even they who inveigh against the success which comes to investors in such a community very much prefer to live there and carefully avoid a community where investors have been held in low esteem or refused the opportunity to exercise their peculiar gifts.

Luxurious consumption does not add to the employment of labor.

The importance of the function of the investor in the economy of the productive power of a community is seldom fully appreciated. To understand this function

thoroughly we should go back to some of the elementary facts of economics. In the first place, the investor is a buyer of producers' goods as distinguished from consumers' goods. The investors' market is a place where producers' goods are bought and sold in the same sense that the consumers' market is a place where consumers' goods are bought and sold. When many people are buying on the investors' market, it means that there is a great demand for producers' goods. The choice of the buyer is about the most elementary fact in determining the general direction of industrial development. If I have a dollar to spend and choose to spend it for confectionery, I increase the demand for confectionery to the extent of a dollar and to that extent tend to call the productive energy of the community into the confectionery industry. Whether it be a dollar or a million dollars, the principle is the same. If instead I had decided to spend the dollar for millinery, to the same extent I should have called the productive power of the community into the millinery industry. If, instead of spending my money for confectionery or millinery or any other consumable article, I had chosen to spend that dollar for some kind of tool, say a spade, I should have directed the productive energy of the community into the tool-making or spade-making industry. When I chose to spend my dollar for tools rather than for consumers' goods, I become an investor. The more people there are who become investors, the greater the demand for producers' goods, and the larger proportion of the productive power of the community is turned to the tool-making industry, or the industries which build productive enterprises.

Carrying out the same method of analysis we see that a great deal depends upon the *kind* of producer's goods

which I choose to buy with my dollar, or with my million dollars if I had that many. To invest in producers' goods that do not happen to be needed is not only to waste my money but to waste the productive power of the community. Money which is spent by investors for a given kind of producers' goods directs the productive power of the community into that particular line. And if the products are not needed, then all that productive power is gone to waste. An unskillful investor is therefore a very wasteful factor in society. Conversely, a skillful investor who makes no such mistakes, who always buys producers' goods which are needed, is one of the greatest conservers of human energy which any community possesses. A genius for investment may be less spectacular than a genius for invention; but it is, if there is any difference among geniuses, the more important of the two. Unless investors are born and not made, we must assume that it is possible to train investors, if we can only discover the right educational method. A school of business which would really train, not only captains of industry, but successful investors, would probably do more for the conservation of the productive power of the nation, and also for the improvement of the wages and conditions of living of the laboring classes, than all the radical programs of social reform that were ever invented.

Blue sky laws safeguard investors.

Much can doubtless be done to prevent wasteful investment by legal restriction. Probably the so-called Blue Sky Law, if it can be effectively enforced, would prove to be one of the most constructive pieces of legislation that have been enacted in this country in recent years,

though first place must, of course, be given to the restriction of immigration.

The facility with which unskillful investors are persuaded to waste their money in bad investments, seems to call for some kind of legislative protection. The kind of legislative protection which will protect these unskillful investors against the results of their own stupidity may seem somewhat sentimental; nevertheless, we cannot deny that a vast quantity of capital which might float into productive industries is thus squandered and misdirected, and that this misdirection not only wastes the money of the stupid investors (which is the least of the evils connected with it) but it tends to divert the productive power of the community into wrong channels, which is a matter of much more consequence.

Investors and pawn brokers.

It ought to be pointed out that not all bankers are investors or investment bankers. There is a kind of banking that is only a more genteel form of pawn-broking. The banker whose skill consists solely in being a good judge of collateral does not differ fundamentally from the ordinary pawn broker who shows the same kind of skill, though he may deal with a different kind of collateral. The banker who makes it his business to finance productive enterprises, whether on a large or small scale, must be a good judge of productive enterprises as well as, or perhaps rather than, of collateral.

Ancient views on interest.

The difference between lending money for productive and for non-productive purposes probably goes a long way toward explaining ancient prohibitions of interest.

In general it is a bad policy to borrow for non-productive purposes. A man who in an emergency is compelled to borrow in order to buy the necessaries of life is in need of charity rather than of a business loan. Before the days of mechanical inventions there were not many occasions for strictly business loans of any kind. Very little capital was used in any kind of business or industries. Practically all borrowing was either by men in dire necessity who really needed help rather than a business loan or by men who did not need a loan at all, but who were thoughtless enough to think they did. A man who then, as now, borrowed in order to buy an article of consumption which he could not pay for at the time was headed toward trouble. The thing he bought did not help him in his business or add to his income. If he could not accumulate the money in advance with which to pay for it, it was extremely doubtful that he could ever pay for it. The unwisdom of this was so patent that the moral leaders tried to protect him as we now try to protect drunkards, by punishing the man that loaned him what he demanded as we now punish the man who sells the drunkard what he asks for.

Importance of the investors market.

So difficult has become the function of the investor, with the vast growth of mechanical inventions and capitalistic production, and so great are the penalties for bad investment, that the prosperity of the whole modern world hangs on the condition of the investors' market. Overinvestment in any large or important field such as railroads, automobiles, etc. resulting in the waste of vast quantities of man power may precipitate a financial panic from which recovery is a matter of months or years.

New investors with little skill.

A wide-spread knowledge of the principles of investment is also very much needed. Large numbers of people, formerly too poor to invest, have now risen into the investing class. We have our labor banks with millions of capital. We have the treasury of labor unions with other millions available for investment. We have literally billions of savings by middle class people. All these funds, unless they are merely to be hoarded, must be spent. If they are spent, it is highly important that they should be spent wisely. If the average saver knows enough to pick out an expert investor to spend his money for him, he will be fortunate. If he does not, there is likely to be a rich harvest for fake investors and others whose chief business it is to separate the unwise man from his money. In order to safeguard against this horde of unsound investors, the average man ought to know enough to discriminate between them and sound investors. The case is somewhat parallel to one which has already arisen in medicine. If the average man does not know the difference between a scientific physician and a quack, there will be a great harvest for the quacks. Similarly, if the average man does not know the difference between a sound and an unsound investor, there will be a great harvest for the unsound investors and a corresponding loss to the savers. Blue sky laws may furnish a partial protection, but at best this protection will be only incomplete.

A great many people have been misled into thinking that capitalists are parasites. This leads very naturally to the conclusion that laborers and others would be better off without capitalists. There is, however, the disconcerting fact that laborers generally seek countries

where there is an abundance of capital rather than countries where there is very little, unless there is something else in the form of free land or new mineral resources to attract them. Any country that tries the experiment of eliminating capitalists soon finds that it can't very well get along without them. If it eliminates capitalists within its own boundaries it must then get help from foreign capitalists.

The Soviet government of Russia has been trying for a long time to borrow a lot of money from foreign countries. They seem to be in no doubt as to what they want. They seem to think that if they had more capital than they now have they would be better off. They are even willing to pay interest on a loan if they can get one.

Of what use would this money be to them if they had it? The obvious answer is that they would buy equipment with it. They could provide themselves with steel rails, locomotives and freight cars for their railroads; tractors, plows and harvesting machinery for their farms; engines and machinery for their factories and mines. Why don't they make all these things for themselves? They have the raw materials and they have the labor. They have been taught to repeat the formula, labor produces all wealth. They have more labor than they know what to do with or can find employmment for. Why don't they produce wealth, including productive equipment?

Assuming that they have the technical training and general intelligence, they could undoubtedly produce all these things for themselves, but it would take time. It takes time to produce equipment economically. If they had to begin at the beginning and build their own shops for the construction of engines, tractors, machines, etc.,

it would take a very long time. If they had to go still further back and make their own tools for building their own shops, for constructing their own engines, etc., it would take still longer. The further back they go in the process, the more the story lengthens out until it begins to resemble that of the house that Jack built.

If they could borrow the money, they could buy these things at once to start their mines, start some of the machines to producing farm crops, start the railways to hauling them and the factories to working them up into finished products. There would be larger production, better wages, and better times for everybody. Clearly, it would be better for them if they could borrow the money and buy the equipment at once than to wait until they could produce all these things for themselves. They see this perfectly well and that is why they are so anxious to borrow money.

