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Philosophical Psychology

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BY J. F. DONCEEL, S.J.
Associate Professor of Philosophy
Fordham University

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PREFACE

Most textbooks of Philosophical Psychology contain at least a few experimental data about such topics as the senses, memory, imagination, etc. In the present book these sections have been expanded, so as to give a fairly complete summary of those chapters of scientific psychology which have the greatest claim to the attention of the philosopher. These sections have been clearly separated from the philosophical parts of the book. Where time is too short they may be omitted, or preferably, assigned for private reading by the students.

The philosophy of man presented in this book is the Aristotelianism of St. Thomas Aquinas, as understood by some of its best modern interpreters. As the spirit of St. Thomas is more important than the letter, quotations from his works have been kept to a minimum, and given only when it was deemed necessary to emphasize some aspects of his doctrine which are frequently overlooked.

To all those who encouraged and helped me in the composition of this book I express my sincere thanks. My gratitude goes especially to the Very Reverend Edward B. Bunn, S.J., President of Georgetown University, Washington, D.C., who sponsored the beginnings of this work, to Father Joseph D. Hassett, S.J., who helped me during the first stages of its preparation, and to Miss Ruth Reidy, who lent me invaluable assistance.

J. F. D.

Fordham University

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Philosophical Psychology

GENERAL INTRODUCTION

DEFINITION AND OBJECT OF PSYCHOLOGY

Psychology may be studied at different levels, with different methods. Hence we distinguish four kinds of psychology, which may be called: empirical, experimental, philosophical and metaphysical psychology.[1]

Empirical Psychology may be defined as "the science of the facts and laws of mental life, as acquired by everyday experience." We say "mental life" rather than "conscious life," so as to include the preconscious and unconscious phenomena in man.

Everybody acquires some knowledge of the facts and laws pertaining to mental life through the ordinary process of living. Life would be almost impossible if we did not foresee to a certain extent our own and other people's reactions in given circumstances. Some individuals are better endowed in this respect than others. Some professions require more of this kind of knowledge than others. Labor leaders, salesmen, politicians and teachers must have a solid stock of such psychological knowledge in order to succeed in their professions.

This kind of psychology is to be found, although for the most part in a poorly organized and uncritical form, in proverbs, in the great masterpieces of literature, in the writings of moralists, educators, psychotherapists, ascetical authors, and in popular books about self-improvement. It differs from experimental psychology especially in that its data are not obtained through experimentation and measurement.

An orderly presentation of such facts and laws, which explains not

[1] This terminology is not accepted by all psychologists. It is presented here only for the sake of clarity.

only the "how," but also, wherever possible, the "why" of human behavior, is an "organized knowledge through the causes." It fulfills the conditions of a real science, in the wide sense of that word,[1] and can be called the science of Empirical Psychology.

Experimental Psychology, which may be defined as "the Science of behavior," applies strictly scientific methods to the study of animal and human behavior. It originated in the middle of the nineteenth century, and Wilhelm Wundt, who established the first laboratory of experimental psychology in 1879 at the University of Leipzig, is considered its founder.

In its beginnings this science did not differ much from physiology and was mainly concerned with the study of the sense organs. Gradually, more complex functions, such as memory, association and imagination were investigated, and eventually the same methods were extended to the study of the higher functions of thinking and willing.[2]

Philosophical Psychology may be defined as "the science of living bodies which interprets the data of experience in the light of metaphysical principles." It has two sources: (1) the data of experience, supplied by everyday experience or by biology, for the vegetative functions, and by empirical or experimental psychology, for the sentient and rational functions; (2) metaphysical principles, supplied by ontology or by metaphysical psychology.

Philosophical psychology, therefore, is a combination of science and metaphysics as applied to the domain of living bodies, or organisms. Such a combination of science and metaphysics is sometimes called "natural philosophy," and philosophical psychology may alternatively be defined as "the natural philosophy of living bodies."

[1] We mean by science in the strict sense a science which uses measurement and statistics, which presupposes strict determinism in its object, and which is able to predict future events.

By science in the wide sense is meant any organized body of knowledge about a certain topic.

Physics, chemistry, biology, etc., are sciences in the strict sense. History, sociology, theology, etc., are sciences in the wide sense.

In the following pages, the first kind of science will be written with a capital S. We shall use "science" with a lower case s to indicate science in the wide sense, or science in general.

[2] Wundt and the early experimental psychologists did not restrict the object of experimental psychology to behavior; they included within its scope all conscious phenomena.

Because it employs both metaphysics and science, philosophical psychology is partly deductive and partly inductive. It gives us a complete picture of living bodies in both their noumenal and phenomenal aspects. The noumenal aspect of beings refers to these beings as they are in themselves, independently of our ordinary way of knowing them. The phenomenal aspect of beings refers to them as they affect us, as they appear to our senses. The study of the first aspect belongs to metaphysics; the study of the second aspect belongs to the various sciences. Natural philosophy combines both aspects.

Metaphysical Psychology is that part of metaphysics which is concerned with the study of living bodies. Metaphysics, which is the science of being as such, is divided into general metaphysics, or ontology, and special metaphysics. Special metaphysics may be concerned with inorganic beings (metaphysical cosmology), organic beings (metaphysical psychology), pure spirits (angelology), or the Infinite Being (natural theology).

Metaphysical psychology is deductive in this sense, that it starts from a hypothetically necessary fact and discovers, a priori, all the conditions required to make that fact possible.

For example: We necessarily think by means of concepts. To deny this involves a contradiction, since the denial itself entails thinking with concepts. Hence thinking with concepts is of necessity. But such thinking presupposes certain conditions without which it would be impossible. These conditions are as necessary as the thinking itself. Metaphysical psychology investigates these conditions.

Metaphysical psychology is also termed "reflective psychology," because it consists essentially in the reflection of the intellect on its own activity. It differs from other forms of psychology especially in that "it studies man not as a thing, but as a spiritual and internal action; not so much under the aspect of an object as under that of a subject."[1]

Psychology is defined etymologically as "the science of the soul." We shall demonstrate that every living body (plant, animal, man) has a vital principle, or soul. Therefore all living bodies, including plants, are studied in philosophical psychology. Since the soul is the

[1] A. Marc, S. J., *Psychologie Réflexive*, 2 vols. (Paris, Desclée de Brouwer, 1949), Vol. I, p. 19. Father Marc takes as his starting point the phenomenon of human language. For another example of metaphysical psychology, cfr. J. Maréchal, S. J., "Esquisse d'une Psychologie Déductive," in *Mélanges Joseph Maréchal* (Brussels, L'Edition Universelle, 1950), Vol. I, pp. 304-322.

innermost reality of every organism, *the soul*, its faculties and activities, is the main object of metaphysical and philosophical psychology.

Modern philosophers, under the influence of Descartes, have restricted the scope of psychology to a study of conscious organisms. Empirical psychology follows this trend, and its object is *consciousness*, or the conscious experience of man. This does not exclude a study of the unconscious, which, however, can be known only through its conscious manifestations.

The psychologists of more recent schools have further restricted the scope of psychology. They are mainly interested in that which can be observed from without, or in that which can be inferred from such observation. The object of experimental psychology is *behavior*.

SOME PRELIMINARY METAPHYSICAL CONCEPTS AND PRINCIPLES

The purpose of this book is to study philosophical psychology. In philosophical psychology the data of experience are interpreted in the light of metaphysical principles. Therefore a brief review of certain metaphysical concepts and principles will be useful.

Existence and Essence

Ontology demonstrates that every finite being is composed of two really distinct and strictly complementary principles: existence and essence. Existence is that which makes a being exist, which makes it real. Essence is that which makes a being that which it is.

With regard to every being we can ask two fundamental questions: WHETHER it is, and WHAT it is. The first question concerns the being's existence, the second concerns its essence.

Pure existence is pure perfection, pure act. Of itself it is unlimited. Wherever existence is limited, that limitation must come from another principle, which is called essence. A being which is only existence, which IS its own existence, is of necessity infinitely perfect. God IS His existence. But it is clear from language alone that we are not existence, not even our own existence. We possess existence, we share it with other beings. In us, and in all finite beings, existence is limited by essence. Essence is to existence as potency is to act.

Under God and above man in the hierarchy of being are the im-

material beings, the pure spirits, whose existence cannot be strictly demonstrated by reason but whose essence can be studied as a possible reality. Pure spirits differ from material beings in that the essence of the pure spirit is simple, whereas the essence of the material being is composed of two complementary principles, substantial form and prime matter. None of these material beings is its essence. My essence, that which makes me a human being, is humanity. I am not humanity, not even my own humanity. I possess humanity, I share it with many others. If my essence were simple, if it did not contain prime matter, I should exhaust it completely. I should possess the whole of humanity, and no other human being would be possible. Every pure spirit exhausts his essence, is his whole species.

Two pure spirits differ from each other, not as two men differ, but rather as a man differs from an animal. Two pure spirits differ from each other through their essences. Two men do not differ from each other through their essences, for the essence is identically the same in both. What then causes them to differ from each other? The fact that their essence is composed of two principles, that the principle of determination in that essence, substantial form, is received in a principle of indetermination, prime matter.

Substantial Form and Prime Matter

Substantial form and prime matter cannot be imagined, they must be understood or conceived. Substantial form is not to be identified with the shape of an object; it is not the "form" or "configuration" of the Gestalt psychologists. Prime matter is not the matter studied in physics and chemistry.

To make these difficult concepts intelligible, we might proceed as follows. Suppose that we take some clay and make a ball of it. That ball of clay is a substance, a being which exists in itself. It is round and soft. Roundness and softness are accidents, i.e. realities which exist in something which is other than themselves. Roundness is that which makes the clay round, and softness is that which makes the clay soft. But what makes the clay just clay? We answer: its substantial form. The substantial form is that which makes a being that which it is.[1]

[1] This is the same definition as the one previously given for essence. The form is the positive element of the essence. In pure spirits, form and essence are the same reality.

Accidents cannot exist by themselves, they need some substance in which to inhere. Can a substantial form exist by itself? Not in purely material beings. Yet it does not inhere in a substance, since there can be no substance before the substantial form is present. The substantial form cannot exist by itself; it does not inhere in something other than itself. It exists-together-with, it co-exists with, matter. In purely material beings these two principles are complementary. They are con-created, they co-exist, they can only be apprehended in their co-existence. That which is directly created, that which exists by itself, that which can be understood by itself, is the material substance, composed of substantial form and prime matter.

Prime matter must be distinguished from the matter studied by the natural sciences. In philosophical language the "matter" of the natural sciences is called "second matter." Wood, iron, a rock are second matter. They are substances which are composed of a substantial form and prime matter.

In order that the idea of prime matter may be grasped, it may be useful to consider an example.[1] A cat kills and eats a mouse. The mouse is assimilated by the cat, becomes part of the cat. During this process of assimilation something has disappeared and something has persisted. When digested by the cat, the mouse is no longer a mouse; its "mouseness," its substantial form, has disappeared. But its prime matter persists. The prime matter is neither the cat nor the mouse; it is not the dead mouse or the proteins or other chemicals which analysis may discover in it. It is a principle of being which, when united to the substantial form of a cat, constitutes a cat, and when combined with the substantial form of a mouse, constitutes a mouse. It can never exist in itself, it co-exists with the substantial form.

What happened to the substantial form of the mouse when the mouse was assimilated by the cat? Exactly what happens to the roundness of the clay when you flatten the ball. The roundness disappears exactly *when, and insofar as,* it is replaced by some other shape. In the same way the substantial form of the mouse disappears exactly when, and insofar as, it is replaced by the substantial form of the cat. As it is impossible to imagine a piece of clay existing without any shape, so it is impossible to conceive prime matter existing without any substantial form.

It is not the task of the psychologist to demonstrate the reality of

[1] This example is not intended as a demonstration.

substantial form and prime matter. The following considerations are given only to prevent some common misunderstandings.

The reality of substantial form and prime matter cannot be demonstrated by arguments drawn from Science. On the other hand, no objections drawn from Science can invalidate Hylomorphism,[1] which is a metaphysical explanation and not a scientific theory. Hylomorphism is unaffected by any changes in the scientific conceptions regarding the ultimate physical constituents of matter.

A simple argument for the validity of these concepts can be derived from their usefulness. It seems to be impossible to explain the relation of body and soul, of organism and vital principle, except on the basis of Hylomorphism. That statement will be demonstrated in the following chapters. If these principles are required to explain living beings, we do not see why they would not help us also to understand inorganic beings.

The best argument for the validity of the ideas of substantial form and prime matter derives from the fact that these concepts are required for the intelligibility of all material beings. We shall not present that argument here, since its exposition supposes an understanding of certain concepts which will be explained further on in the book.[2]

In modern terminology, substantial form might be defined as the *constitutive law* of a being. Prime matter would then correspond to the *undetermined* energy in which this constitutive law is embodied. That undetermined energy cannot exist or be conceived without such a constitutive law. It becomes something definite—that is, something which can exist and can be conceived—only on account of that constitutive law.[3]

The Degrees of Material Beings

With these ideas it is possible to express in metaphysical terms the difference between the various degrees of material beings. Every material being possesses an essence composed of substantial form and prime matter. The differences between the degrees of material beings

[1] Or the theory which holds that all material beings are composed of substantial form and prime matter.

[2] That argument is briefly presented on page 233.

[3] Cf. the interesting remarks of Fr. Maréchal, S. J., in "Le Problème de Dieu d'après M. Edouard Le Roy," in *Mélanges Joseph Maréchal*, Vol. I, pp. 237-238.

derive from the different proportions in which the two components are combined.

Form is a principle of perfection; it is restricted by matter, which is a principle of imperfection. Form is the principle of consciousness, knowledge and spontaneity. Matter is the principle of unconsciousness, passivity and necessity. When form is combined with matter, the resulting being is deprived of the properties of form to the extent in which matter has entered the combination. The consciousness and spontaneity of form are, as it were, neutralized by the unconsciousness, passivity and necessity of matter.