Of course if they would go to work and make their own equipment, they would then own it free from debt and save themselves the interest charge. But this would involve waiting, and people generally don't like to wait. They have to decide, therefore, between the inconvenience of waiting on the one hand, and the inconvenience of paying interest on borrowed capital on the other. There is no other alternative, unless they decide to go on a plundering expedition into foreign countries in order to get equipment without paying for it. If they want to own all their equipment free from debt and save themselves interest, they can achieve this more easily and quickly by borrowing than in any other way. If they borrow the money, buy the equipment, put it to work, and so increase the national income, they can then pay the debt, including interest, out of this increased national

income, and they could thus own their equipment free from debt more quickly than by making it themselves. This rests on the rather obvious proposition that it is easier to save out of a large income than out of a small income. By equipping their industries properly, they will have a larger income than they could possibly get without equipment. Having this larger income, they can then save enough to pay off the debt more easily than they could save enough to buy the equipment in the first place. The equipment really pays for itself.

To be sure, they would need to be very careful to buy only such equipment as would actually increase the national income. It is one of the easiest things in the world to mis-spend money, and one of the hardest to spend it wisely. If they mis-spend it, that is, if they buy things with it that do not increase the national income, it will be no easier to raise the money to pay back the debt than it would have been to raise the money at once without borrowing.

On a question of this kind, the same principle applies to national as to individual economy. A dairyman, let us say, has room for ten cows and can milk and care for them with his own labor; but he has only five cows. Being thus poorly equipped for dairying, he cannot make full use of his own labor or his own barns. He ought to have ten cows in order to get his maximum income. He has three honest courses open. One is to raise five more cows from calfhood. Another is to save money enough to buy five cows, and then buy them. The third is to borrow the money and buy them at once. The first and second methods are slow and expensive. His income will remain small because of this small equipment. It would be difficult, out of this small income, to feed the

five extra calves for three or four years; it would be still more difficult to save enough money out of such a small income to pay for the cows without borrowing. It would be much easier and quicker to borrow the money, buy the cows, increase his income, and out of this larger income pay off his loan. In this way he can become the owner, free from debt, of ten cows. He could continue to live as well as he had lived before, spending the equivalent of his former income on himself, and merely devote the additional income to paying off the debt. In this way the new cows, under proper management, literally pay for themselves. Such a debt is a self-liquidating debt in a double sense.

If, however, instead of spending the borrowed money for something that will add to his income, he spends it unwisely,—say for a pleasure car,—or if he mismanages the property which he buys with the borrowed money, he is headed for trouble. It will be no easier to raise the money after it was borrowed than it would have been to raise it without borrowing. He would better put off buying luxuries until he can save enough out of his income to pay for them. It is never a good plan to borrow for purposes of this kind. It is not safe to lend money except for productive purposes, and even then it is only safe to lend it to men who know how to manage productive property so as to increase their income. Where there are real producers who know how to manage property wisely, a lender is a real help and a very useful citizen. He is a means not simply of increasing the welfare of the borrower; he is also a means of increasing the national income by increasing the productivity of the borrower. Whether we consider a small dairyman's investment in some extra cows, an industrial corporation's enlargement

of his plant or a great nation's investment in additional means of production, the principle is always the same.

All this the Soviet government probably sees clearly enough by this time. The strange thing is that they did not see it before they destroyed so much Russian capital. If they had not been so crazed by the notion that all capital and capitalists are parasitical, they would not now be in such straits. They would have had capital enough to equip at least the essential industries. If they would even now begin encouraging their own people to save and accumulate capital and invest it wisely, they could soon have enough capital at home to supply their principal needs. But what encouragement has any one to save, to accumulate and to invest capital in Russia? Suppose some one did invest in some new equipment that would add to the national product, employ real laboring men and pay real wages out of real product, would the government or the people appreciate this service and reward it either with esteem or with money? It is more likely that they would, in accordance with their professed philosophy, punish him, their best friend and benefactor, both with hate and the loss of property.

So long as they maintain this hostile attitude toward capital and capitalists, it is not likely that they will ever have enough capital at home to equip their own laborers. If their laborers are poorly equipped, they cannot produce very much. If they do not produce very much, they cannot possibly get good wages. If they would permit some one to equip them properly, the laborers could get better wages, besides allowing something to the one who equips them.

It is their professed desire that laborers should own the equipment with which they work; that is, that factory

workers should own their own factories. There are two dishonest and three honest ways of doing this. The first of the dishonest ways is to take possession of existing factories by force. This may work the first time, but when they begin to look around for more factories to take by force, there won't be any. This is what they did at the time of the revolution; they have since learned that that was not a very profitable transaction. Since there is not any more capital in Russia to be seized and they are not quite ready to attempt to pillage other countries, they are frantically trying to borrow. The second dishonest method is to get possession of the government and, through the power of the government, to dispossess the present owners. This is the method of most socialists of the common garden variety. It purposes to proceed in a more constitutional and orderly manner. The economic results would not be very much better than those that followed in Russia. After the government has taken possession of existing capital and turned it over to the workers, it is not likely to be much better managed than it was in Russia after the workers took possession of it. The government that tried in this constitutional manner to take possession of capital would probably be as frantically trying to borrow money as the Soviet government is.

If the laborers want to own their own equipment or the factories in which they work, there are three honest ways by which it can be done. The first is to build their own factories. This would be a slow and laborious process, and they would not begin to get any wages until the factories were completed and ready to begin work. The second is to save up money enough out of their present wages to buy the factories in which they are now em-

ployed, or to buy new ones from contracting builders. This would also take some time. The other method would be to borrow the money and buy either the existing factories or have new ones built. If this would increase their incomes, then they could pay off the debt out of this increased income. However, it would not increase their incomes unless they could manage the factories approximately as well as they are now managed. Profits and dividends generally go only to those business enterprises that are peculiarly well managed. If the laborers own their own factories, eliminate profits and get the whole product, it is by no means certain that they will have higher incomes than they now get. If management slumps a very little, they would find that the whole product was not equal to the wages they are now getting. Assuming, however, that they could manage well or secure good management and thus increase their wages, it would be easier out of these increased wages to pay off the debt than it would have been to accumulate enough money in advance to buy the factories.

If the Soviet government will not permit those Russians who are in a position to do so to equip their industries, it must of course appeal to outside capitalists, but so long as the government is so hostile to capital and capitalists as to discourage accumulation at home, they need not be surprised if foreign investors are somewhat shy about entrusting their accumulation to a government that is definitely committed to the proposition that all capital and capitalists are predatory. How could an outside investor collect from the Russian government? There is a Janapese adage which says, "Don't lend to a monkey unless you can climb a tree."

CHAPTER XIII

PRODUCTION VERSUS PREDATION

Bigness no crime.

So much has been written in a demagogic vein about "big business" that the idea is gaining ground that bigness is a crime. This is in line with another popular idea, namely, that it is the duty of the government to protect the weak against the strong. In a crude and primitive society it might, perhaps, have been assumed that the strong man was able to take care of himself and that it was only the weak man who needed protection. It is to be hoped, however, that civilization has advanced beyond this primitive state. Even the strong man may find it cheaper to pay taxes for police protection than to try to furnish his own protection. Even the weak man may need restraint as much as the strong man. If there is anything which modern psychology has proved, it is that the average criminal is below rather than above the average in strength and intelligence. He is mentally defective, rather than mentally superior, and is incapable of taking care of himself and unable to control himself, —therefore he must be controlled by the State.

No need of protecting weakness against strength.

In short, it is high time that we stopped talking about protecting the weak against the strong. That is quite as absurd as the opposite idea usually fathered upon the late Frederick Nietzsche, that the strong should be given

a perfectly free hand to rule and exploit the weak. It is time to begin talking about protecting production against predation. Whether the productive individual be strong or weak, the state must in its own interest protect him. Whether the predacious individual be weak or strong, the state must equally in its own interest suppress him. If the individual is in part a producer and in part preying upon other people, that part of his work which is productive must be protected and rewarded and that part which is predacious must be punished. The state need not give itself the slightlest concern over the question as to whether he is weak or strong—that would be a silly question anyway. But the question whether his activities are productive or predacious is a matter of the utmost concern.