The proportions in which form and matter can be combined in material beings vary considerably, and to them correspond the degrees of ontological perfection of these various beings.

In minerals (the "matter" of everyday language and of the Sciences), form and matter are present, so to speak, at equal intensity, so that all the positive qualities of form are counteracted by the negative properties of matter. Form is entirely immersed in matter, it is totally diluted in matter. Minerals possess certain activities, which derive from their form. But because their form is entirely immersed in matter, these activities are necessary, blind and unconscious.

In plants too form is almost entirely immersed in matter. Almost, but not entirely. Here form emerges somewhat from matter, so that its proper effects are not totally neutralized by matter. This explains why some activities of the plant are superior to the activities of minerals. Beyond their purely mechanical activities, which they share with minerals, plants possess some higher activities, the *living* activities, through which the plant works for its own greater perfection. The superiority of these activities derives from the slight prevalence of form over matter in the living beings.

In animals the form emerges still more from matter and exerts more of its superior influence. Hence in animals we find conscious activities, sense knowledge and sense appetite.

It would seem that we can go one step farther and apply the same considerations to man. In man, we could say, the form emerges still further and is capable of producing higher activities. But man's substantial form, as we shall demonstrate later, is of a very special kind. The forms which we have considered thus far are material forms; man's substantial form is not material, it is a spirit which acts as the form of a material being. Inasmuch as it is a form united to matter, we can consider it as the next higher step in the hierarchy of forms. But

we must always remember that it is more than a material form, that it possesses activities which are never found in material forms. Between the form of the highest animal and the form of man there is not only a difference of degree but a difference in kind. We shall give further consideration to this important aspect of man later on.

Metaphysical Principles in Psychology

Having briefly reviewed these important metaphysical concepts, we must now outline the metaphysical principles used in philosophical psychology.

Besides the principle of identity, or first principle, the principle of causality and the principle of sufficient reason, philosophical psychology uses mainly the following metaphysical principles:

1. "As a being is, so it acts." We know the nature of a being by studying its activities. A chemist discovers that a certain substance is arsenic by finding out how it reacts with other substances. In psychology, we shall be able to discover the nature of our intelligence by studying the operations of that faculty—ideas, judgments, self-reflection. This principle is immediately evident: the nature of a being is the essence of that being, inasmuch as it is the radical principle of its operations. As we can know a cause by examining its effects, so we can know the nature of a being by studying its operations.

2. "An effect cannot possess more perfection than its cause," since the whole reality and perfection of the effect derive from its cause.

3. The principle of proportionality or of analogy: "The ontological perfections are common to all beings, to each according to its degree."[1]

If by ontological perfections we mean the transcendental attributes of being, unity, truth and goodness, this principle is immediately evident. These ontological perfections are but different aspects of being. And since being is common to all beings, these perfections too are common.

But the principle of proportionality has a deeper meaning. All beings derive from God. God is spirit, consciousness, life, intellect, love and liberty. Now every agent produces effects which resemble it—"*Omne agens agit simile sibi.*" Therefore all God's effects, all beings,

[1] Pierre Scheuer, S. J., "Notes de Métaphysique," in *Nouvelle Revue Théologique*, 55 (1926), p. 522.

must be, at their degree, in their own way, spirit, consciousness, life, intellect, love and liberty. These are the ontological perfections implied by the principle of proportionality.

Concerning this principle Fr. Pierre Scheuer, S. J., writes as follows:

> According to this principle we are ourselves, in our own being, the first principle of metaphysical explanation. We are, each one of us, the only being which we know from within, in itself. What we discover within us we apply above ourselves by extension and below ourselves by restriction.
>
> The principle of proportionality seems, at first sight, paradoxical and opposed to common sense. Does it not entail panpsychism? Shall we say that a mineral possesses life and intelligence?
>
> We must first remark that words should be given the meaning which they have in everyday usage. We shall not say that a mineral possesses life, because life means the perfection of immanence, at least in that degree which is found from plants upward. Likewise the application of the word "knowledge" begins only with the animal, and of the term "intellect" only with man. We only say that, since all beings are only being, and since being is common to all of them, there is in none of them an ontological perfection which is totally heterogeneous to the other beings. Aside from all terminological discussions, we must affirm that there is in the atom something which is to the intellect what the being of the atom is to the being of a spirit. This formula is above reproach and contains nothing paradoxical. God is only life, spirit, intellect and love; yet He sees in Himself, as a very imperfect participation of Himself, the being of the atom. Would that be possible if the atom were entirely heterogeneous, entirely "alterius rationis" to life, intellect and love? This principle destroys the basis of agnosticism and provides us with the only means of escaping it. It opens the way to that real intelligence of beings which understands the lower ones by means of the higher. The most material determinations are, in their intimate core, nothing but participations of thought and of love. That which is entirely irreducible to the spirit—for instance, local movement or extension as such—is introduced into a being by prime matter. But this irreducible element can be separated only by abstraction; in reality, it is synthesized with a formal element. The principle of analogy is frequently used by St. Thomas.[1]

4. The principle of continuity: "The highest point of the lower degree always touches the lowest point of the higher."[2]

[1] *Ibid.*, p. 521 (our translation). Cp. *S.C.G.*, II, 30: "It belongs to God's perfection that He bestowed His likeness on created things, except as regards those things with which created being is incompatible: since it belongs to a perfect agent to produce its like as far as possible."

[2] *De Spir. Creat.*, 2, c. and passim.

This principle, which St. Thomas borrowed from Pseudo-Dionysius, is frequently used in his works. It follows from the two preceding principles.

In every degree of being we can distinguish lower and higher activities. The principle states that the highest activity of each degree of being resembles the lowest *specific* activity of the degree of being immediately above it. Thus the highest intellectual activity of man, which St. Thomas attributes to the intellect, as opposed to understanding, resembles the intellectual activity of the angels. The highest cognitive activity of animals, their estimative power, resembles the lowest specific activity of man, as found in understanding. We say "specific" activity because it is quite evident that the cognitive activities of animals resemble the lowest cognitive activity of man—that is, his sense knowledge. But sense knowledge is not specifically human. The principle of continuity supposes resemblance between the specific activities of the different degrees of being.

THE CONFUSION IN MODERN PSYCHOLOGY

The distinctions which we have made between the different kinds of psychology are often overlooked by psychologists, with considerable confusion as a consequence. This was especially true during the first decades in the study of experimental psychology.

In textbooks of the Sciences—physics, chemistry—there is a certain margin for disagreement with respect to details, but there is agreement with regard to all fundamentals. In psychology for many years the situation was the opposite: agreement with regard to details but utter disagreement on the most essential questions, such as those of intelligence, the will, the soul. Some psychologists tried to explain this wholly on the grounds that psychology was a young Science, engaged in the study of a very complex object. Actually the trouble derives from the very nature of psychology, from the peculiar character of the object which it studies.

We find perfect agreement in the exact, positive or natural Sciences, which use measurement, experimentation and laboratory methods. These Sciences make their greatest gains where determinism is perfect, where the activities under consideration are blind, mechanical, necessary, predictable, where the influence of form is entirely counter-

balanced, or neutralized, by that of matter—that is, in the world of minerals. As soon as Science enters a domain where form emerges from matter, difficulties arise. Here we meet activities which show some of the characteristics of form: spontaneity, unpredictability. Spontaneous, unpredictable activities cannot be wholly interpreted within a deterministic frame of reference, and measurement becomes increasingly difficult. Science loses its favorite tools. Form and the influence of form as such can be studied only by philosophy, so that a complete knowledge of these domains in which form exercises its peculiar effects in a perceptible way can be obtained only with the aid of philosophy.

The difficulties start with biology, which is the study of living beings as living. Science can cover most of this domain because all the single activities of the living being are purely material. But the intrinsic finality of these material activities cannot be explained entirely by Science. A study of living beings is incomplete without an explanation of the central phenomenon of life. Science cannot explain life but must recur to philosophy for the consideration of this problem. That is the reason underlying the perennial controversies between mechanists and vitalists in the field of biology.

In animals the influence of form is greater than in plant life. Therefore in the study of animals "as animals," which is undertaken by animal psychology, more problems arise which the scientist feels unable to solve. The nature of animal knowledge and consciousness is no longer a scientific problem but one which must be studied by philosophy.

But it is in the study of human psychology that strictly scientific methods meet the greatest difficulties, since here the influence of the formal element is predominant. Of course, there are Sciences by which man is studied with great success—for example, anatomy. But the Science of anatomy is purely descriptive of man in terms of shape, structure, dimensions; man is studied as if he were a crystal or a mineral. Physiology is concerned with the study of man as if he were a plant, and most of this terrain can be covered in a satisfactory way by means of the scientific method. But when we try to study those functions in man which make him specifically human—his intellect, his free will—we find little help in the Sciences.

The higher we advance in the study of human psychology, the greater is the need for a philosophical method of investigation. The

reason for this fact is shown in Figure 1. The two almost triangular halves of the rectangle represent respectively the domain of matter, determinism and Science (lower half) and the domain of form, spontaneity and philosophy (higher half). The various human functions are represented by the horizontal lines. Lower functions, such as reflexes, are represented by the base line, which lies almost entirely in the lower half. Hence, for the study of such functions, the methods of Science are quite sufficient. Intermediate functions, such as memory and learning, can be conceived as lying partially in the lower and partially in the upper half. They have a considerable

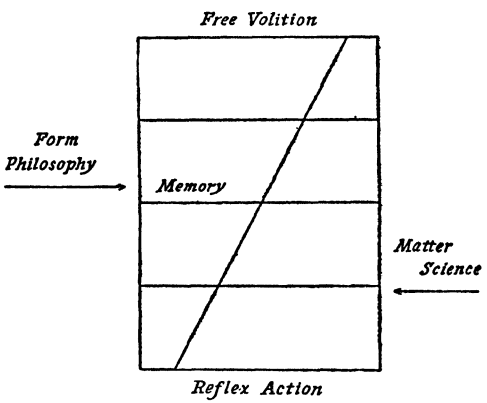


Fig. 1

material component and can to a great extent be investigated scientifically. Yet a complete elucidation of these functions will require the help of philosophy. Thus it is impossible to understand "learning" completely, unless one understands what "knowledge" is. And this requires the help of philosophy.

But in the highest human functions, such as intellection and free volition (represented by the top line), the material element, although still present, is so unimportant as compared with the formal element, that here Science has very little to say, and the explanation must come from philosophy. Science will, and must, try to explain even these highest functions. When we think or freely choose, something happens in the brain; Science must try to investigate this cerebral background of man's spiritual activities. But even when the

scientist knows everything about these processes in their physical manifestations, he will not have explained thought and free volition. Only philosophy can, in its own sphere, explain the nature of these functions.

It is easy to understand now why, in most textbooks and courses of general and experimental psychology, the main share of attention goes to the inferior functions, such as reflex movement, sensation, association, perception, learning. The study of the higher functions is necessarily conducted in a superficial way which does not give any real insight into their nature. Consider, for instance, the chapter on intelligence in an ordinary textbook. We hear plenty about the intelligence quotient, the measurement of intelligence and intelligence tests. But we are not told what intelligence really is or how it works.

This is by no means a reproach addressed to the experimental psychologists. The very fact that modern psychologists do not consider these problems shows that they have become aware of the nature and the limitations of their Science. The psychologists of an earlier day treated these problems in their textbooks; they made statements which were not based on scientifically established facts, but which derived from their own, often unconscious, philosophical conception of man. The result of this procedure was a score of conflicting schools holding mutually contradictory positions on essential questions.

Some modern psychologists err in presenting the results of their scientific investigations as a *complete* picture of man. If we consider the study of man as the main purpose of psychology in general, we must state that a strictly scientific psychology is necessarily, and will always remain, an incomplete psychology. It will continually extend the scope of its investigations, but it will never be able to cover the field entirely.

The same limitation applies to metaphysical psychology. Of itself it cannot give us a complete picture of man. Its deductive method does not extend to the material, phenomenal aspects of human nature, without which any picture of man is incomplete.

Therefore in the present study we shall try to combine the scientific and the metaphysical, the inductive and the deductive methods. An attempt will be made to use the data of experience, as supplied by

the Sciences, and to interpret them in the light of metaphysics. That is the scope of the natural philosophy of man, of philosophical psychology.

DIVISION OF THE COURSE

Psychology is the science of organisms, or living bodies. There are three main kinds of organisms: plants, animals and men. All three possess vegetative life; animals and men have sentient life; men alone are endowed with rational life.

We are primarily interested in human psychology. But we must also study briefly the life of plants and animals, since these topics belong to psychology as we understand it. Furthermore, man has vegetative life in common with both plants and animals, and sentient life in common with animals. Finally, the study of these lower forms of life will help us to understand more thoroughly, by contrast, the nature of rational life.

Our course will be divided into five parts.

The first part is concerned with the study of life in general.

The second part is concerned with the life of plants and animals.

The third part is given to the study of the sentient life of man. This part will necessarily overlap to a certain extent with the second part, since animals possess sentient life in common with man.

The fourth part is devoted to a study of man's rational life.

The fifth part is devoted to a study of man as a whole, as a person.

READINGS[1]

Maréchal, *Studies in the Psychology of the Mystics*, Ch. 1, "Empirical Science and Religious Psychology." Donceel, "What Kind of Science Is Psychology?" in *The New Scholasticism*, Vol. 19 (1945), pp. 117-135. Allport, *Personality*, pp. 60-63. Klubertanz, *The Philosophy of Human Nature*. (Appendix K, "What Is the Philosophy of Human Nature?", presents a different conception of the relation between Science and Metaphysics. Cf. the bibliography at the end of that appendix.)

[1] Details of publication for these Readings and others in the book will be found in the General Bibliography.