Production is what is wanted.

The more individuals there are producing and the more each one produces, the better it is for the State. The more there are preying upon other people and the more successful they are, the worse it is for the State. The more prosperous a man becomes through productive effort, the more prosperous he makes the state. The more prosperous he becomes through predacious effort, the more he substracts from the prosperity of the State. The millionaire or the billionaire who has earned his millions or his billions is a benefit rather than a menace. The man whose wealth is measured only in thousands or even in hundreds, if he has not earned his thousands or his hundreds, is a menace rather than a benefit. In other words, the size of the individual's fortune need not give us the slightest concern. It is the way the fortune was accumulated, and that alone, which needs to be studied.

The more millionaires there are in the country, the better off the country is, provided each millionaire has earned his millions. The only rational limit which ought to be placed on the size of a man's fortune is the limit of his actual earnings, and that limit cannot be named.

How much would a man be missed?

The best way of estimating the value of a man or his earning power is to find out how much he would be missed if he were to stop working, or emigrate, or, more accurately, how much worse off the community would have been if he had never worked. How much less would the community produce without him than with him? If that would make a difference of about a dollar a day in the total production of the community, then he is worth about one dollar a day. If it would make a difference of one thousand dollars a day, then he is worth one thousand dollars a day.

The superfluous person.

How much an individual is worth in the community, or how much he would be missed if he were to leave the community, depends to a considerable extent on the question of how many other men there are just like him who are able and willing to do the kind of work which he is doing. If there are thousands of other men ready to take his place and do the work just as well as he can, obviously he is not worth much and the community could get along almost as well without him as with him. If there is no one else who can do the work quite as well as he can, and the work itself is quite important, then the community would miss him if he were to leave. In other words, he is worth a great deal. This, of course, is not very flattering to men of the former type. They

can outvote the men of the latter type and if they are foolish enough to be deceived by political claptrap, they are very likely solemnly to vote themselves to be the real producers of the wealth of the country and to call the other man a parasite.

The indispensable person.

If there is a kind of work which it is very important that the community should have done, and there are only a few who are capable of doing it, two things are fairly obvious: First, those few will be well paid, because each one is very much needed. Second, there ought to be more such men in that community if they could be found or persuaded to train themselves for that kind of work. The way to encourage men to train themselves for that kind of work is to pay them well for it and honor them besides. The way to discourage them and to make such men still scarcer is to denounce them and call them parasites. If there is another kind of work for which there are thousands of capable men ready, however important that work is in itself, no individual among those thousands is worth very much, that is, any one of them can be spared with no great loss. If a certain number of these men could be persuaded to train themselves for the other kind of work for which men are scarce, the community would gain. It would lose a certain number of men from an occupation where men were overabundant and from which they could easily be spared and gain an equal number in an occupation where they were very much needed and where each addition was a great gain to the community. The way to encourage men to make this transition is to pay them low wages in the overcrowded and high wages in the undercrowded occupations. But

while the men in the overcrowded occupation are in a weak position economically, they are in a strong position politically in that they can outvote the men in the undercrowded occupation. They are, therefore, under a strong temptation, if they are improperly led, to try and vote themselves favors and to vote against the interests of those in the undercrowded occupation.

When capitalists are scarce.

Even the despised capitalist may sometimes and in some places be the most needed man. When there are very few capitalists and very little capital, one more capitalist may be worth more in the time and place than one more laborer. This is not saying that capital or capitalists are, in general, more important than laborers. It is important that we keep clearly in mind the difference between the absolute importance of a thing and its relative importance to the particular needs of a given time and place. Economists were relativists before Einstein was heard from. All economic values are relative to the needs of the people of a given time and place.

The weak link.

What is the most important link in a chain? No one can say; yet if one link is weaker than the rest, no one would be in doubt as to which most needed strengthening. The weak link is not in itself any more important than any other. Its improvement, however, is very much more important than the improvement of any other. If some one will improve that link, his work is more useful or productive than that of any one who would improve or strengthen one of the stronger links. All the productive work of the world is like this. It consists in the strength-

ening of weak links,—of fixing things up that need fixing.

The unbalanced sandwich.

Which is the more important part of a sandwich, the bread or the ham? No one can say. In most of the sandwiches that I buy, however, the ham is the weak link. I would give more for another eighth of an inch of thickness in the slice of ham than for another eighth of an inch of thickness in the bread. Ham is not more important than bread, but it would be more important to me to have the ham thickened than to have the bread thickened. If one man would offer to add an eighth of an inch of ham, and another would offer to add an eighth of an inch of bread, I should appreciate the former's offer more highly than the latter's. My appreciation would probably take the form of offering a somewhat higher price for that eighth of an inch of ham than for another eighth of an inch of bread. I never saw a sandwich of the other kind, but I can at least imagine one in which there would be so much ham and so little bread as to reverse the situation, in which case I would probably offer more for an additional eighth of an inch of bread than an additional eighth of an inch of ham. A great deal of the economic activity of the world is taken up with thickening the part of the sandwich that is too thin, or increasing the supply of something that is scarce. Not much is devoted to increasing the supply of things that are already sufficiently abundant.

Cranberries without sugar.

Which is the more important ingredient in cranberry sauce—sugar or cranberries? No one can say. During the sugar shortage of the Great War, nobody seemed

to care very much for cranberries; cranberry growers had trouble selling their crop. Yet people were just as fond of cranberry sauce as they had ever been. Cranberries were just as good, and no more abundant absolutely than they had been previous years. They appeared to be superabundant merely because there was not sugar enough to sweeten them. In that situation an additional ton of sugar would have seemed more important to most consumers than an additional ton of cranberries. Any one who would have brought to any market an additional ton of sugar would have been more highly appreciated than any one who would have brought an additional ton of cranberries. This would not have meant that the bringer of sugar was superior morally; nor would it have meant that he was absolutely superior in an economic sense. It would merely have meant that in that situation he would have been more useful; he would have contributed more to the satisfaction of consumers at that time than would the bringer of cranberries.

The missing ingredient.

A great deal of the economic activity of the world is devoted to supplying the missing ingredient, or increasing the one that is scarce. One way of preventing men from wasting their time producing things that are already sufficiently abundant is to refuse to pay a good price for such things. One way of inducing them to put in their time producing things that are scarce and very much needed is to offer them a high price for such things.

Labor and capital.

Which is the more important factor in production, labor or capital? No one can say. There are some situations, however, where it is more important that some

additional laborers be secured than that some additional capital be secured. There are other situations in which the opposite is the case. If I were running a farm and did not have enough team force or other equipment for my own labor, and two men came along and offered to help me out, one offering me enough equipment to make my own labor productive, and the other offering to help me out with his own labor, I think I should accept the offer of equipment rather than the offer of labor. I should know what to do with the team and tools; I could use them myself. I should not know what to do with the labor of an extra man when I did not have enough equipment even for my own labor. If all the farmers in my own neighborhood were in the same condition, with not enough capital to equip their own labor, the market for farm labor in that community would be poor, but the market for capital would be good.

If, on the other hand, I had more teams and tools and other equipment than I could use myself, and if the same two men came along making the same offers, I should then accept the offer of an additional laborer and not the offer of additional teams, tools and equipment. I would be willing to hire more labor, but not willing to buy or hire any more equipment. If all the other farmers were in the same fix, every one of them would want some extra help, but no one of them would want any extra capital; the market for labor would then be very good, the market for capital would be poor. One laborer more or less would make a great deal of difference in the production of each farm. One team more or less would make very little difference, when there was not labor enough to use the teams that were already there.