PART ONE

Life in General

CHAPTER 1

The Concept of Life

WHAT is life? Most people are unable to give a satisfactory answer to this question, although the ordinary person can almost always distinguish a living being from one which is not alive. The nature of life is mysterious; its effects or manifestations are familiar to all. It is by a study of these manifestations that we must try to discover the nature of life itself. From the visible effects we must go back to the invisible cause, from the accidents to the nature.

The Popular Conception of Life

The most usual criterion of life is movement, in particular self-movement. A living cat moves about, a dead cat does not. In some cases, however, such a rough criterion is insufficient. A man may lie quite motionless on the street; we do not at once conclude that he is dead, he may have fainted. We look then for other, less obvious kinds of movement. Is his heart beating? Is he breathing? Here again movement, although of a special kind, is the sign of life. Plants do not move of themselves; yet they are alive if they produce leaves and flowers and fruit, if the sap circulates in their stems and branches, if we discover in them the movement connected with nutrition and growth. In the popular conception, life is the capacity for self-movement.

The Scientific Conception of Life

Among the features which the scientists consider as characteristic of living beings, we can mention the following:

1. Cellular constitution: living beings are generally built up of cells;

2. Metabolism: a constant exchange of material elements with the environment;

3. Unstable equilibrium: an organism reaches chemical stability only when it is dead;

4. Eventual death, except in the organisms which multiply by fission;

5. Especially organization, which is the "fundamental fact common to every living thing: protoplasm *builds organisms*. It does not grow into indeterminate, formless masses of living stuff. The growth and activity shown by plants and animals are not random processes but are so controlled that they form integrated, coordinated, organized systems."[1]

The Philosophical Conception of Life

For the philosopher the great difference between living and non-living beings is that the living beings possess immanent activities, whereas all the activities of the non-living beings are purely transitive.

An immanent activity is one whose effects remain within the subject which acts. When I think, the thinking starts in me and its effects remain within me; thinking is an immanent activity; so are growing, seeing, willing.

A transitive activity is one whose effects pass into another being. When I kick a ball, the kicking starts in me, but its effects pass into the ball. When two cars collide, one smashes the other and is in turn smashed by it; neither car smashes itself.

All living beings manifest a certain number of immanent activities. The number of these activities and the degree of their immanence increase as we ascend in the scale of being. But since we speak here of life in general, of life as possessed by all living beings, even the lowest, we shall consider only those immanent activities shared by all. These are nutrition, growth and reproduction.

That nutrition and growth are immanent activities is evident, since the effect of these operations remains within the feeding or growing organism. It is not so clear that reproduction is an immanent activity,

[1] E. W. Sinnott, *Cell and Psyche: The Biology of Purpose* (University of North Carolina Press, 1950), p. 22.

since the effect of that activity seems to pass entirely into the new being which is its product. It is true that the final state of reproduction is transitive; but the first stage is immanent: a living being prepares in itself, as part of itself, certain substances which may eventually give rise to a new being. Only that immanent first stage of reproduction is found in all living beings; the final, transitive stage may never be reached.

That nutrition, growth and reproduction are found in all living beings is evident. That these activities are never found in non-living beings is a fact of common experience. Hence a living being is one which is capable of immanent activities, and life is that which makes a being *capable of immanent activities.*

It could be objected that every machine is capable of immanent activities: it is argued that the machine moves itself, the effect of its movement remains within itself. In fact, machines have no immanent activities, because they possess no natural unity. Their unity is extrinsic, artificial, produced from without. Therefore we cannot say that they move themselves, but only that one part moves another. Only where there is intrinsic, natural unity can we speak of real immanent activities. A living being is *naturally* capable of immanent activity, and we can complete our definition of life by saying that it is that which makes a being *naturally capable of immanent activities.*

A more serious objection derives from a consideration of the intra-atomic movement of inorganic matter. According to modern physics, matter is constituted not of solid particles but of an immense number of infinitesimal systems in which protons, neutrons and electrons move around a central nucleus. Here is an activity which is natural and whose effects remain within the atom. Why should we not call this an immanent activity?

In a certain sense we could say that it is, or at least that it is some approximation to it, something analogous to it.[1] The difference between this activity and the immanent activities of living beings is that intra-atomic movement only maintains the energy of the atom, whereas the immanent activities of a living being not only maintain but also develop and increase the energy of the organism. They are not only immanent but are *perfective* of the acting subject. That

[1] ". . . every natural movement in respect to natural things has a certain likeness to the operations of life" (*S. Theol.*, I, 18, 1, ad 1).

nutrition and growth are perfective of the organism is evident, whereas reproduction is at least perfective of the species.

We can now add this last qualification to our definition, and say that life is that which makes a being *naturally capable of self-perfective immanent activity.*

CHAPTER 2

The Nature of Life

WHAT makes living beings so different from non-living beings? What gives them the power of performing self-perfective, immanent operations?

The answer is: life. But how do we explain that mysterious life? Is it some kind of material energy, like electricity or magnetism or radioactivity, or a special combination of such material energies? Or is it something superior to purely material energy?

The first hypothesis is defended by mechanism, the second by vitalism.

THE MECHANISTIC INTERPRETATION OF LIFE

Mechanism holds that life is some kind of material energy, or a resultant of a combination of material energies; that it can be explained, or will eventually be explained, by the laws of physics and chemistry; that a living being is only a complicated machine. The difference between living and non-living machines is that the latter are products of human ingenuity, whereas the former are products of nature, of evolution, of the blind powers of matter. Mechanists readily admit that living machines are vastly more complicated than the most complicated man-made machines. But sooner or later, they maintain, the human mind will be able to construct the machinery of life.

Philosophically considered, mechanism is a doctrine which rules out all final causes and explains living beings by means of mechanical

causes. A mechanical cause is an efficient cause which acts without purpose, blindly and necessarily.

We shall briefly indicate two ways in which mechanism, as a doctrine, can be refuted:

1. Mechanism cannot explain the origin of living beings. A complete mechanist must hold that they are the products of chance. What he does not hold for a watch, an airplane or a bridge, he holds for the much more complicated structures which we call living beings. The impossibility of such an explanation is immediately evident for a philosopher, and quite a number of scientists admit this impossibility.

2. Some mechanists admit the impossibility of explaining the origin of the first living beings by the forces of matter alone. They accept some extra-mundane cause as the first origin of life, or they claim that life has always existed in some part of the universe. Either position means the abandonment of the mechanistic explanation of the origin of life; yet such mechanists hold that, once life is given, it can be explained entirely in terms of the forces of matter.

The best refutation of this claim is still to be found in the famous experiments of Hans Driesch. This German biologist and philosopher performed some remarkable experiments on the embryos of sea-urchins. When the embryo contained only two or four cells, he separated these cells from each other and saw each one of them develop into a complete, although smaller, animal. When the embryo was composed of eight cells, he modified the position of these cells, he "shuffled" them. In spite of this he obtained a normal animal. When the embryo contained about a thousand cells, he took away an indefinite number of cells, at any place in the embryo; if not too many cells had been removed,[1] the embryo developed into a normal animal of smaller size.

The same experiments have been performed upon the embryos of other animals, with identical results. It appears that only technical difficulties making the experiment impracticable prevent the scientist from obtaining the same results with the embryos of every animal.

Such phenomena do not occur in machines, and their presence in living beings is considered by Driesch to be a sufficient refutation of the mechanistic conception of life.

[1] Later research has shown that regeneration would not occur if those parts of the embryo which contain the organizers had been removed.

Later research in experimental embryology has shown that these remarkable phenomena of regeneration can be explained by the influence of "organizers," of specialized parts of the embryo which direct the regenerative activity. If an embryo is dissected into two parts, one of which contains such an organizer while the other lacks it, only the first part will regenerate.

Embryologists have further demonstrated that these organizers operate by means of certain chemical substances. It might seem, therefore, that there is really nothing mysterious in these phenomena, since they can be analyzed in terms of physics and chemistry. In reality, however, the mystery of life has not been solved, but only further removed. As Professor E. W. Sinnott points out,[1] the organizing chemicals produce their results only if they are distributed in a definite way, if they appear at a definite time, if they are present in a definite quantity. The biologists do not know the factors responsible for this "prospective adaptation." Moreover, these chemicals presuppose living cells susceptible of being influenced by them. The mystery of the element in these cells which makes them react in a certain way to the influence of the organizers has not been solved.

Undoubtedly new discoveries will shed more light on the mechanical causes at work in every organism. Science will indefinitely continue to find answers to the problems which it meets in the investigation of life. But every answer will raise new problems. A final answer, which would explain how all the mechanical factors co-operate harmoniously towards their immanent goal, the perfection of the organism as a whole, lies beyond the reach of Science and must come from philosophy.

Hence some outstanding theoretical biologists have given up the mechanical explanation of living activities. For them, as Sinnott puts it, "biological organization and psychical activity are fundamentally the same thing."[2] We shall not go as far as they do. But we accept their statements as a proof that life cannot be explained entirely by the forces of matter alone.

[1] *Op. cit.*, p. 37.
[2] *Ibid.*, p. 48.

THE VITALISTIC INTERPRETATION OF LIFE

If life canot be explained mechanically, we must admit some other kind of causality. The mechanical causes, which are undoubtedly at work in every living being, seem to be under the direction of some "guiding idea" which steers their activity toward the realization of the specific type of this plant or that animal. We call this guiding idea the vital principle. Such is the position of vitalism.

Most biologists have a deep-seated aversion for vitalism. Even those whose explanations seem to coincide with the vitalistic position do not want to be known as vitalists. This curious attitude can be said to arise from two sources: (1) a misunderstanding of the real nature of vitalism; (2) the erroneous idea that vitalism is presented as a *scientific* theory.

The Real Nature of Vitalism

When a modern biologist hears about vitalism, he immediately thinks that what is meant is the theory which we call "exaggerated vitalism." According to this, a living being is constituted of a complete material being plus a vital principle which directs the activities of that material being and explains its life. A living being is like a car with a driver: the car exists without the driver, but it needs a driver to turn the ignition key and direct its movement.

That is not our interpretation. For us the vital principle not only directs the activities of the plant, it explains the very existence and nature of the plant. Without the vital principle, not only would the plant not be alive, there would be no plant at all.

All material beings, including inorganic substances, are composed of prime matter and substantial form. Hence, according to exponents of exaggerated vitalism, there would be first a complete material being, constituted of matter and form, and above and beyond that a vital principle, which would be a second and higher kind of form.

But moderate vitalism states that the vital principle is precisely the substantial form of a plant, or other living being. There is no need for a guiding principle in addition to the substantial form. The difference between a rock and a plant, for example, is not that the

plant has a special guiding principle, but only that in the plant the form is more perfect than in the rock; this higher perfection explains why the plant is alive, while the rock is not. Such a substantial form is called a "soul," and we can speak of the soul of a plant.

Our position lies between the two extremes of mechanism and exaggerated vitalism. For mechanism, a living being is only a complicated machine. For exaggerated vitalism a living being is a complete material system provided in addition with a guiding principle which directs its activities. We claim that a living being is a material being constituted, like all other material beings, of prime matter and substantial form. But in living beings this substantial form is more perfect than in non-living beings, and it is therefore called a vital principle, or a soul.

Vitalism Not a Scientific *Theory*

Even after these explanations there remains in the mind of the biologist a lurking suspicion that, if he embraces vitalism, he must give up any further attempts at scientific explanation of the facts of life. Everything is now explained by this mysterious entity, the vital principle.

Nothing could be further from the truth. Vitalism is not a scientific explanation of the nature of life. It does not supersede the scientific theories of biology. A vitalist admits that each single operation of the living organism, taken separately, can and should be explained by the forces of matter alone. Each single step of cell-division, for instance, can or will be explained physico-chemically; each one could be artificially reproduced in the laboratory, without the intervention of any vital principle.

The scientist can and should, therefore, explain every single step in the vital activities of an organism by means of the laws of physics and chemistry. There are no mysterious new energies at work in an organism which cannot be interpreted in terms of these laws.[1] A scientist as such should never explain any operation in a living being by referring it to the vital principle. When he does that, he gives up Science and passes into philosophy. As a scientist he is engaged in

[1] In philosophical language: the vital principle is a formal, not an efficient cause.

the study of the single operations of the organism, which he must explain mechanically.

What cannot be explained mechanically is the fact that all these single operations co-operate in the same immanent purpose, the good of the organism. The intrinsic finality of a living being cannot be explained by physics and chemistry.

A biologist may balk at this statement, since it may seem to put certain biological problems beyond his competence. He will not only try to explain each single activity, he will also attempt to discover the mechanisms which are responsible for the co-ordination of these single activities. He will, in fact, discover some of these mechanisms. But a final, all-embracing explanation will elude him; it constitutes a "limit" which he will always approach and never reach.

It is at this point that biologists who have thus far worked harmoniously together will go their separate ways and adhere to conflicting schools of thought. Some deny the difficulty and claim that absolutely all problems of biology can be entirely solved by the ordinary methods of Science. Fifty years ago this mechanistic trend was prevalent in biology, but great advances since made in this Science have made many biologists more prudent. The more deeply they penetrate into the mystery of life, the more aware they become of the peculiar nature of biological problems. If they reject pure mechanism as the final explanation of life, two avenues remain open to them.

They may use explanations which, although not mechanistic, are still considered strictly scientific. The fact is that these explanations are scientific transpositions of philosophical explanations. Scientists who insist upon organization, configuration, Gestalt, holism for an explanation of the problem of life do not seem far removed from the concept of a vital principle as explained above.

Others have adopted explanations which are patently philosophical, whether or not they are aware of it. This applies especially to those who consider life to be a psychic reality. Strictly speaking, this explanation is untenable, but if we look at it in the light of the principle of proportionality, it can be interpreted in an acceptable way. The vital principle is to a living organism what the psyche is to a sentient organism.