Suppose we are dealing with a farm situation in which

farmers themselves have more labor than they can properly equip with teams and tools. What they would do if they were wise would be to try to attract more capital to that neighborhood. It would not do them any good to get more labor, because they could not equip it. It would do them a great deal of good to get more capital with which to equip the labor that is already there. They would all be bidding against one another to get what little capital there was. The owners of that capital would find a good market and be making a good thing for themselves. If the farmers were not very wise, they might be somewhat jealous of the prosperity of these few capitalists and show considerable resentment. If this resentment took the form of making things uncomfortable for capitalists, they would only be cutting off their own noses to spite their faces. The more uncomfortable they make things for capitalists, the fewer capitalists there will be in that neighborhood and the less capital there will be for the equipment of labor. That is what results from behaving in what is perhaps a natural but a very unwise way.

Scarcity of managers.

Suppose in a given country there are a great many factory laborers but not enough skillful managers to run factories successfully. Some of the laborers will be unemployed. If they can in some way induce more managing talent to come to that country or more of the young and talented men of the country to train themselves for the work of managing factories, there would be more factories running successfully and paying real wages. It would not increase the total production of such a country to bring in a few more laborers when it could not employ

all of those that it already had. It would add greatly to the productivity if it could get a few more successful managers. That would enable it to employ more of the labor that is unemployed or to pay higher wages to those that are already employed. If laborers were wise, they would see this and behave accordingly. If they are unwise, they may resent the prosperity that comes to the few successful managers that are already there. If this resentment took the form of discouraging business enterprises, laborers would obviously be cutting off their noses to spite their faces. Some behavioristic people will tell us that this is a perfectly natural way for laborers to behave. It may be natural, but it is rather foolish. The remedy for this foolish behavior on the part of laborers is probably a little more knowledge or understanding of economics.

Temperamental rebels.

Some of these views will be exceedingly obnoxious to the temperamental rebels who see no good in capital or capitalism. Whether a man is a rational critic of our institutions or a mere temperamental rebel may be determined with a fair degree of accuracy. It is only necessary to ask him two questions: First, how would he apportion the blame or punishment among those who participate in a destructive enterprise; and second, how would he apportion the esteem or reward among those who participate in a productive enterprise? A destructive enterprise, in the field of piracy, for example, is financed and promoted, let us say, by one group of men, but is carried out by another group. Every one would agree that the financiers and promoters should share in the blame and the punishment. A productive enterprise is similarly

financed and promoted by one group and operated by another. By the same reasoning, the financiers and promoters should share in the praise and the reward. At least that is the way a rational critic would look at it. The temperamental rebel, however, admits nothing of the kind. All the esteem and all the rewards must go to the operators in this case, even though he insists, as he probably would, that all the blame and punishment should go to the financiers and promoters in the other case.

Does labor produce all munitions?

To a pacifist of the temperamental sort, a munition factory is a destructive enterprise. If he insists, as he probably does, that labor alone is productive and capital not at all, he ought to conclude that labor alone produces munitions and capital none. The harm that munitions do must then be attributed to the producers and not to those who had no part in production,—in other words, the blame attaches to the laborers and not to the capitalists. But no temperamental rebel is logical enough for that. Capital is his *bête noire;* if blame attaches anywhere, it is to capital and not to labor. The harm done by munitions must be attributed to capital, even though capital can't produce any munitions. The harm done by munitions must not be attributed to labor, even though labor produces them all. That is the kind of reasoning or lack of reasoning that you must expect from a temperamental rebel.

Does labor produce all whiskey?

To a prohibitionist a distillery is a destructive enterprise; to a whiskey drinker it is a productive enterprise. If a temperamental rebel were a prohibitionist he would probably attribute all the harm done by whiskey to the

financiers and promoters of the distillery and excuse the laborers. If he were a whiskey drinker he would attribute all the good done by whiskey to the workers and none to the capitalists. Whatever good is done in a commendable industry is done by labor. Whatever evil is done by a harmful industry is done by capital. This is the animus of the temperamental rebel.

A rational critic would say that if labor produces all wealth, it produces all whiskey. If whiskey does harm, that harm is done by labor; and if it does good, that good is done by labor. If labor and capital both produce wealth, they both produce whiskey and should share whatever punishment or reward there is to be distributed. He does not blow hot and cold with the same breath after the manner of the temperamental rebel.

It is reasonable to say that those who are primarily responsible for running a destructive industry should be punished if anybody is to be punished. They earn the punishment because they are the cause of the evil that is done. Clearly this should include not only the workers but the planners, promoters and financiers as well. It is equally reasonable to say that they who are primarily responsible for the running of a productive industry should be protected. They are all alike producers of the good that is done. They must obviously include the same classes that would be included in the punishment for running an evil industry. If predation is to be repressed, all engaged in predation must be included in the repression. If production is to be protected against predation, all who are in any way responsible for the productive industry must be included in the protective measures.

CHAPTER XIV

THE IMPORTANCE OF SERVING THOSE WHO CAN PASS THE SERVICE ON

Rival theories of justice.

There are several rival theories of justice in the distribution of wealth. The two that play the most important part in modern discussions are distribution according to needs and distribution according to production or service. There are special circumstances under which each seems to have the advantage. It is difficult to combine them; though the attempt is made by those who adopt the slogan, "From every one according to his ability; to every one according to his needs."

If every one would produce according to his capacity and consume according to his needs we should become a very prosperous country. Capital would accumulate at an astonishing rate, interest rates would fall, and new enterprises that looked worth while would never lack for equipment because there would be plenty of capital to try them out, and inventors would be encouraged by a ready market for every invention that looked promising. So far there is no difficulty with the reasoning; but when we begin to consider how to get men both to produce according to their ability and to consume according to their needs, our difficulties begin. It is not impossible, not even so very difficult, to get them to do one or the other; but no way has ever been found to get them to do both.

Consuming according to needs.

It is not so very difficult to get men to consume according to their needs. They can be rationed, and each man's rations can be apportioned, roughly, to his needs. That is done in every army and in practically every other non-producing organization, such as a family of children, or a besieged city where there is no such thing as producing food. In all these cases there is no attempt made to get the individuals to produce according to their ability because there is no opportunity or ability to produce. Whenever it has been tried in a producing organization it has generally failed because it furnishes no means of getting members to produce according to their ability.

Producing according to ability.

It is not so very difficult to get men to produce according to their ability. That is done by the simple expedient of rewarding them according to their production. Let each one have what he produces or the value of his product and each one will produce, roughly, according to his ability. Production, of course, has many forms, and there are many who contribute to production who do not handle materials of production or products with their hands. Under this plan, large producers will have large incomes and small producers small incomes.

How to get those with large incomes to consume according to their needs is now the difficult problem. Something, but not much, can be done in this direction by inducing them to postpone their consumption and put their surplus incomes back into business, buying new equipment for old enterprises, or starting new enterprises. The hope of interest and profits on these investments is an inducement to such postponement of consumption.

but it only postpones consumption in those cases where the new investments turn out well and return interest or profits.

Reliance upon good will rather than compulsion.

If people are rationed according to their needs, we must appeal to their native energy, good will, or public ability. Experience shows that some will respond to this appeal and others will not. Attempts to commandeer their productive power have not been very successful. If they are paid according to their product, we must appeal to their thrift, good will, or public spirit to induce them to consume according to their needs. Experience shows that some will respond to this appeal and others will not. Attempts to restrict their consumption by law have not been very successful. In either case, there must be reliance placed on the virtues of industry, thrift, good will, public spirit, etc. It seems to work better to reward producers according to their product and then appeal to their better motives to get them to consume according to their needs than to force them to consume according to their needs and then appeal to their better motives to get them to produce according to their ability. At least every nation that ever amounted to anything has adopted the former rather than the latter alternative.

Where production is impossible.

Wherever the problem of motivating producers is absent, people with practical minds generally adopt the principle of distribution according to need. In every family where there are non-producers and where there is therefore no use in trying to motivate their productivity, the general plan is distribution according to needs. In institutions for the care of the dependent there is again

no reason for trying to motivate productivity because they are not able to produce. Here again the principle is distribution according to needs.

A city in a state of siege, with all supplies of food cut off and no possibility of producing any within its walls, faced with the acute problem of making existing stocks last as long as possible will always, if the people are wise, put everything into a common store and ration the people according to their needs. The problem, how to get enough produced, is, for the time being, obscured because immediate production is impossible, while immediate and continued consumption is absolutely necessary. Shipwrecked sailors on a desert island, snow-bound travelers, and all others who are forced into a similar situation, will generally resort to the common store and the rationing process.

Justice always relative.

Under the conditions just described, the ordinary criterion of justice which applies in normal times cannot apply at all. Justice is not something which is absolute and unalterable, but is something which must relate itself to the conditions of time and place. It is a principle for the adjustment of conflicting interests among men such as will secure the largest good and the least sacrifice to the whole group. Under the circumstances just named where, for the time being, no production is possible, distribution in proportion to production would obviously be out of place. Such a criterion of justice could obviously not secure the greatest good or the least sacrifice to the whole group. Distribution according to needs is the only criterion that could possibly apply to such a situation. When the existing stock of food is distributed among all

the people in exact proportion to all their needs, the maximum satisfaction of their needs is secured. But when the group is no longer facing such an abnormal situation, but is again faced with the problem of getting enough produced to supply the ever recurring and expanding needs of a growing population, another criterion of justice comes into play. In order to call forth the greatest and most persistently productive efforts of all the potential producers, they must be rewarded according to their production or the value of the service they perform. Distribution according to production or according to service becomes the only possible criterion of justice as between workers and breadwinners.

This principle applies, however, only to producers and breadwinners. Those who are dependent upon the breadwinners, namely, their families, are not, never were, and we hope never will be, even in the most individualistic country, subjected to the same rigid rule. As a matter of fact, our society is not so much individualistic as it is familistic. Each family is still a little communistic group within which the competitive system does not exist as it does between the breadwinners of different families. The system under which we now live and under which all progress has been made that has been made is only partly competitive. It is and always has been partly communistic. In the nice balance between these two systems, it is found that the maximum of human energy is released for productive purposes, that human life expands more than under any other system, and that more people can be provided for, and provided for more abundantly, than under any other system that has ever been devised or tried.

Not selfishness, but a preference for some people as compared with others.

Forgetting the principle of balance which comes pretty nearly being the summation of human wisdom, many people have been misled by the example of the ideal family and have wondered whether millions of people could not live on a communistic basis as well as the few closely related individuals of the family group. The example of the family, that is, of the ideal family, where each receives according to his needs, has appealed to the idealism of many well meaning people and has led some of them to try the experiment of maintaining larger groups on the same basis.

It is well to remember, however, that this rule, as it works within the family, is not a matter of justice at all, but a matter of emotional interest in one another, commonly called love or affection. Justice is a group of principles for the adjustment of the conflicting interests of mankind. In the ideal family, such as we have taken for our example, there is no conflict, but unity of interests—at least the different members of such a family do not feel that there is a conflict among them. Each takes as much delight in giving as in receiving gifts within that circle. The joy of one is the joy of all, and the pain of one is the pain of all. Where that is the state of feeling, the concept of justice could never arise. The word itself would never have been coined if each citizen of the large group felt toward every other citizen as the members of an ideal family feel toward one another. If each of the hundred-odd million of people in the United States felt the same interest in every other citizen that he presumably feels in the members of his own family, if the death of any citizen produced the same poignancy of grief that

is produced by the death of a member of his own family, if good fortune coming to any other citizen produced the same joy as is produced when good fortune comes to a member of his own family, there would be no reason why the whole nation might not be organized successfully as the ideal family is now organized.

Communism and plutocracy hard to distinguish.

The writer is here stressing as one of the fundamental facts, the existence or the non-existence of love or affection. This seems to have the power of fusing all interests into one. This may be illustrated by another fact regarding the family. I have already referred to it as a communistic group. It is communistic in the sense that the family supplies are regarded as a common stock. and the different individuals—producers and non-producers alike—receive their shares according to their needs and not according to their production. From another point of view, it is the most extremely plutocratic organization in existence. While the supplies are shared in proportion to the needs, ownership is concentrated either in the hands of two persons, or, in some of the states, in the hands of one person, namely, the father. The other members of the group own absolutely nothing. No industry and no country is so plutocratic as that, and yet where this emotional interest reaches the intensity which is found in the ideal family, no one can really tell the difference between plutocracy and communism. But where, even in the family, this ideal condition does not exist, that is, where affection dies out, instantly we perceive a great difference between plutocracy and communism. There being no emotional interest in the group as a whole, each individual tries to sponge on every other. Both communism and

plutocracy work as badly in this kind of a family as they normally do in the nation at large. In fact, when even in the family affection dies out or noticeably weakens, it is discovered that there is a real conflict of interest among the members of the same family as well as among the members of different families. Then such words as justice and fairness come into use. What is just or fair between members of such a household becomes a real question. The individual does for others what the law compels him to do, not what he likes to do or delights in doing.

The Pilgrims of Plymouth.

If there was ever a group larger than the family that was fitted to live together on a communistic basis, it was the Pilgrims of Plymouth. They began with a common stock and proposed to distribute goods according to needs. It may have been that the Pilgrims cherished the hope that they could live together as one great family. If such a hope could ever be realized, it would seem that this was the time. They were a picked crowd. The selective process had picked them out from the rest of the religious people of England and sent them to Holland. Here the selective process continued year by year; many of the weaker or less zealous of their membership gave up the struggle, some returning to England, others being absorbed into the life of Holland and the neighboring countries. Finally, the emigration to America put them through a most thorough winnowing. Only those whose determination to lead a godly life and to provoke one another to godliness was strongest could meet the test of seeking a home in the wilderness. They were literally the finest of the wheat.

They were not only a select group; but their common

experiences should have given them a common interest if that is ever possible. They had a common religious interest, to begin with; they had suffered persecution together in England; they had borne economic hardship together in Holland; the dreary experience of the Mayflower voyage and that awful first winter at Plymouth which wiped out half their number,—all these should have left the survivors with a common interest and a solidarity of feeling that would have fitted them for communism if any people were ever fitted for it.

Preferences.

Just here the writer would like to say something on the subject of selfishness or self-interest which, he is convinced, is very little understood. There is not the slightest doubt that most of the survivors of that first winter at Plymouth had a genuine interest in one another. There is no reason to doubt that they actually loved one another; but this in itself was not enough to hold them together. It was necessary that each one should care equally for all members of the group and not care more for some than for others. However deeply the individual may love all members of a large group, if he has a distinct preference for the members of the small group called the family,—that is, if he loves the members of his family more intensely than he loves the rest of his fellow citizens, that fact alone will cause him to act according to his deeper preference. Let us suppose, for example, that every citizen of the United States cares intensely for every other citizen; that we could multiply his present interest by a hundred or a thousand. If, at the same time, his love for the members of his own family should increase correspondingly, he would still behave according to the deeper

preference. Where the interest of his own children conflicted with the interests of other children, he would still be on the side of his own children. He would work harder to provide for the needs of his own children than for the needs of other children. It is the unevenness of his affection rather than the absolute fact of his affection that will determine his behavior.

It is, therefore, a mistake to say that selfishness is what destroys communism. It is no more selfishness than it is unselfishness. It is no more self-love than it is the love of others. It is the simple fact that we care more for some people than we do for others that determines our attitude toward these different classes. However much we may care for our neighbors, if we care more for the members of our own household than we do for them, we shall behave in much the same way as though we did not care very much for either, but a little more for the members of our own household than for the others. Again, however much we may care for our distant neighbors, if we care a little more for our near neighbors, we shall behave in very much the same way—as though we did not care very much for either, but a little more for our near than for our distant neighbors. This is a principle which applies to international affairs also. However much one may care for humanity in general, if he cares a little more for his own fellow citizens or for those of his own race and language than for any others, he will be on the side of those for whom he cares most and against those for whom he cares less in case of conflict. This is a principle of the most profound significance to all human relationships and one which is as yet only vaguely understood even by scholars.