Summarizing, we can say that *mechanism as a method* is the only possible attitude for the scientist. It is only when we try to find the final explanation of the co-ordination of all the single (mechanical)

operations and their intrinsic finality that mechanism is no longer sufficient. But such a final explanation is not a scientific but a philosophical problem. And therefore *mechanism as a philosophy*, that is the doctrine which denies the existence of all but mechanical factors in organisms, is false.[1]

Every material being is constituted of substantial form and prime matter. In the lowest degree of beings—the minerals—form is entirely commensurate to matter, it is entirely immersed in matter, so that all activities of these minerals, although they derive ultimately from their form, are necessary and blind and can be explained totally by the laws of physics and chemistry.

As we come one step higher, in the plants, each single operation is still entirely explainable by the same laws. Something, however, can no longer be explained in that way: the fact that the effects of these operations remain within the being—their immanence, their intrinsic finality. To explain this intrinsic finality we do not require a new directing principle in the plant. We say that the plant's substantial form is more perfect than the mineral's, that it is able to exert some of its peculiar effects, to direct the material activities of the plant towards the good of the plant.

[1] There are other instances in which a superior influence uses factors of a lower nature and, without any apparent interference in their regular order, directs them towards a higher purpose. Such are freedom and divine grace in our human activity, and divine Providence in the events of daily life. In all these cases, each single action or event can be explained by ordinary physiological, psychological or social causes. Yet from within they are somehow directed by a superior influence towards a higher end.

CHAPTER 3

The Metaphysical Meaning of Life

IN ORDER to penetrate more deeply into the meaning of life, we must use metaphysics, in particular the principle of proportionality.

"Using ourselves as the first principle of metaphysical explanation and applying that which we discover in ourselves above ourselves by extension and below ourselves by restriction,"[1] we can proceed as follows:

We find in ourselves some very perfect types of immanent action. I know that I know, I am aware of being aware, I decide to decide. In all these actions I am both subject and object. The subject of the action coincides with its object. The subject is luminous to himself, is present to himself, identifies himself actively with himself. That kind of immanent action is more perfect than any immanent actions we discover in plants or animals; yet it is far from the supreme perfection which immanent activity reaches in God.

Between our highest immanent actions and the immanent activity of God there are three main differences:

1. We do not always consciously know and love ourselves, our self-identification is not continuous. God, on the other hand, knows Himself and consciously loves Himself continually.

2. Even when we reflect upon ourselves, we are not conscious of our whole selves, but only of the operation of our mind in the act of self-reflection. There remain perpetually in us vast areas of unconsciousness. After many centuries of scientific investigation, man remains a mystery to himself. God, on the other hand, knows

[1] Scheuer, op. cit.

Himself perfectly, and nothing in Him is outside the grasp of His consciousness. He is nothing but consciousness, intellect and will.

3. We become conscious of ourselves after having first become conscious of an exterior object. The movement of our consciousness is first outwards, then, through reflection, inwards. A human being who was unable to know any exterior object would never know himself, would not be aware of his own existence.

That is why St. Thomas speaks of a "return to our essence," which supposes that we have first gone out of it. That is why we speak of an "active identification with ourselves," an operation of becoming identical with ourselves, which presupposes a stage at which we were not identical with ourselves.

God, on the other hand, need not first know any exterior object before He knows Himself. To declare that He is subject to this necessity is the fundamental error of idealistic pantheism. He knows Himself first, continually, eternally. In Him there is not self-identification but active self-identity. He is essentially such an active Self-Identity.

No creature possesses such perfect self-identity. Angels know themselves continually and without the need of exterior objects, but they depend on God for their self-knowledge. Man knows himself partially, intermittently, and with dependence not only on God but also on exterior objects. Animals do not know themselves, but they are aware of external objects. Plants do not even know external objects. Their immanent activity is restricted to the operations by which they feed, grow and reproduce themselves. Yet these simple operations of nutrition, growth and reproduction are that in the plant, which, at its degree, corresponds to the perfect Self-Identity of the First Cause, or to our human self-consciousness. In other words, life is the first step of matter towards a greater similarity with God.

The principle of proportionality can therefore be stated concretely as follows:

Perfect Self-Identity	Self-consciousness	Consciousness of objects
God	Man	Animal
Immanent action, Life		
Plant		

We can go further. Even in the mineral there is something which, at its lowly degree, corresponds to the perfect Self-Identity which is

God. In other words, although there is no really immanent activity in the mineral, there must be something akin to it, foreshadowing it, according to the principle of proportionality and the principle of continuity.

In fact, we find in crystals phenomena resembling growth; we find in many material bodies a spontaneous restoration of equilibrium which resembles the phenomena of regeneration in organisms. Intra-atomic movement is an activity whose effects remain within the atom, and which resembles the immanent activity of living bodies. When W. Köhler[1] saw a similarity between the "Gestalten," or configurations, which occur in the world of physics and those which occur in the organic and psychic world, he was not wholly wrong. His mistake was to emphasize only the similarity, not the differences. The principle of proportionality draws our attention to both.

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[1] *Die physischen Gestalten in Ruhe und im stationären Zustand* (1920).

PART TWO

Plant and Animal Life

INTRODUCTION

Our philosophical conception of plants and animals follows from the general principles outlined above. Both plants and animals are material beings, composed of prime matter and substantial form. In this respect they differ neither from minerals nor from men. The difference lies in the degree of perfection of the substantial form, of its emergence from matter.

In minerals (the "matter" of ordinary language) the substantial form is so entirely immersed in matter that it can give the mineral only its material existence and its material activities. In man form emerges so far from matter that it can produce operations which are entirely independent of matter. We shall demonstrate later that man's soul is more than a substantial form, that it is a spirit which functions as a substantial form. This explains why man's soul can exist apart from matter.

Plants and animals lie between these two extremes; in both the form cannot exist without matter, in both it emerges enough from matter to produce some effects which are never found in minerals.

This emergence is slighter in plants, in which the substantial form (soul, or vital principle) can produce no activities which cannot individually be explained by the laws of physics and chemistry and artificially reproduced in the laboratory. This applies equally to the vegetative functions or the physiological activities of animals and men. There is nevertheless in the plant some degree of emergence of form from matter, which explains why all these material activities are directed towards the greater perfection of the whole, why the plant possesses intrinsic finality or life.

In animals the emergence of form from matter is more con-

siderable, producing a higher kind of immanent operations. Though strictly in the material domain, these activities must be ascribed mainly to the influence of form. Such are the conscious activities of the animal, its knowledge, feelings and drives. They involve a higher degree of immanence than the activities associated with nutrition, growth and reproduction; they are more highly perfective of the organism. Their effects remain not only within the acting subject, but within the acting power of the subject. Matter continues to be a partial cause in these operations, but the influence of form is predominant.

The Plant Soul

Psychology has little to say about plants. We have already demonstrated that the occurrence of immanent, self-perfective operations in the plant induces us to affirm the presence of a vital principle, or soul. We must briefly consider the nature of the plant soul.

The plant soul is material. A thing is material either (1) when it can be seen, touched, weighed, measured, when it is perceptible to the senses; or (2) when in all its operations, and for its very existence, it is intrinsically dependent on matter.

The plant soul is not material in the first sense. It is material in the second sense; it is intrinsically dependent on matter.

A being is intrinsically dependent on matter when matter is a co-cause of its operations and its existence.

Matter is a co-cause of its operations: when such a being acts, the action is not produced entirely by the being itself but involves the causal influx of matter. Every action of that being is the effect of a dual causality: the being in question and prime matter.

Furthermore prime matter is a real co-cause of the very existence of the plant soul. Neither the plant soul nor the prime matter can exist independently, but only the whole substance, the plant. Soul and matter alike are substantial principles, constituting together one substance which exists. Therefore the plant soul cannot exist in itself; it depends on prime matter for its very existence, in this sense, that only in combination with prime matter can it constitute a substance capable of existing.

Contrast this with realities which are only extrinsically dependent on matter—that is, for whose operations matter is only a necessary

condition, not a real co-cause. Such a reality is our intelligence. No thought or judgment is possible in man without the co-operation of the body, especially the brain. However, the brain is not a cause of thinking or judging, but only a necessary condition. This important statement will be demonstrated later.

The plant soul is material; both environmental matter and the mineral components[1] of the plant itself are really co-causes of nutrition, growth and reproduction in a plant. This is so evident that there is no need to labor the point. The vital principle alone cannot feed, or grow or reproduce; matter is really involved as a co-cause of these activities.

Therefore in its characteristic and highest operations the plant soul is intrinsically dependent on matter. But as a being is, so it acts. Therefore the plant soul is intrinsically dependent on matter, not only in its operations, but also in its existence.

It follows that the plant soul is material. It cannot exist without matter, any more than roundness can exist except in something round. When the plant dies, the soul disappears, as roundness disappears when a ball is flattened. The plant soul is replaced by a mineral form, as the roundness is replaced by some other shape.

Animal Life

Two facts must be established: (1) that animals really possess consciousness; (2) that they do not possess rational intelligence. The first point differentiates them from plants, the second from man.

[1] Prime matter is an essential constituent of these mineral components and is therefore a real co-cause of the plant's operations.

CHAPTER 4

Animals Possess Consciousness, or Sentient Life

WE SHALL explain later exactly what we mean by sentient life, or consciousness. For the present discussion the everyday notion will suffice. It is generally admitted that animals, at least most animals, know some objects, are affected by them in some way (feelings, emotions) and tend consciously towards them or away from them.

Descartes was led by his philosophical premises to deny the existence of consciousness in animals and to assimilate them to machines or robots. Recently some psychologists have revived this doctrine on the basis of scientific claims and have tried to explain all animal activities in terms of tropisms or reflexes.

We must first point out the difficulties involved in such an interpretation; next we shall mention some characteristic features of animal behavior which can best be explained by attributing consciousness to animals.

Tropisms Alone Cannot Explain the Activities of Animals

In general a tropism is the movement of an organism towards or away from a simple stimulus, such as light, heat, gravity or water. It is called positive when the organism is attracted, negative when it is repelled by the stimulus. Examples are the positive geotropism of plant roots and the negative geotropism of the plant stem (towards or away from the source of gravity); the positive or negative phototropism of many plants and animals (towards or away from light).

Plant tropisms can be explained mechanically. Thus the positive geotropism of plant roots seems to be caused by the presence in the cells of the root tips of a great number of starch grains, which are heavier than protoplasm and which rest on the lower cell wall. Likewise, the positive phototropism of polyps of Hydrozoa is "probably caused simply by an unequal growth at the illuminated and the non-illuminated side of the polyp, and there would seem to be no reason to admit that any psychical element is involved in it."[1]

Even in animal tropisms, such as the positive phototropism of the common moth or the negative phototropism of the cockroach, it is difficult to demonstrate the presence of psychic elements, or consciousness. Consciousness may be present, but it is not required to explain these movements.

However, it has been shown that these tropisms can become modified by experience, and in such cases we have a good proof of the presence of psychic factors. Thus Bless succeeded in training positively phototropic Daphnias to swim away from the light in order to get out of a glass tube.[2] Tropisms may explain certain activities of lower animals in such a way as to exclude any intervention of consciousness. But even these animals are able, when circumstances require, to engage in a higher kind of activity from which consciousness is not absent.

Reflex Movements Alone Cannot Explain the Activities of Animals

A reflex movement is a muscular or glandular reaction to a stimulus, not directed by any consciousness either of the stimulus or of the movement. Most familiar is the knee-jerk reflex, produced by sharply tapping the tendon below the knee-cap, and consisting in a quick, involuntary upward thrust of the leg. Such stimulation is conducted to the spinal column and is there, without passing through the brain, directly translated into muscular movement.

Some reflexes are linked in what is called a "chain-reflex." In such cases, the situation in which the organism finds itself as a result of the first reflex movement becomes the stimulus for the next reflex,

[1] J. A. Bierens de Haan, *Animal Psychology* (London, Hutchinson's University Library), p. 76.

[2] *Ibid.*, p. 81.

the situation produced by the second becomes the stimulus for the third reflex, and so on.

Thus the stimulation of the flank of a dog may produce a "scratching reflex," by which the hind leg moves rhythmically to and fro. A dog in which the connection between brain and spinal column has been severed (a spinal dog) continues to execute walking movements when the soles of the feet are stimulated.

Some mechanists have tried to explain all movements of animals, and even of man, in accordance with a chain-reflex pattern. Instinctive actions especially have lent themselves to this kind of explanation. Thus the nesting instinct is explained as follows: when a bird is in a suitable physiological condition in the spring, the sight of a feather or some other material suitable for a nest acts as a stimulus. Stimulus "feather" produces reflex action "flying to feather," from which results the situation of "being near feather." That situation is in turn the stimulus for the next reflex, "picking up feather," which produces the situation "feather in bill." This is followed by the reflex action "flying to nest." No consciousness is required, every movement is explained mechanically, as in a complicated machine.

The difficulty in the acceptance of such an explanation is the perfect adaptation of every movement of the animal. Rather than develop this objection in detail, we shall summarize the arguments given by William McDougall against this mechanistic explanation of animal behavior. McDougall describes the usual characteristics of real "behavior" in animals and shows that these characteristics do not belong to reflex action.[1]

1. Animal behavior shows a certain spontaneity of movement. The movement begins in the animal, is not produced by outside forces pushing or pulling it. A running dog "behaves," a dog which is thrown out of a window is only put in motion, it does not behave. Reflex actions are not spontaneous, they are specific reactions to specific stimulations.

2. Animal behavior may persist even after the effects of the stimulus have ceased. A rabbit starts running when it hears a sound, and it may continue to run even when the sound is no longer heard. Reflex action lasts only for the duration of the stimulus and then ceases until the stimulus is repeated.

[1] William McDougall, *Outline of Psychology* (New York, Scribners, 1923), pp. 43ff.

3. Behavior consists of movements which are perfectly adapted to the environment. An animal following a prey will avoid obstacles, leap across ditches. Reflex movements are stereotyped and show hardly any adaptation to the environment.

4. Behavior comes to an end when it has brought about a particular change in the situation of the animal. A squirrel running away from a dog stops moving as soon as it is safe on a tree. The stimulus (the barking dog) is still active, but it no longer elicits the response of movement from the squirrel. A reflex action persists unchanged as long as the same stimulus is applied.

5. Behavior frequently indicates readiness in the animal for some anticipated movement. The cat crouches and is ready to spring on the mouse. The dog which hears steps outside the house prepares to attack the approaching intruder. Reflex action does not show this readiness for anticipated activity.

6. Behavior generally shows improvement with repeated performance. The animal learns from experience. There is no improvement with repetition in reflex activity.

7. Behavior implies a total reaction of the organism. When an animal behaves, all its members and energies are intent on its purpose. Reflex action is the response of a specific part of the organism to an appropriate stimulus.

All these characteristics of behavior point to its most fundamental feature: behavior is *purposive*. It is exercised for the sake of a certain end which must be more or less clearly anticipated. Such purposive action supposes in the animal some knowledge of the goal and some conscious striving towards it. The animal must be aware of it, must be attracted or repelled by it. Therefore we say that in their most characteristic actions animals manifest some degree of consciousness. That consciousness may be very faint and vague, but it is to some extent an essential factor in every case of real "behavior."

This does not imply that there are no reflexes or chain-reflexes in animals, nor even in men. The presence of such elementary ways of reacting has been clearly demonstrated. They may be sufficient in simple, routine situations. In more complicated situations they are used as means, and they stand in the service of consciousness.

CHAPTER 5

Animals Do Not Possess Rational Intelligence

By RATIONAL intelligence we mean intelligence as it is found in man, as it is described in philosophy. This kind of intelligence (which we shall in general call "intellect," to avoid confusion) can be defined as the faculty which knows universals as universals, which is aware of its own activity; the faculty of perfect self-reflection.

Many modern psychologists use the word intelligence with quite a different meaning. For them it is defined as "adaptability to new circumstances," or "the power of learning from experience," or "the faculty of improving upon inborn instinctive actions in the light of past experience."[1] Intelligence thus defined is found in many animals. It differs essentially from rational intelligence, or reason, or the intellect, whose existence in animals we deny.

Some activities of animals, especially of insects and the higher vertebrates, may produce in the observer the impression that they involve reason. These are the instinctive activities and the activities which suppose learning. They will be examined in the following two sections.

INSTINCT IN ANIMALS

Instinct has been defined by William James as the faculty of acting in such a way as to produce certain ends, without foresight of the ends and without previous education in the performance.

[1] Bierens de Haan, *op. cit.*, p. 96.

The highest development of such instincts is found, not in the higher animals, but in the insects, especially in the hymenoptera, which include bees, wasps and ants. In vertebrates, especially in mammals, such as dogs, horses, monkeys and apes, there is a foundation of instinctive activity which is considerably modified and enriched by experience and learning.

Countless descriptions have been offered of the marvelous performances of instinct in the hymenoptera. We present only one, the example of the Yucca-moth.

> The Yucca-moth is a small moth, the *imagines* of which come out of the pupa at the same time as the flowers of the Yucca-plant . . . open for a few nights. Males and females of the moth find each other and copulate; then the female flies to an open flower of the Yucca, takes some pollen from the stamina of it, and kneads it into a ball with the help of her great sickle-shaped maxillary tentacles. She then carries the collected pollen to another Yucca-flower. There with the aid of her sharp ovipostor, she opens the ovary of the flower and deposits her eggs between the ovules of the plant; then she climbs upwards along the style to the stigma and presses the pollen she brought with her into the opening of it. Herewith she achieves the fertilization of the plant, an event which probably would not have occurred without her help, as this moth is one of the few insects, or the only one, which pollinates Yuccas. Through this complicated behavior, however, the moth achieves the propagation of her own species as well as that of the plant, since her growing larvae feed only on the developing ovules of the Yucca and would therefore perish if these ovules were not brought to development.[1]

Typical instinctive activities have the following characteristics:

1. They are inborn—not acquired through experience, anterior to any learning. The Yucca-moth, for example, has never seen another moth perform the operation described above. The inborn character of instincts is especially evident in the many insects which never know their parents: the latter die during the winter and the new generation is born in the following spring.

2. They are uniform—the same in all individuals of the same species. All Yucca-moths go through their instinctive activities in the same way. All bees of a single species make the same kind of hive.

3. They are immediately perfect. While the skills of man develop slowly by trial and error, instinctive activities are perfect at once and

[1] *Ibid.*, pp. 84-85.

are executed without mistake if the insect can perform them in its normal environment. Some insects, such as the Yucca-moth, perform a complex instinctive activity only once during their life-time. The survival of their species depends on its being perfect from the start.

4. They are constant, remaining the same throughout the life of the animal. Spiders do not improve the technique of weaving their webs, and swallows do not make a more comfortable nest the second or the third time.

5. They are specialized. Each animal is a specialist, there are no universal instincts. A bird or a bee does not have a general building instinct, not even a general instinct for building nests or hives, but only a specialized instinct for building this particular kind of nest or hive.

Finally, instinct shows two more features on which we must insist, because they make it possible to present an interpretation of instinctive activities. Instinctive activities are adapted to the environment when that environment happens to be the normal one for the animal. But instinct does not involve awareness of the final purpose for which it operates.

6. Instinctive activities are adapted to the normal environment of the animal. Although a spider always builds the same kind of web, only the general design is constant. Some adaptation is required to fit it to the ever changing environment. The spider will use two parallel twigs, or the crotch of a tree, or any other circumstances suitable for its activity. *Osmia papaveris*, a bee,

> . . . builds its nest in holes in wood or in the spaces between stones; by preference, however, in the empty shells of snails. Then the form of the nest is adapted to the available space: in long stalks, the cells are placed in one long row; in openings between stones, in an irregular heap; in snail-shells, cells are built in a simpler row in the narrower convolutions of the shell, while nearer to the opening of the shell, the cells are laid side by side.[1]

Furthermore if, accidentally or through human intervention, part of the structure is damaged *while the insect is at work*, it may repair the damage.

This power of adaptation to varying local circumstances—and especially the power of repairing damage to the work—shows clearly that instinctive activity is not blind or automatic, that it cannot be

[1] *Ibid.*, p. 61.

explained in terms of a mere chain of tropisms or reflexes but supposes some guiding consciousness in the animal.

7. Instinctive activities are not directed by the consciousness of their ultimate goal. This is demonstrated by the many cases of what has been called the "folly of instinct." Here are two examples:

> A striking example is reported by Hingston. *Messor barbarus* is an ant which collects seeds of grass and carries them into the nest, where they are peeled and stored, after which the husks are carried out of the nest to a special refuse heap at about eight inches distance from the nest. Hingston once found a nest that, by way of exception, was built on the vertical surface of a wall. Now the ants did not take advantage of the convenient position of the nest opening to throw the husks out, but continued to carry them eight inches from the nest and lay them carefully against the wall as if to make a heap there. Naturally the husks always fell down directly; yet for months the ants continued this useless work.[1]

The other example, taken from Fabre, is the famous case of the Pine Processionary. These caterpillars have the habit of crawling in single file, the head of each touching the rear of the preceding one. As each one advances it continuously secretes a silken thread which the succeeding caterpillar carefully follows, while contributing its own thread to the resulting ribbon. Thus only the leader of the procession is free to go where it fancies, all others follow blindly, adhering to the guiding thread. Fabre succeeded in bringing the head of the leading caterpillar in contact with the rear of the last in line. They now formed a closed circle without any independent leader, each blindly following the one ahead of it. For seven days the caterpillars turned round and round in this mad circle, taking time out only to rest at night. Fabre computed that they had crawled for 84 hours, covered a distance of more than a quarter of a mile, and described the circle 335 times before it finally broke up.

These two examples, which could be multiplied many times over, show clearly that animals do not know the why of their instinctive activities. Performed in their usual habitat, under normal circumstances, these activities happen to be useful. But if some accident or human interference modifies these circumstances, the animals, guided only by their instinct, are unable to introduce the necessary changes, and their action becomes purposeless.

Therefore we conclude that instinct is neither a purely mechanical

[1] *Ibid.*, p. 51.

activity nor an activity directed by intelligence. It supposes some knowledge, it does not involve rational knowledge. We say that it involves the sense knowledge of the animal.

As Fr. O'Toole puts it, instinctive activities combine objective purposiveness with sentient consciousness.[1]

Purposiveness means the ordination of a variety of means towards some end or goal. Purposiveness is objective when it operates without the awareness of the subject. There is objective purposiveness in a machine and in the vegetative functions of all living beings. When the embryo passes through a long series of complicated steps which bring it finally to the moment of birth, this whole embryogeny shows objective purposiveness. Neither the machine nor the embryo is aware of the purpose of its activities. Moreover, neither is aware of the activities themselves. Here lies the difference in the case of instinct. In an instinctive performance, too, there is objective purposiveness, it tends towards a purpose of which the animal is not aware. But the animal is aware of the different steps leading to that goal. Objective purposiveness, coming from an outside intelligence, is combined with sentient consciousness of the individual steps leading to the goal. The objective purposiveness explains why the instinctive activities are so well adapted to the needs of the animal in the usual circumstances. The fact that there is only sentient consciousness of each individual step of the performance explains why the animal can go so completely astray if the circumstances are not normal. The sense powers cannot connect the means, the individual steps, with the end. Only intelligence can make such connections. Therefore the instinctive activity unfolds in the animal without its guidance. The animal witnesses the development of the activity within itself; it is not quite passive, for it must adapt each part of the activity to the given circumstances. But the adaptation of all the parts to the final goal is beyond its comprehension.

But if the animal is not aware of the end for which it acts, why does it act at all? Because it derives pleasure from the actions which lead it unconsciously towards this end. When we are thirsty we drink, not because we have reflected that water will quench our thirst but because we feel like drinking. When hens suffer from a lack of calcium in their diet, with the result that their organism cannot produce

[1] G. B. O'Toole, *The Case against Evolution* (New York, Macmillan, 1926), pp. 245 ff.

shells for their eggs, they eat all the calcium they can find, not because they know that calcium is useful but because when they are in this condition calcium has a special appeal for them. In the same way we can explain that an insect goes through its specific round of instinctive activities because it feels like performing them, because these activities happen to be pleasurable.

Bierens de Haan expresses the same ideas in his definition of instinct. "Instinct is a linking, and indeed an innate and specific linking, between a cognition, an affection and a conation."[1] A cognition: the animal perceives a stimulus. An affection: he is attracted or repelled by it. A conation: he performs a certain activity. Cognition, affection and conation belong to the sense level; hence they are not linked by the animal itself (that would require intelligence); the linking is innate.

These explanations do not really solve the mystery of instinct. How did these lowly beings acquire such marvelous powers? The ultimate answer is, of course, that they received them from God. But did they receive them ready-made, or did they slowly acquire them in the course of evolution? Either answer is possible. Scientifically speaking, the second answer is more acceptable. But it raises a host of difficulties which will probably never be solved, questions for which only hypothetical answers are available.

We reproduce in the following passage one such hypothetical explanation, as presented in the general framework of the theory of evolution. Speaking of the Mesozoic era, Lecomte du Noüy writes:

> The climate was mild; there were no seasons, except in the regions near the poles. Everywhere else the temperature was almost uniform, as in the South Sea Islands nowadays. This was probably the age during which the insects developed their prodigious instincts. Our modern trees were beginning to push back the ancient conifers in certain places. Poplars, willows, birches, beeches, oaks appeared, and with them the flowers. The progressive change in vegetation affected the number of insects. With practically non-existent seasons their lives were not shortened by the rigors of winter. They could live long enough to acquire experience and to take care of their young. As their activity was limited to a small number of gestures, always the same and inspired by the same circumstances, these gestures ended by becoming automatic, like habits, and resulted in an organization of the brain which was transmitted hereditarily. These habits became conditioned reflexes, spontaneously accomplished at determined epochs.

[1] *Op. cit.*, p. 88.

> At any rate, it is plausible to imagine, as do certain great zoologists, that things occurred in this way. When winters started—around the middle of the Tertiary period . . . —they separated successive generations but did not abolish the organizations acquired in the course of millions of years. The insects have continued to act as in the past, and seem to know at birth the things they are too short-lived to learn.[1]

We give this theory for what it is worth. Dr. du Noüy himself admits that it is highly hypothetical. It supposes among other things the hereditary transmission of acquired characteristics, which is rejected by most scientists. It raises more questions than it answers. Yet if we want a scientific explanation of the origin of instinct, it seems that we must look in that direction.

LEARNING IN ANIMALS

Few animals depend on their instincts alone for survival. The vertebrates especially can profit from experience, can adapt themselves to new circumstances, can learn. Animals which manifest these powers are said, in modern parlance, to show "intelligence."

As we have explained above, this is not the intelligence which philosophers have been studying for centuries. There is a qualitative difference between human intelligence, or the intellect, and this animal intelligence.

Not all psychologists admit this difference. Some claim that between man and the animals there is only a difference of degree, not one in kind. We must therefore briefly examine the facts in order to establish that there is really a difference in kind. These facts are not to be collected from the many anecdotes about animal cleverness. Such reports are usually unreliable because they are presented by untrained, often by biased, observers and cannot be checked. Animal psychology has become a genuine science with well-established data. These data are well worth the attention of the philosopher, because they have made it clear that the animal mind, although separated by a real hiatus from its human counterpart, is nevertheless capable of remarkable performances.

There has been a tendency among the later Scholastics to underestimate the psychic powers of the "brutes." St. Thomas, on the

[1] *Human Destiny* (New York, Longmans, 1947), pp. 78-79.

other hand, applying the principle of proportionality and remembering that the highest point of the lower always touches the lowest point of the higher, speaks of the "particular reason" and of the "prudence" of animals.