I return, therefore, to the proposition that in all probability the fact that the Pilgrims were the kind of men and women they were and the fact that they had gone through so many hard experiences together had probably given them a genuine interest in one another; but while it had deepened their interest in one another in the larger sense, it had also intensified in the same proportion or in the same degree their interest in the members of the same household—their wives and their children. This was a fact that showed itself as an explosive rather than a cohesive force, and brought about the failure of the communistic system among them.

Plato's Republic.

Bradford, in his History of Plymouth Plantation,[1] refers to "the vanity of that conceit of Plato and other ancients." It is reasonable to suppose that he was familiar with Plato's Republic wherein communism is set forth as the ideal state of society as well as with the alleged communism of the early Christians. He correctly characterizes as "vanity" the conceit that the bringing of community of goods into the commonwealth would make them happy and flourishing. Plato bases his argument upon a number of curious but inverted bits of logic, in some of which at least, he clearly mistook cause for effect. He argued, for example, that selfishness was the result of private property rather than its cause, and that the fact that people had property made them care more for their families than for other people, rather than the fact that they cared more for their families than for other people made them want property.

[1] Boston, Wright & Potter, 1898, p. 163-4.

He argues:

"Can there be any greater evil than discord and distraction and plurality where unity ought to reign? or any greater good than the bond of unity?

There cannot.

And there is unity where there is community of pleasures and pains—where all the citizens are glad or sorry on the same occasions?

No doubt.

Yes; and where there is no common but only private feeling, a State is disorganized—when you have one half of the world triumphing and the other sorrowing at the same events happening to the city and the citizens?

Certainly.

Such differences commonly originate in a disagreement about the use of the terms 'meum' and 'tuum,' mine and his.

Exactly.

And is not that the best-ordered State in which the greatest number of persons apply the terms 'mine' and 'not mine' in the same way to the same thing?

True, very true."

(Plato's Republic, Book V), Jowett's translation, page 152.

Communism of wives and children.

Plato was consistent to the bitter end, however, and did not shrink from the conclusions to which his reasoning led. Since the words *mine* and *thine* applied to wives and children as well as to material goods, he did not shrink from the conclusion that there must be a community of wives and children as well as of goods. Since Plato's time the whole theory of evolution has undergone a com-

plete change and has been based upon scientific evidence rather than upon philosophical conjecture. It has been found that the further you go down the scale of civilization, the more nearly you approximate to communism and the more narrowly selfish you find men to be; but as you proceed upwards in the scale of civilization, you find the concept of property growing clearer and more distinct, and at the same time there is a certain softening of manners and broadening of individual interests. In short, people become slightly less self-centered, or at least they take larger numbers of people within the circle of their interests. In fact, if you go far enough down in the scale of savagery, you find communism in full swing, and you find selfishness more intense and more narrow and more inconsiderate of the interests of others than where the system of private property is fully developed.

Moreover, if you go still further down in the scale of civilization till you get among the animals where there is no civilization at all, you find no vestige of private property of any kind, and yet you find the struggle for existence waged more ruthlessly and with less consideration for the interests of others than you find in those stages of civilization where private property has had even a partial development. Clearly then, selfishness is something older and more fundamental than private property. It cannot, therefore, be the product or the result of private property.

Savage Communism.

As a matter of fact, the Pilgrims found communism in full swing among their Indian neighbors. One of the results of that communism, however, was that the women, who were the true economists under the Indian system of

economy, had to hide the supplies of corn in order to keep the men from stealing them and leaving the community without anything to tide them over a hard winter. It was among the women that the beginnings of the idea of property were first to show themselves. It was among the men that the system of communism still held full sway.

Here we must keep in mind a most important distinction. Your willingness to share your possessions with some one else does not not make you a communist. Your insistence that some one else shall share his possessions with you makes you a Communist. It is this which characterizes both communists and socialists. Socialists in this country and in other countries show no more disposition to share their possessions with other people than do individualists. What distinguishes them from individualists is their insistence that other people shall share their possessions with them. The sharing of goods as a matter of generosity is one thing; compulsory sharing is quite a different thing. Voluntary sharing of goods is thoroughly consistent with individualism. It is not condemned either by the law or the sentiments of today. Compulsory sharing, however, is quite a different thing. The motive for this compulsory sharing is not generosity, but selfishness. The very motivation behind all communistic and socialistic propaganda is, therefore, selfishness and not generosity.

Voluntary sharing not communism.

The real distinction between the two systems is not fully brought out by the two words, individualism and socialism or individualism and communism. It is brought out by the words, voluntary and compulsory. The world

has progressed, in so far as it has progressed at all, by getting away more and more from the idea of compulsion and approaching a state where things are done more and more by voluntary agreement among free citizens. That is why voluntary sharing is quite as possible under the present system as under any system whatsoever; but compulsory sharing is directly contrary to the whole idea of voluntary agreement among free citizens.

Sparta.

Possibly the Pilgrims, or some of them, had the Spartan Commonwealth in mind when they decided to try communism at Plymouth, but the communism of the Spartans has frequently been exaggerated and sometimes misrepresented. We know little about it except what has been told in Plutarch's life of Lycurgus, and he gives us comparatively few details.

Concerning the polity of the Spartans, which he attributes to the wisdom of Lycurgus, he says:

"The third and most masterly stroke of this great law-giver by which he struck a yet more effectual blow against luxury and the desire of riches, was the ordinance he made, that they should all eat in common, of the same bread and same meat, and of kinds that were specified, and should not spend their lives at home, laid on costly couches at splendid tables, delivering themselves up into the hands of their tradesmen and cooks, to fatten them in corners, like greedy brutes, and to ruin not their minds only but their very bodies which, enfeebled by indulgence and excess, would stand in need of long sleep, warm bathing, freedom from work, and, in a word, of as much care and attendance as if they were continually sick. It was certainly an extraordinary thing to have brought about such a result as this, but a greater yet to have taken away from wealth, as Theophratus observes, not merely the property of being coveted, but its very nature of being wealth. For the rich, being obliged to go

to the same table with the poor could not make use of or enjoy their abundance, not so much as please their vanity by looking at or displaying it. So that the common proverb, that Plutus, the god of riches, is blind, was nowhere in all the world literally verified but in Sparta. There, indeed, he was not only blind, but like a picture, without either life or motion. Nor were they allowed to take food at home first, and then attend the public tables, for every one had an eye upon those who did not eat and drink like the rest, and reproached them with being dainty and effeminate."

Plutarch's Lives. The "Dryden Plutarch," revised by Arthur Hugh Clough. Vol. I. "Lycurgus" pp. 68-9.

Again, he says:

"To return to the Lacedaemonians. Their discipline continued still after they were full-grown men. No one was allowed to live his own fancy; but the city was a sort of camp, in which every man had his share of provisions and business set out, and looked upon himself not so much born to serve his own ends as the interest of his country. Therefore if they were commanded nothing else, they went to see the boys perform their exercises, to teach them something useful or to learn it themselves of those who knew better. And indeed one of the greatest and highest blessings Lycurgus procured his people was the abundance of leisure which proceeded from his forbidding to them the exercise of any mean and mechanical trade. Of the money-making that depends on troublesome going about and seeing people and doing business, they had no need at all in a state where wealth obtained no honour or respect. The Helots tilled their ground for them, and paid them yearly in kind the appointed quantity, without any trouble of theirs. To this purpose there goes a story of a Lacedaemonian who, happening to be at Athens when the courts were sitting, was told of a citizen that had been fined for living an idle life, and was being escorted home in much distress of mind by his condoling friends; the Lacedaemonian was much surprised at it and desired his friend to show him the man who was condemned for living like a freeman. • So much beneath them did they esteem the

frivolous devotion of time and attention to the mechanical arts and to money-making."

Op. cit., page 83.

The communism of this military camp was compulsory sharing and not voluntary sharing in any sense whatsoever. That is what made it communism; but it was limited only to the ruling caste among whom things were done by authority and compulsion and not by voluntary agreement among free citizens. Even the labor, which was not done by the Spartans at all, but by their slaves or Helots, was compulsory and not voluntary.

Military communism.