> Thirdly, this is proved from a property of man and of other animals. For we see in the latter a certain participation of prudence by means of a natural judgment, in regard to certain particular acts (*S. Theol.*, I, 96, 1, c.)
>
> All animals have by natural judgment a certain participation in prudence and reason, which accounts for the fact that cranes follow their leader, and bees obey their queen (*Ibid.*, ad 4).

There has also been a tendency to define too loosely that which distinguishes the animal mind from the human intellect. It has been said, for instance, that abstraction, generalization, the perception of universals or of relations and the use of tools are specifically human accomplishments. In a certain sense this is true, but the terms we use must be carefully defined. Actually animals give evidence of some kind of power of abstraction, generalization, perception of universals or of relations, use of tools. Nevertheless there remains in every respect a considerable divergence between animal and human behavior which points to a difference between animal and human knowledge. It is the purpose of the following pages to show these divergences.

In the study of the animal mind the introspection so useful in the study of human psychology will not serve. We must derive our data from the observation of the achievements of animals, and from these exterior manifestations infer the powers from which they issue. In general, the explanation proposed must always be the simplest possible. An action which can be explained in terms of an inferior power must not be attributed to a higher faculty. Psychologists accept what is known as Lloyd Morgan's canon, according to which, "in no case may we interpret an action as the outcome of the exercise of a higher psychical faculty, if it can be interpreted as the outcome of the exercise of one which stands lower in the psychological scale."[1] This is an application of the principle "Beings should not be multiplied without need."

All animal learning is based on instinctive reactions. An animal

[1] C. L. Morgan, *An Introduction to Comparative Psychology* (Scribner, 1894), p. 53.

learns new things because it is impelled to make a variety of movements in order to satisfy its hunger, thirst, sexual need or curiosity. All animal learning derives from its striving towards pleasure and its avoidance of pain.

Sometimes the pleasure- or pain-giving object is signalized by an indifferent element to which the animal would not normally react, but which evokes a positive or negative reaction after it has frequently been associated in the animal's experience with something of biological importance. Countless such associations can be established between the animal's needs and elements in the environment. Learning consists precisely in the formation of such new associations.

Sometimes these associations are established with scarcely any active intervention on the part of the animal. It is repeatedly subjected to a sequence in which an important stimulus is signalized by an indifferent object, until a connection between the two is established in its mind. This is called "conditioning."

At other times the animal is active; under the impulse of some drive it makes a number of movements which, at first unconnected and haphazard, gradually become organized. When this organized set of movements has become firmly connected with the goal, the animal has learned by "trial and error."

In both these cases the animal reacts to certain relations in its environment, but without explicitly noticing these relations. In some instances, the animal explicitly grasps the relations (although not as relations). It cannot solve the problem presented to it unless it meaningfully connects part of the situation with the goal. Some higher vertebrates are capable of solving problems in that way. They learn by "insight."

Conditioning

We have already mentioned simple reflexes. They are reactions of a part of the organism to an elementary stimulus. If you put some meat powder upon a dog's tongue, the dog salivates abundantly. That is a simple reflex. If every time the dog receives meat powder a light is flashed, a connection is gradually built up in the dog's mind between the food and the light, so that, after a certain number of repetitions, the animal will salivate on the presentation of the light alone. The light, to which the animal was at first indifferent, has

become a "conditioned stimulus." The animal reacts to it by a "conditioned reflex." This important phenomenon has been studied extensively by the Russian physiologist Pavlov.

If the light is flashed a few times on the same day without being accompanied by food, the conditioned reflex gradually diminishes in intensity, and finally disappears. It is "extinguished." If, on the next day, the light is flashed again, the conditioned reflex reappears. Therefore the "extinguished" reflex had not been eliminated but had only been temporarily inhibited.

Conditioned reflexes have made it possible for psychologists to study many aspects of the animal mind. Thus the power of discrimination has been studied in animals by means of such reflexes. Suppose that an animal has learned to salivate at the flashing of red light. If a green light is presented, the animal will salivate, for it has learned to react to "light." If, however, the red light is always accompanied by food and the green light never, an animal which can distinguish between them—which is not color-blind—will, after a certain number of trials, stop salivating for a green light and continue to do so on the presentation of a red light. In this way it has been possible to find out whether animals can distinguish between colors, between certain shades of the same color, between sounds.

Most animal training is based on the establishment of conditioned reflexes. If you whistle a tune while feeding sparrows, they will, after a while, come to you as soon as you start whistling. Infinite patience in the trainer, who tries to elicit certain reactions in his trainee which he constantly associates with a reward, may produce remarkable results, as a visit to the circus will demonstrate. These results are sometimes so remarkable as to induce some people—especially the confirmed admirers of the animal mind—to speak of animal intelligence as if it were no different from the specifically human form of intelligence.

No better example could be given of such high achievement, and of the great prudence required in interpretation, than the famous case of "Clever Hans." Hans was a horse trained by Herr von Osten, who firmly believed in the great intellectual powers of horses in general and of his Hans in particular. He set out to demonstrate his conviction and for a time seemed to have succeeded. After long months of patient training, the animal was able to add, subtract, multiply and divide, extract square roots and tell the time. The problem was

written on a piece of cardboard and shown to the animal, which started at once to tap out the result with its hoofs. There seemed to be no deception involved. Anybody was allowed to ask the questions, even when the trainer was not present. This remarkable case baffled psychologists for some time.

The solution of this puzzle was finally discovered by Pfungst. He demonstrated that the horse did not count at all but carefully observed cues which the questioner gave without being aware of it. Suppose Hans were asked to multiply 4 by 6. The experimenter had to know the result himself, in order to check the correctness of the horse's answer. He counted the number of times Hans tapped his hoofs, and when the result was reached, he told himself "That's it," making at the same time, unconsciously, an almost imperceptible movement which translated his thought. The watchful animal observed the cue at once and stopped tapping. None of the experimenters, least of all Herr von Osten himself, had been aware of the cue given unconsciously to their pupil. How did Pfungst demonstrate his explanation? He showed the horse a piece of cardboard bearing a problem. He himself did not know the data of the problem or the answer, and consequently he did not make any tell-tale movements. In this setup the horse watched the experimenter and continued to tap endlessly, as if waiting for a cue which did not come. Clever Hans showed remarkable powers of sense observation, but not the slightest sign of real intelligence.[1]

We have described this case in some detail in order to show how skeptical one should be when one hears of some extraordinary feat performed by an animal. Even when such accomplishments have been accurately reported and the accounts can be checked, the explanation will often be simpler than some supporters of animal intelligence would have us believe.[2]

Trial and Error

In the conditioning process the animal is more or less passive. In "trial and error" learning, it is more active, it discovers the solution

[1] Cfr. D. Katz, *Animals and Men* (New York, Longmans, 1937), pp. 2-7; O. Pfungst, *Clever Hans, The Horse of Mr. von Osten.*

[2] The works of C. L. Hull and other modern psychologists have considerably changed Pavlov's conception of conditioning. These new theories are too complicated to be explained here.

by its own efforts. For example, it is hungry, it sees or smells food but cannot reach the food directly. It makes all kinds of movements, not quite at random, for they all tend in the general direction of the food. It tries, makes mistakes, tries again, makes more mistakes, until, sooner or later, one of its efforts succeeds and it arrives at its goal. When, after this experience, the same problem recurs, the animal goes through very much the same procedure until its repeated efforts meet with success. Gradually, however, after the problem has been encountered and solved a number of times, the mistakes decrease, the goal is reached more rapidly, until eventually the animal reaches it without making a single mistake.

This is, of course, a real instance of learning, but no one claims that it involves real, rational intelligence. The animal reacts to relations in the environment, but blindly, without perceiving them. The most familiar example of this kind of learning is that of mice or rats learning to run a maze. Animals can learn many other things in this way.

Some performances learned in this manner deserve closer examination, since they appear to involve perception of relations, abstraction and generalization.

Köhler taught a hen to pick up grains of wheat lying on a medium-gray background and not to touch those lying on a dark-gray background. The grains were glued to the "forbidden" background, and after a while the animal avoided them. Then Köhler substituted a light-gray background for the dark-gray one. Now the hen had a choice between medium-gray and light-gray. We should expect a continuation of the positive reaction to the medium-gray field. Yet the hen generally avoided that field and preferred the light-gray field. Obviously it had learned to go to the "brighter of the two fields." It seems evident that its positive reaction is associated with a relative, not an absolute stimulus. The animal has reacted to a relation (brighter than) and must be aware of it.

Other experiments could be mentioned in which senses other than that of sight are involved, or in which the animals learn to prefer the larger of two sizes or the smaller of two collections of objects. All these cases seem to imply some knowledge of a relation on the part of the animal.

In fact, the older type of associationistic psychology, which considered the total field of perception as the sum-total of all the ele-

mentary sensations, would find it difficult to explain such an experiment without admitting some explicit awareness of a relation.

However, the Gestalt psychologists (whose theory we shall study later on) have demonstrated that perception is not an additive phenomenon, that it is not constituted of the sum-total of the elementary stimuli. Perception is global, it starts with the apprehension of the whole field. Analyzing this total field into its components is a later step and requires a more developed mind.

Therefore the hen has not analyzed the field, has not seen two backgrounds, a lighter and a darker one. It has perceived one total field, with a darker and a lighter part, although it has not distinguished them as such. It has learned to look for food in the lighter part of the total field. When the light-gray was substituted for the dark-gray, no new problem was thereby presented to the animal. There was still a total field, with a darker and a lighter zone. The problem would not have been different if the animal had performed the experiment first under low, later under higher illumination.

Some performances seem to indicate that animals can count. Thus a bitch from whom 3 puppies of a litter have been removed, keeps looking for them. She notices the difference, say, between 6 and 3 puppies; she appears to have counted. It is true that the animal notices the difference in the number of her offspring, but it does not follow that she can count. When only 1 puppy out of 6 is taken away, the animal notices nothing. The reason is that there is a difference between the global impression made by 6 and that made by 3. There is no need for counting, the difference is obvious at a glance. But there is no such global difference between 6 and 5. The perception of a difference between 6 and 5 requires an analytic approach, entails real counting, and the animal is incapable of that.

Experiments have demonstrated that animals, even among those which stand rather low in intelligence, observe global distinctions between numbers of objects. Thus Revesz taught a rooster to choose between numbers of grains, so that it would eat only from the bigger of two heaps. It succeeded in noticing the difference between 3 and 2, 4 and 3, 5 and 4, 6 and 5, 8 and 6, 10 and 7 grains. It was unable to differentiate between 8 and 7, 10 and 9, 10 and 8.[1]

[1] Quoted by G. de Montpellier, *Conduites Intelligentes et Psychisme chez l'Animal et chez l'Homme*, 2d ed. (Louvain, Institut Supérieur de Philosophie, 1949), p. 145.

In other trial and error experiments animals are taught to react positively to a triangle and to avoid other geometrical figures such as squares, circles, diamonds. When this problem has been mastered, the features of the original triangle are changed; it is presented in a different size, in a different color; different kinds of triangles are introduced. In Gellerman's experiments with chimpanzees[1] these modifications did not appreciably affect the reactions of the apes. Does this not imply that the animals have some notion of a triangle as such, have an abstract and universal idea of the triangle?

Here again the true explanation is simpler. It comes from the Gestalt psychologists. They have affirmed the existence of the principle of "constancy"; i.e., some features of the phenomenal domain—such as brightness, color, size, shape—remain constant in the sphere of perception, even when the stimuli deriving from the physical objects are considerably modified. For example, two sheets of white paper, one exposed to sunlight, the other lying in a dark corner, both seem white, although actually the white paper lying in the dark corner reflects less light to the eye than would a sheet of black paper lying in sunlight. Also a wheel of which we get a side view looks round to us, although the outline it produces on the retina of the eye is elliptical. A dog recognizes its master despite the great variations in the physical stimuli emanating from him. Perception is global, and unconsciously it takes into account the differences deriving from a different illumination, a different angle of observation. No one claims that this adjustment involves intellectual elements. Likewise there is no reason for admitting intellectual elements in the explanation of the constant reaction of apes to a triangle.

Furthermore, the Gestaltists have demonstrated that figures such as triangles, circles or squares have a pronounced global character. They are spontaneously perceived without analysis. The animals do not observe, say, three blue lines of equal length, but a whole triangle. On the following occasion they do not notice another figure, with three blue lines of unequal length, but again just a triangle. To analytic observation these two triangles are different: one is equilateral, the other is scalene. For spontaneous global perception they are both triangles, and the animal does not have to abstract their common features in order to discover their triangularity.

[1] L. Gellerman, "Form Discrimination in Chimpanzees and Two-Year-Old Children," *J. Genet. Psychol.*, 42 (1933), pp. 3-27.

Therefore the fact that animals react to a common feature in many different situations does not mean that there is real generalization or abstraction. We have already noted that a dog which has been conditioned to a green light will react positively to any light.[1] Instinct, too, shows some kind of generalization or abstraction. A cow wants grass, not just this or that grass but any grass, anywhere, at any time. When young chicks emerge from their shells, they start picking at any small object, not only at grains of corn but also at small pebbles, bits of paper, their own toes. No one claims that this is real generalization involving intellectual elements. Generalization is real only when the general feature is known explicitly as general, when it can be abstracted from the concrete context, compared with other features, given a name. There is no evidence of such activities in animals.

Learning by Insight

In the experiments described above the animals learned to react to certain relations. But they discovered these relations in a haphazard way, by essaying all kinds of movements in the general direction of the goal. The general organization of the field is not noticed or examined by the animal.