One of the few things that are certain about the life of the Spartans is that the Spartans themselves were a predatory, military caste ruling over a subject and enslaved population. The problem of stimulating production among the Spartans did not exist, because the Spartans did no producing. The Helots did the producing for them. As indicated by the passage last quoted, the Spartans were not much more than a military camp, and their organization was not so very different from that of an ordinary military camp. The problem of stimulating production does not exist in such a camp; therefore it can safely have a common stock and ration its soldiers.

The year of jubilee.

While these classical examples may have influenced the Pilgrims directly or indirectly, it is more likely that they were influenced by Biblical examples. The land laws of Moses bear so indirectly upon their problems as to throw little light upon the question we are discussing. Of course the Children of Israel entering Palestine from Egypt were colonists as were the Pilgrims at Plymouth. The Mosaic

law arranged for the sub-division of land among the tribes and families and also for the provision of the Jubilee year (Leviticus XXV). It arranged to keep the land in the possession of the original families and their descendants. It was not contemplated that there should be subsequent immigration; in fact, the land legislation was apparently designed to prevent that and keep the country in the hands of the original settlers. No subsequent immigrant could ever become a land owner, because even if he bought land, he had to buy it with the understanding that he could hold it only until the next Jubilee, when it must be returned to the original owner or his family. Such an arrangement in this country would by this time have created a landed aristocracy and a vast landless proletariat since no immigrant could ever have become a land owner.

The early Christians.

It is more likely that the example of the primitive Christian church influenced the devout Pilgrims. The communism of the early disciples has, like that of the Spartans, been greatly exaggerated, not to say misrepresented. Our only real information concerning it is contained in a few brief passages in the Acts of the Apostles. For example:

And they continued stedfastly in the apostles' doctrine and fellowship, and in breaking of bread, and in prayer.

And fear came upon every soul; and many wonders and signs were done by the apostles.

And all that believed were together, and had all things common;

And sold their possessions and goods, and parted them to all men, as every man had need.

And they, continuing daily with one accord in the temple,

and breaking bread from house to house, did eat their meat with gladness and singleness of heart,

Praising God, and having favour with all the people. And the Lord added to the church daily such as should be saved.

(Acts II: 42-47)

And when they had prayed, the place was shaken where they were assembled together; and they were all filled with the Holy Ghost, and they spake the word of God with boldness.

And the multitude of them that believed were of one heart and of one soul; neither said any of them that aught of the things which he possessed was his own; but they had all things common.

And with great power gave the apostles witness of the resurrection of the Lord Jesus: and great grace was upon them all.

Neither was there any among them that lacked: for as many as were possessors of lands or houses sold them, and brought the prices of the things that were sold,

And laid them down at the apostles' feet: and distribution was made unto every man according as he had need.

(Acts IV: 31-35)

Then follows the episode of the death of Ananias and Sapphira.

And in those days, when the number of the disciples was multiplied, there arose a murmuring of the Grecians against the Hebrews, because their widows were neglected in the daily ministration.

Then the twelve called the multitude of the disciples unto them, and said, It is not reason that we should leave the word of God, and serve tables.

Wherefore, brethren, look ye out among you seven men of honest report, full of the Holy Ghost and wisdom, whom we may appoint over this business.

But we will give ourselves continually to prayer, and to the ministry of the word.

And the saying pleased the whole multitude: and they chose Stephen, a man full of faith and of the Holy Ghost, and Philip,

and Prochorus, and Nicanor, and Timon, and Parmenas, and Nicolas a proselyte of Antioch:

Whom they set before the apostles: and when they had prayed, they laid their hands on them.

And the word of God increased; and the number of the disciples multiplied in Jerusalem greatly; and a great company of the priests were obedient to the faith.

(Acts IV: 1-7)

Awaiting the second coming.

These brief references throw very little light on the question as to how much real communism there was. Such as there was appears to have been of the kind already described, that is, a common stock from which individuals received their supplies, but this was obviously a temporary expedient. It will be remembered that at this time the disciples were not doing any work. They were not producing. They did not consider it necessary to produce, because they were living in momentary expectation of the second coming of the Lord. Theirs was apparently the communism of the common stock to tide over a temporary period, when production was out of the question. They were not concerned with the problem how to get enough produced—in fact, they were not producing anything. They were abiding in one place, holding a perpetual prayer meeting. When it gradually dawned upon them that they might have to wait so long for the second coming as to make it necessary to go to work and produce something, and as soon as they were faced with the problem of production, we hear no more about communism. The fact that they "had all things in common" is no more salient than the fact that they had stopped working and were giving themselves up entirely

to worship in one place. One fact is no more obligatory than the other as an example for the world today.

The Nazarene.

The teachings of Jesus have sometimes been contorted into a support of communism and socialism, but if there ever was a real individualist, it was Jesus himself. The principle of distribution according to production is clearly set forth in all his teachings—nowhere more clearly perhaps, than in the statement, "He that would be great among you, let him be your servant." There is no condemnation of the desire to be great or successful; there is merely the clear statement that the way to success is through service or production. Service in the larger sense is not confined to menial tasks done at the command of another. To produce corn and hogs is service where food is needed. To manufacture shoes and clothing is service where these things are needed. Success in life is to be apportioned according to the value of the service performed. If success in life consists in getting money, money should be in proportion to the service rendered. If it consists in esteem or the emoluments of office, these should be distributed in proportion to the service rendered. This is the idea of the modern system of industry. We make progress in proportion as we approximate more and more closely to this central idea. In fact, all the economic and social progress of the last 2,000 years has been a greater and greater approximation to this true ideal.

The golden rule.

Again it is sometimes assumed that the competitive system is in some way contrary to the spirit of Christianity and the Golden Rule. Nothing could be further from the truth. To do good to some one else and not expect

anything in return is to make a parasite of that some one. If he is to be privileged to live up to the same high standard, he must be given the opportunity of returning the service. It would be difficult to arrange this except on the basis of a fair and free exchange. Those who believe that competition in any form is contrary to the spirit of the Golden Rule should never play croquet, for there is competition even there. That which we do for the joy of doing comes as near being an expression of our real natures as anything could possibly be. There is no doubt that we really enjoy competition; otherwise our games would be something entirely different from what they are.

The meaner the man the "higher" his interpretation.

Moreover, the question whether competition is contrary to the spirit of the Golden Rule or not depends somewhat upon the kind of a person it is who is doing the competing. If you are the kind of person who in a game of croquet really desires that your opponent should regularly miss the wicket in order that you may win the game, then, in strict accordance with the Golden Rule, you also should regularly miss the wicket in order to let him win. If you and your opponent both show a strong determination to make the other win, you will find yourselves indulging in another kind of competition which may be quite as strenuous as the regular game. On the other hand, if you are the kind of person who desires that your opponent shall do his best and put you on your mettle, forcing you to do your best, then in strict accordance with the Golden Rule, you must exert yourself to the utmost, thus forcing him to do his best. Whether it be the game of croquet or the game of business, the principles are much the same;

the best thing you can do for your business competitor is to put him on his mettle and force him to do his best. It is not only the best thing for him; it is the best thing for all society that every producer, or every one that renders service of any kind, shall be compelled to render the most efficient and the most strenuous service. Service in the broad sense is what the world lives on. The more men are stimulated to the performance of strenuous and efficient service, the more people the world can support and the better they can be supported. He who teaches the world this principle will find that, as the result of his teaching, more people can live and can live better than they can live without such teaching. Such a teacher might say with the utmost literalness and the entire absence of figures of speech and of mysticism, "I am come that they might have life and that they might have it more abundantly."

This statement of his mission, by the Founder of Christianity, could be exactly and literally paraphrased as follows: I am come in order that the maximum quantity of solar energy might by transformed into human energy; or, I am come that the statistician's theory of progress might be realized, namely, that as many people as possible might live and that they might live as well as possible.

He that would be great.