In the following cases the animal observes and examines that organization; it discovers relations existing between itself and elements of the environment. The learning is no longer haphazard, gradual, proceeding by the slow elimination of mistakes. The animal sees the goal, observes that it cannot be reached directly, looks around for ways and means of reaching it and, if the problem is not too complicated, discovers them. Usually it employs the trial-and-error method first. If that does not succeed, it pauses, examines the whole

[1] Lashley and Wade have explained this apparent case of generalization in a different way. They contend that it is due only to a failure to discriminate. "When a single stimulus is presented, reaction is associated only with the most conspicuous character that differentiates it from the otherwise uniform environment (the stimulus is some *thing* that varies on a constant background)" (p. 81). It is not surprising, then, that other somewhat similar stimuli provoke the same reaction. No process of generalization must be postulated. Cfr. K. S. Lashley and M. Wade, "The Pavlovian Theory of Generalization," in *Psychol. Rev.*, 53 (1946), pp. 72-87.

field, looks puzzled; suddenly its face lights up[1] and without further hesitation it uses the right method.

Psychologists have studied this learning by insight, especially with monkeys and apes, by offering the animals a series of problems of gradually increasing complexity. This complexity, of course, is only relative; problems which present little or no difficulty to human beings are quite beyond the powers of the highest apes. Here are a few examples taken from the famous experiments of W. Köhler.[2]

Outside the cage in which a chimpanzee is confined lies a banana. The animal tries first to reach it with his arms, but it is out of range. Then he sees a stick lying close by, picks it up and with it nudges the banana until it is within his reach.

The banana is out of reach. A short stick has been placed in the cage, but it is too short to reach the banana. Outside the cage lies a longer stick which can be reached by the animal using the shorter one. Some animals manage to get hold of the longer stick first and thus reach the banana.

The banana is hung from the ceiling of the cage. The apes jump for it, but it is beyond their reach. There is a box in a corner of the cage. Some animals drag the box to some point under the fruit, then jump from the top of the box to reach the banana. This problem is difficult for the animals, and only a few succeed in solving it without aid from the experimenter.

The fruit is out of reach outside the cage. A stick is suspended from the ceiling of the cage, too high for the animal to get it by jumping. A box is available. Some animals learn to drag the box to the point where the stick is suspended, jump from the box to get the stick, then use the stick to reach the fruit.

In all these cases the "tool" was available, and the problem for the animal was to perceive it as a tool and use it accordingly. The following examples show the animals actually "making tools."

The fruit is out of reach and there is no stick available. But there is a tree inside the cage. Some animals break off a branch and use it as a stick.

[1] German psychologists have called this the "Aha-Erlebnis," the experience of "I've got it."

[2] W. Köhler, *The Mentality of Apes*, trans. by E. Winter (New York, Harcourt, 1926).

Others use a bundle of straw and even fold it in two in order to make it more substantial.

A piece of wire is straightened out and used as a stick.

One box is not enough to reach the banana. Several boxes are available in the cage. Some apes succeed in piling them on top of each other (generally in a very clumsy way) and in using this tottering structure as a base for jumping.

Two sticks are available, but neither is long enough to reach the fruit outside the cage. The sticks can be fitted together like the parts of a fishing rod. The brightest animal solved this problem only by trial and error.

In the interpretation of these experiments, wherein animals discover relations and make use of tools, or invent tools, the following points must be kept in mind:

1. The performance, although not explainable in terms of instinct alone, is often based upon instinctive activities. Not only is the motivation always derived from some instinct or drive (generally the hunger drive), but the way of solving the problem is frequently a modification of actions which the animal would instinctively perform. Thus K. Bühler emphasizes that monkeys and apes have learned, during their arboreal life, that by pulling a branch towards them they can bring the fruit borne by this branch within their reach.

2. The solution of these problems does not call for any abstract reasoning. All the data of the problem are actually present to the senses, and the solution can be worked out on the level of perception. It seems to arise from a shifting or regrouping of elements in the total field of perception present to the animal. Let us explain this by means of a simple example. If you look for a while at a sketch of a cube, you will notice a sudden shift in your perception, which makes the drawing look quite different. What was first the reverse side of the cube is now seen as the front side. No intellectual effort is entailed; this reorganization occurs spontaneously. In the same way we may assume that at first the animal sees the banana and the stick as two unconnected elements of the total picture. After a while the stick is no longer seen as an indifferent object but as "something-to-get-the-fruit-with." The solution is *seen*, it is not thought out.

This interpretation is strongly suggested by the fact that the animal is able to solve the problem only when the data can be *seen*

together in the same field of perception. A chimpanzee which sees a banana hanging from the ceiling but cannot see at the same time, in the same perceptual field, the box which might help it reach the fruit, will not find the solution. It must see end and means simultaneously. Furthermore, even when the box and the banana can be seen simultaneously, if another animal happens to be sitting on the box, no solution is possible. In this instance the box is seen as "something-to-sit-on," and cannot be perceived as "something-to-reach-the-banana-with."[1] Once the animal has discovered the solution to a specific problem, a simultaneous perception of means and goal is no longer required. But then the performance must not be attributed to insight or learning but to memory.

Hence learning by insight does not force us to admit the presence of abstract intelligence, of real reason, in animals.

Use of Symbols and Language

We have seen above that animals can learn to connect a sign with the object signalized. Can they learn to connect a symbol with that which it symbolizes? There is a considerable difference between these two forms of association. Between the sign and that which is signalized a simple association in time and space is sufficient, and animals make such associations frequently in their daily experience. The symbol, on the other hand, signifies, represents, *means* that which is symbolized. To grasp a symbol as such the animal must be able to grasp a *meaning*. A moving shadow signalizes an approaching object, it does not symbolize it. A coin symbolizes buying power, it does not signalize it.

Some psychologists claim that animals can react to symbols and really grasp meanings. They point towards certain experiments, two of which we shall briefly discuss.

1. The temporal maze

In the temporal maze as first used by Hunter, the animal is made to run twice through the same alley; when it arrives at the end of the alley on the first run it must make a right turn to find the exit; on the second run, a left turn.[2] Since, except for the situation of the

[1] Cfr. Köhler, *Mentality of Apes*, pp. 35, 37, 53, 108, 110, 125.

[2] While the animal runs the maze, the experimenter modifies the position of the blind alleys, so that the same part of the maze may call for a right turn when the rat reaches it for the first time and for a left turn when it gets there the second time.

free or blind terminal, the alley remains the same and presents no differential elements in the course of this twice-repeated run, the cue for the turn must originate in the animal itself, and it seems to be based on some counting, which is an activity involving the use of symbols.

Some psychologists, however, present a simpler explanation of this performance. They admit that there are no spatial cues to tell the animal which way it must turn. But are there no kinesthetic cues—that is, cues deriving from the motor activity of the subject? A second run down the same alley has a different "feel" from the first run. It is possible that the animal has associated the left turn with this different "feel." As long as a simpler solution of this kind is not excluded by further experiments, it is not permissible to claim that the animal's activity in solving the problem of the temporal maze involves a grasp of symbols.

2. The use of money

Wolfe and Cowles at Yale University have taught chimpanzees to use poker chips to obtain food or other rewards. The animals have learned to put the chips into a food-vending machine. They learn not only to work the machine but also to evaluate the "coins." Some of these are worthless, and the chimpanzees soon learn to neglect them; others produce an extra amount of food, have thus a greater value, and the animals show special eagerness and make particularly intense efforts to obtain them. The animals also learn to distinguish between the chips—those which produce food, drink, or some other kind of reward. The chips acquire a certain value in themselves, since the animals make efforts to obtain them even when they cannot be used right away, when a certain number (from 10 to 30) must be accumulated before they can be used.[1]

Are these tokens real symbols? Do they represent, or mean, the food, or the possibility of getting it? Here again a simpler explanation has been offered. The chips are simply tools by means of which the animal can obtain what he desires. A chimpanzee which sees a banana outside its cage makes efforts to reach a stick which will help it reach the fruit. The stick is not a symbol of the fruit but a

[1] J. B. Wolfe, "Effectiveness of Token-Rewards for Chimpanzees," *Comp. Psychol. Monogr.*, 12 (1936), p. 72. See also J. T. Cowles, "Food-Tokens as Incentives for Learning by Chimpanzees," *Comp. Psychol. Monogr.*, 14 (1937), p. 96.

means or tool to reach it. In the same way the chips may be regarded as tools by means of which the food can be reached. This simpler interpretation should first be eliminated before we can speak of real processes involving a grasp of symbolism in the chimpanzees.

3. Language in animals

Do animals use language? The answer to that question depends on our definition of language. Not every kind of communication is language, but only the intentional communication of one's feelings, desires and ideas to another being.

Animals do communicate with each other. The mother hen clucks when she finds food for her chicks. When one dog barks in anger the dogs of the neighborhood start barking with it. The anger is communicated to all of them. When one sheep becomes panicky, the fear is quickly spread to all the others. Even among insects, such as bees and ants, we observe some communication of that kind. However, in all these cases, what is communicated is a present emotion, feeling or desire. And this communication is conducted, not by means of symbolic substitutes—by words or gestures, as between human beings —but by some kind of emotional contagion. It is the kind of communication which we ourselves may experience when we hear a piercing cry of fright. In such a case we may become frightened too, although we have no idea of the reason for this fear which has been communicated to us. Our fright has an instinctive basis and involves no intellectual elements.

But animals are quite unable to communicate ideas—anything referring to the past or the future or to abstract contents. The reason they cannot communicate ideas is not the lack of means of communication. Some animals, such as the parrot, can use human words, but they use them without knowing them as words, without reference to meaning. Other animals, such as apes, have vocal cords which they could use for speech if they felt the need for it. Even animals which possess no vocal cords, or only such as would be inadequate instruments for producing the variety of sounds contained in human language, could use simpler ways of communication. If dogs wanted to communicate with each other, why could they not emit combinations of long and short barks after the manner of a simple Morse code? Most animals would be physically able to use a gesture language if they experienced a need for language. The reason why animals do not communicate with each other concerning the past or the future

is very simple: they have no concept of the past or future, they have no ideas.

It may be objected that animals do, to a certain extent, understand human language. Thus Kellogg and Kellogg,[1] who raised a female chimpanzee and treated her like their own child for nine months obtained a differential reaction to fifty-eight different phrases. There is, however, no reason for admitting that the animal understood the "meaning" of these phrases; her reactions can be explained as resulting from a complex conditioning to different combinations of sounds, generally accompanied by appropriate gestures.

Therefore the communication of animals is restricted to present experience and excludes anything of the past or future. Furthermore, it excludes any abstract contents and refers only to drives, feelings or emotions. Finally, it seems evident that such communication as there is between animals is unintentional, merely instinctive. The animal does not intend to share its joy or anger but instinctively makes certain sounds or gestures whose effect is to transmit the creature's feelings to others of its kind.

GENERAL CONCLUSION ABOUT ANIMAL INTELLIGENCE

The purpose of this chapter was to demonstrate that animals have consciousness but no rational intelligence. There can be no doubt about the first part of the statement. The second part is more difficult to demonstrate, because it is a negative statement, and such statements are always more difficult to establish than affirmative statements. It is easier to show that something is than to demonstrate that something is not. However, if we note the following points, we arrive at a practical certitude that common sense is right in denying the existence of reason in animals.

Rational intelligence, or reason, or intellect is that power which can reflect perfectly upon itself, which is aware of its own activities. Through it man knows that he knows, he is conscious of being conscious, he can say "I am myself." We cannot directly observe the absence of such a power in animals. But we do observe the absence of

[1] W. N. Kellogg and L. A. Kellogg, *The Ape and the Child*. Cfr. also C. Hayes, *The Ape in our House*.

certain activities which should follow upon the possession of such a power.

A being in possession of perfect self-reflection knows universals as universals, relations as relations. Do animals have any such knowledge? We cannot directly demonstrate that they do not possess it, but we can show that not one of their activities supposes this kind of knowledge.

Where such knowledge of universals as universals and relations as relations exists, there is also the power of becoming aware of them as objects, distinct from one's self as subject; the capacity of objectifying them, of naming them, of comparing them with other contents, of communicating them to other beings. Therefore the presence of reason entails the power of speech. But speech under its many forms (gestures, talking, writing) is the basic essential of culture and civilization. Hence the best way of showing that animals do not possess reason, and of demonstrating the wide hiatus between the minds of animals and men, is to point to the absence of speech, and consequently of culture, in animals.

We have discussed the problem of speech in animals in the preceding pages. Culture has been defined as "social heredity"; it comprises knowledge, skills and attitudes which an individual acquires as a member of society. An animal acquires almost nothing as a member of its society; it learns almost exclusively through its own experience. What it learns by watching its parents or other members of its species amounts to very little, for animals can transmit their own experience to other animals, even their offspring, only in a concrete, never in an abstract way; only accidentally, never intentionally.

A mother fox, for example, may have learned from sad experience to keep away from traps. If she meets one of these devices while roaming afield with her young, she will show signs of fear and carefully avoid it. This fear may spread to the young foxes, with the effect that they will, in the future, keep clear of traps. But if the vixen never meets any traps while accompanied by her young, she cannot impart this caution to them. Thus an animal cannot learn from the experience of its race; there is only biological, no social heredity.

Man, on the other hand, learns much from education, through which he is enabled to share the experience of the whole human

race. Thus progress, culture and civilization are made possible. Every generation can carry on from where the previous one left off.

The lack of real language, and consequently of culture, is the clearest demonstration of the absence of reason in animals. It also shows conclusively that between man and the animals there is not merely a difference of degree but a difference in kind. We shall show later that this radical distinction derives from the presence in man of a spiritual component, which is totally lacking in animals. The absence of a spiritual component in animals also explains why we do not discover in them the slightest manifestation of religious feeling, morality or art.

> Many years ago Max Müller in his classical studies on language characterized the most important difference in structure between human and animal consciousness by saying that language is the Rubicon which the animal never crosses. Science as it has advanced, has proved his statement correct, however important may seem the discoveries made in the interim about pre-lingual and quasi-lingual phenomena in bees and other animals. Even the most intelligent performances yet met with in animals reveal no trace of an operation performed with speech-aided abstract terms.[1]

Note on the Animal Soul

The characteristic operations of animal life are sense knowledge and sense appetite. We shall demonstrate later that matter is a real co-cause of these operations. Hence they are intrinsically dependent on matter, they are material. Since a being acts in accordance with what it is, the animal soul, from which these material operations derive, is also intrinsically dependent on matter, is material. Therefore the animal soul cannot exist without a body, and when bodily life ceases, that soul disappears, as roundness disappears in a flattened ball.