As suggested earlier in this chapter, the rule laid down by the Founder of Christianity that greatness should be based upon service, is literally and exactly the economic rule, or the rule of distribution according to production. Service, in the modern complicated economic system, is not always easy to identify. The barber, the waiter, the actor, the musical performer, and many others, render

their services directly to those who benefit by them and not through the medium of a vendible commodity. Such services are easily identified. No one pretends that a poor barber should receive as high an income, or receive as much esteem, or be as successful, or as great in any respect, as a good barber whose service is greater. Nor would any one claim that a poor actor, a poor musician or anyone else whose service is poor should become as great in wealth, esteem, honor or anything else as the good actor or the good musician whose service is greater. In these fields it is easy for any one to see that the modern competitive system is the literal realization of the rule, "He that would be great among you, let him be your servant."

In most cases, however, the service is not so easily identified. It is rendered through the medium of a vendible commodity. Where the commodity is the work of one person it is not so very difficult to identify that person's service and reward him accordingly. The painter who produces a picture, even though he had some help from the producers of his canvas, his pigments, oils, brushes, palettes, etc., will generally be regarded as the producer of the picture, and he rather than they will receive the praise or blame according as the picture pleases or displeases the critics. If it is highly desirable he will be well paid in cash as well as in esteem, and no one would confuse him with the makers of his materials.

Service sometimes difficult to identify.

The typical case, however, is not so simple as this. Hundreds, thousands, or even tens of thousands of persons may have had a hand in the production of a given commodity. Moreover, no individual's contribution may

stand out as more distinctive than that of any other. Here it is difficult to identify the individual's service, and if the money, esteem, honor and all that go to make up the outward manifestations of greatness had to be distributed by a committee of award, that committee would have a difficult task. The market does it after a fashion. How nearly do the awards of the market conform to the awards of an omniscient and just committee of award? Much more nearly than is commonly supposed.

Self-sufficing system.

Wherever the question of production is one of importance men have usually turned to the principle of distribution according to production or service. Under this principle producers are rewarded in proportion to what they produce. In the self-sufficing stage of agriculture the individual family had the specific things it produced. Here the problem was simple. After the commercial stage of industry is reached in which the producer does not produce the specific things he wants but produces for exchange, the nearest possible approach to the principle of distribution according to product is to reward each producer with a value equivalent to that which he produces. The farmer sells his product on the market, and with the value received in the form of money, buys what he wants. Under this system the weak or inefficient producer gets little; the strong or efficient producer gets much.

Powerful motivation.

In so far as this can be realized there will be in actual operation the most powerful system of motivation possible. It does not appeal strictly to self-interest, though in a modified sense it does. The producer may desire a

large product for his own personal satisfaction, or he may desire it for the personal satisfaction of others for whom he cares intensely. The man who cares intensely for his wife and children wants them to have the best things of life and will work hard to get them. If he cares intensely for his neighbors and friends, for his city, for his college, or for anything else, and wants those for whom he cares to have the best things of life, he will, of course, work hard in order to be able to give them what he wants them to have. This, as stated above, is not strictly self-interest—at least not in the narrow sense of the term. Again, this does not mean that his interests are wholly or mainly material. Whatever it is that a man wants, notice is served upon him that his only way of getting it is to produce something that other people want. If he does, they will pay him for it and he will then be able to get what he wants, whether it be spiritual goods or material goods.

It is highly important that those with the greatest capacity for productive service should have the strongest possible motivation. Take away the motive to productive action, whatever it may be, and there will be less productive action on the part of such men. Probably the strongest possible motive to productive action is to give such men what they want. It is not for the rest of us to decide what they ought to have or what they ought to want; we must leave it largely to them. If they want spiritual goods, we must give them the opportunity to get them. If they want material goods or fame or honor or social esteem, we must respect their wishes and not try to impose our ideas as to what a man ought to have upon them, unless we want to reduce somewhat their motives to action.

Stoking a poor furnace.

As a matter of fact, one does more for society by serving such men than he does by serving the weak producers. The service which you offer to such a man is his motive to action. If, on the other hand, you offer your services to one who cannot pass the service on, he will absorb what you give, and that is the end of the process. It is like stoking a furnace that gives no heat or an engine that gives no power. You may do the furnace or the engine good but that is the end of it. If, on the other hand, you stoke an efficient engine or furnace, you not only do the engine good, figuratively speaking, but the engine merely acts as a transmitter of your service to those who get the benefit of the heat or power which it furnishes.

An analogy is no argument; but this is not an analogy but an illustration. The argument is not: because this is true of an engine, therefore it must be true of a human being. It is merely to illustrate what the author means when he says that if you serve a human being who can never respond to your service by serving others, you may do the individual human being good, but that is the end of it. If, on the other hand, you serve a human being who is capable of responding to your service and who actually responds by producing what others want, you not only do him good but you do good to the others besides. Whether you provide him with food which can be transformed into productive energy by physiological processes or whether you provide him with inspiration or other forms of motivation which are transformed into productive energy through spiritual and mental stimulation, the principle is the same. It is better to nourish or to stimulate an efficient producer than an inefficient

one, though the latter may be necessary as a matter of philanthropy.

Earlier in this work, the reader was reminded of Mr. McGoun's significant distinction between higher and lower desires. He showed the capacity to pursue a chain of causation beyond the first link. The ordinary economic writer seldom does. If two desires of equal intensity are satisfied, and the pleasure of satisfaction is equal, the goods that satisfy the two desires would ordinarily be said to have equal social value. But that is not really the end of the process. An inquiring mind wants to know what happens next. If, in the case of one desire, nothing happens next,—the individual is neither nourished, stimulated nor motivated to further productive effort by reason of the satisfaction of that desire,—whereas in the case of the other desire, there is such nourishment, stimulation or motivation to higher productive effort, then the latter desire is superior to the former.[1]

If, instead of two desires of the same individual, we are considering the desires of two different individuals, a similar conclusion is forced upon us. When the desire of one individual is satisfied, he merely absorbs the service and does not pass it on. When the desire of another is satisfied he passes the service on, possibly greatly amplified. The one is merely an absorber of service; the other is a transmitter, possibly an amplifier. Ultimately, more utility will result from the service that satisfies the desire of the latter than from that which satisfies the desire of the former, even though the personal gratification in the two individual cases were exactly equal.

[1] See Chapter II.

CHAPTER XV

SUMMARY AND CONCLUSION

From this outline it will appear that the word Economics covers much more than is commonly assumed. That truthfulness is a labor saving invention, or at least a great economizer of social energy may appear as a novel idea to those who have never thought of it before. And yet, nothing can be clearer. A lying community cannot work together effectively and must, in the long run, lose ground in competition with a community where general confidence prevails among the citizens. Respect for property rights works in the same way. Even they who oppose private property do not like to live in a community where property in some form is not secure. They would leave such a community, if for no other reason than because there would be no men of enterprise and business energy to support a population to whom they could preach against private property. Inherited property, on the other hand, is a source of some waste in human life and energy in that it enables men to live without work who would otherwise have to work. On the other hand, it is doubtful whether men in the ordinary walks of life would work as hard to accumulate wealth, which is a great social advantage, if they could not leave a part of it at least to their heirs. From this point of view it is a means of economizing and utilizing energy. Does it occasion enough waste to overbalance this economy?

This is the only phase of the question of inherited wealth which is worth discussing.

It is to be hoped that enough has been said to convince some statesman or nation builder of the future that his one task is to frame such laws as will release all the available energy of his people and set it to work. Thus and thus only can a nation grow great enough and strong enough to be fit to survive. It is to be hoped also that some moralist will get a glimpse of the field which lies open before him. He who can so guide the moral development of the people as to make kinetic the energy which is latent among them, and direct that energy toward constructive work will deserve to rank among the nation builders. It is to be hoped also that some preacher of righteousness may see that nothing is righteousness except that which economizes and makes productive the energy of the people, and that nothing is sin except that which wastes or dissipates that energy. He who can harness the religious emotions of the people to productive work deserves also to stand among the nation builders. He may have also the consolation of knowing that in laboring for the building of a nation in which all the energy of the people is harnessed to useful work and none of it dissipated in vice, dishonesty, destructive conflict, luxury or distraction, he is in reality laboring for the building of the Kingdom of God in which many can live and live abundantly; in which much life that is now lost or going to waste will be sought after and saved and made to promote other life.

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