READINGS

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[1] Katz, *op. cit.*, p. 30.

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PART THREE

Human Sense Life

INTRODUCTION

Before we begin the study of human psychology we must discuss a few questions in which philosophical psychology and modern experimental psychology are at variance with each other. These questions are: (1) the use of introspection, (2) the concept of faculty, (3) the division of psychic functions.

The Use of Introspection

Introspection is the examination of the data of our own consciousness. By means of introspection we know and can report what takes place in ourselves—what we see, hear, feel, think. For example, try to imagine Rockefeller Plaza and tell me what you see in your imagination, how vividly you perceive it. Or, you are suffering from a bad toothache; describe how that pain feels to you. Introspection is the natural method for obtaining data about man's mental life. Nevertheless modern psychologists raise serious objections against it. They say:

1. Introspection can be used only by the subject on himself. The exactness of the reports cannot be checked by any other person. But science requires facts which can be checked by many independent observers.

2. Some important psychological facts cannot be studied by introspection since intense concentration of the mind is impossible if you try at the same time to attend to what is happening in you. For example, strong emotions and introspection do not go together; either the emotion makes introspection impossible or introspection eliminates the emotion.

Some authors answer this objection by pointing out that when

we cannot introspect, we can at least retrospect—that is, analyze afterwards how we felt while we were experiencing, say, a strong emotion. They replace introspection by retrospection, the observation of a present fact by the memory of a past event.

3. Even in ourselves some psychological facts escape introspection altogether, namely the unconscious activities. During hypnosis, a subject may be given a suggestion which he is to carry out when he awakens from hypnotic sleep. He may act on it without knowing why. There is a tendency in him of which he is totally unaware and which escapes all introspection.

4. The introspective method cannot be used with animals or young children, or with feeble-minded or psychotic individuals.

These real limitations of the method of introspection have induced many modern psychologists to reject it altogether as incomplete and unreliable and to advocate instead the objective method—that is, the observation and description of what an individual does, how he behaves in a certain situation. For instance, we see that a dog can distinguish between a square and a circle by the fact that, after some training, he will take food when it is presented on a square platter but will never touch it when it is given to him on a round platter.

This objective method presents many advantages from the scientific point of view. The conditions under which a certain act is performed can be standardized in detail, so that anyone can duplicate the experiment and verify its findings. Apparatus can be used to measure the activities. First used with animals, this method was defended as the only possible method for the whole field of psychology by the Behaviorists, some of whom went so far as to deny the very existence of consciousness. The majority of psychologists do not go to that extreme; but without denying consciousness and the possibility of introspection they rightly maintain that the scientific purposes of psychology are better served by the objective method.

We should note, however (most psychologists are aware of this), that the objective method can be misleading, especially with regard to human beings. The same kind of behavior may be inspired by any of a number of different motives, and it is difficult or impossible to obtain information on this point, except through introspection and report. Furthermore, some problems cannot be studied at all by this method. How could we study our dreams or the nature of our after-

images by purely objective observation? What progress would have been made in the interpretation of so many clinical tools and projective techniques?

Our conclusion, showing again the strange position of psychology among the sciences, will be:

If you want a strictly scientific psychology, you must use the method of description of behavior. But you will necessarily have to omit some of the most important problems of psychology.

If you want a complete psychology, covering the whole field of mental phenomena in man, you will have to use introspection. But your method, if exclusively introspective, will not fulfill the strict requirements of scientific observation.

The best course is to use both methods within their respective limits, employing the objective method wherever possible and supplementing it with the introspective method when that is required. Our earlier discussion of the nature of psychology has already shown that it is impossible to build it completely on the model of the exact sciences.

The Concept of Faculty

We use this concept frequently in everyday speech: "I have a poor memory: I want to develop my intelligence." Memory and intelligence are examples of faculties.

Modern psychologists have many objections to the use of this concept. They claim, for instance, that to explain psychological activities by attributing them to some faculty is no explanation at all. To explain that we can remember past events because we possess a memory, or that a bird builds a nest because it has the instinct for building nests is as unscientific as to explain the explosion of some chemical substance by means of its "exploding power."

Scientifically speaking, this objection has much weight. To account for any activity merely by ascribing it to a faculty is not a scientific explanation. The scientist will have to look for some other explanation. Modern psychologists are so convinced of this that they avoid—or rather, try to avoid—the concept of faculty altogether. Yet they speak of "functions" or "powers" or "abilities," which only amounts to using other terms for expressing the same or a similar idea. Ordinary language needs certain philosophical terms, among which

faculty is included. The concept of faculty corresponds in the psychic domain to that of an organ in physiology. A physiologist does not claim that he has explained the process of digestion by ascribing it to the stomach. Yet he does not reject the idea of the stomach or of an organ. The same can be said of the use in psychology of the concept of a faculty.

A faculty is defined as the proximate or immediate principle of mental operations. We say "proximate" to distinguish it from the "radical" or "remote" principle of all mental operations (and of all other operations as well), which is the "nature" of the being.

I perform many operations—such as breathing, digesting, thinking, seeing. The *principle which* performs these operations is the Ego, "I." The *remote principle by which* I perform these operations is my nature. The *proximate principle by which* I perform physiological operations is an organ. The *proximate principle by which* I perform mental operations is a faculty.

Hence from the scientific point of view we do not insist on retaining the concept of faculty, since it does not explain anything. Nevertheless even scientists need some idea corresponding to it and express such an idea frequently, because all human language has a philosophical foundation.

From the philosophical point of view the concept of faculty is absolutely necessary. We have clearly defined it, and we shall use it in the sense in which it has been defined.

We must be careful, however, not to consider these faculties as complete and separate beings, which act on their own and independently of other faculties. A faculty does not act, it is something by means of which I act. As St. Thomas frequently repeats, "It is not the eye which sees or the mind which thinks, but I see through my eyes and I think with my intelligence." Many false problems will be avoided by remembering this important observation.

Classification of Human Faculties

Man has many faculties. What order, if any, exists among them? Here again there is disagreement between Scholastic philosophers and some modern psychologists.

Scholastic philosophy distinguishes between faculties which man has in common with animals, the sentient or organic faculties, and

others which man shares with the pure spirits, the rational or spiritual faculties. This distinction is of the utmost importance, and we shall solidly establish it later on. All materialists reject it, because for them there is no real difference between animals and men.

Sentient and rational faculties are further subdivided into cognitive and appetitive faculties. The cognitive faculties give us knowledge of exterior or interior reality. The appetitive faculties are those by which we strive towards, or away from, the objects we know. The scholastic classification of human faculties is set down in the following table:

	COGNITIVE	APPETITIVE
RATIONAL	INTELLECT	WILL
ORGANIC	SENSES	SENSE APPETITE

Experimental psychologists avoid the concept of faculty. Many of them do not try to classify the functions of the human mind, but those who do attempt such a classification add to the cognitive and appetitive categories mentioned above the category of the affective phenomena, comprising the feelings, emotions and sentiments. This yields the following table:

	COGNITIVE	AFFECTIVE	APPETITIVE
RATIONAL	INTELLIGENCE	SENTIMENTS	WILL
ORGANIC	SENSES	FEELINGS	DRIVES
		EMOTIONS	INSTINCTS

The content of this table is not homogeneous, since it includes faculties (intelligence, will), functions (drives, instincts) and psychic phenomena (sentiments, emotions). Despite this defect we shall use the classification for convenience in organizing the empirical and experimental data concerning man's mental life.

The Scholastics had no separate category for the affective phenomena because they considered them to be mere modifications of

the cognitive and appetitive activities. For example, we observe some danger (cognition), we try to avoid it (appetite), and while we are thus knowing and striving, we are affected by fear (affection).

A deeper reason for this dichotomous classification of the Scholastics seems to lie in the fact that the outlook of St. Thomas is universal and embraces the totality of being. But in the superior beings, the pure spirits and God, we find only cognition and appetite, no emotions, feelings or sentiments. Emotions and feelings occur only in material organisms. Even the sentiments,[1] such as the sentiment of duty or the esthetic sentiment, although implying an intellectual element, are sentiments only owing to the repercussion of this higher element upon a human, material, bodily sensibility.

The third part of our course is divided into two main sections, an experimental and a philosophical section. In the experimental section we shall use the threefold classification into cognitive, affective and appetitive functions. In the philosophical section we shall classify the faculties into cognitive and appetitive faculties.

[1] Some psychologists use the term "sentiment" in a different sense and consider sentiments as appetitive phenomena.

SECTION I

Experimental Study of Man's Sense Life

INTRODUCTION

Two methods can be used in the experimental study of man's psychic life. We may start with a picture of man's complex behavior and try to analyze it, to discover the different elements which contribute their share to it. Or we may start with the elements, and by putting them together, try to reconstruct the total picture.

Both methods have advantages and disadvantages. The first method is more lifelike, in that it follows the natural process of our perception, which is to seize the totality first, and only as a second step proceed to analyze it. But this advantage is offset by a lack of clarity. The second method is generally clearer, since it passes gradually from the simple to the more complex. But it has the disadvantage of studying as independent entities elements which are never given in isolation; it involves the danger of taking abstractions for realities.

We must emphasize that at every moment man's psychic life is a complex totality of all kinds of phenomena. They are intimately connected with each other, they fade gradually into each other, they influence, weaken or strengthen one another. Man's consciousness is under most circumstances a blend of perceptions, feelings, images, judgments, concepts, decisions, emotions, sentiments. Only exceptionally does one of these phenomena become so predominant as to occupy the whole field of consciousness.

Unfortunately, the living reality of man's psychic life is too complicated to be studied as a whole. Therefore we shall distinguish in it, by means of abstraction, some elementary phenomena which have long been distinguished by traditional philosophy and which many experimental psychologists continue to study separately.

CHAPTER 6

Sense Knowledge

THE CENTER of man's knowledge is judgment, by which he affirms or denies something of something. When man knows an object, he does so in a judgment. We discover that in a judgment there are concepts, that is, intellectual, universal representations of some reality. If we abstract the intellectual element contained in these concepts, we are left with either a perception or an image. Even a perception is a complicated unity which we can further subdivide to distinguish elementary sensations. The first part of this chapter will be devoted to the study of sensation.

Sensation in General

A sensation cannot really be defined. It can be described as the most elementary cognitive reaction of an organism to a simple stimulus. We never experience a pure sensation. If we could ever have a pure experience, say, of "red," not connected with any object, not localized in space or time, we should then experience a sensation.

A sensation presupposes the interaction of some stimulus with a specialized part of an organism. This specialized part is called a sense organ, to which corresponds a sense, or elementary cognitive function.

Not all organisms have the same number of senses. Unicellular living beings possess only the sense of touch, while the higher mammals and man are endowed with a great variety of senses. Traditionally they have been enumerated as the five senses of sight, hearing, smell, taste and touch. Modern psychology has subdivided the sense of touch into several more senses, each of which possesses its own

specialized nerve endings and conveys its own specific kind of sensations. Therefore we have the following table of senses and sensations.

SENSES			SENSATIONS	
Sight			Visual	Exteroceptive
Hearing			Auditory	
Taste			Gustatory	
Smell			Olfactory	
Somesthetic sense (touch)	Cutaneous	Pressure	Tactile	
		Cold	Cold	
		Warmth	Warmth	
		Pain	Pain	
	Intra-organic	Kinesthetic	Kinesthetic	Proprioceptive
		Equilibrium	Static	Interoceptive
		Visceral	Organic	

The last column of this table contains terms which are frequently used in modern psychology to designate wider categories of sensations. Exteroceptive sensations give us knowledge of something outside our own body; interoceptive sensations inform us about objects or states in the interior of our body; proprioceptive sensations inform us about parts of our body. Thus undigested food in our stomach may be sensed by an interoceptive sensation. The movements of our limbs, which are not within our body but are parts of our body, are known by proprioceptive sensations. The distinction between these two categories is not very sharp.

Sensations have certain characteristics: quality, intensity, and duration. Quality is that which distinguishes one category of sensations from all others. Thus the difference between visual and auditory sensations is one of quality.

What makes sensations differ in quality? What makes a visual sensation differ from an auditory sensation? The answer seems obvious: it must be the nature of the stimulus. The sensations are different because the stimuli are different. When light radiation strikes our eyes, we experience a visual sensation; when sound waves strike our ear, we have an auditory sensation. What would happen if a sound wave affected our eyes? The question would seem to be purely academic, since in fact sound waves do not affect our eyes. However, it is not wholly idle, as some stimuli may affect sense organs different from those designed to receive them, or may affect more

than one organ. Thus a mechanical blow, which is a tactile stimulus, may affect our eyes, and from experience we know that we then "see stars," we have a visual sensation. Likewise electric stimulation may affect several sense organs, and we know that each organ reacts in its own specific way. When the optic nerve is electrically stimulated, we see light; when the acoustic nerve is thus stimulated, we hear a sound; electric stimulation of the gustatory nerve produces a taste sensation. In the famous paradoxical cold sensation, a warm stimulus reaching a nerve ending specialized in conducting cold sensations produces a sensation of cold.

These facts have given rise to the famous law of the "specific nerve energies," first formulated by Johannes Müller, according to which, whatever be the stimulus, a sensory nerve always reacts with its own specific sensation. It follows from this law that if sound waves should affect the eyes, they would be experienced as light, not as sound. It follows also that if, by a clever operation, the optic nerve could be connected with the acoustic brain-center, and the acoustic nerves with the optic brain-center, we should hear light and see sound.

Does this not imply that knowledge obtained through the senses is necessarily subjective and that any objective knowledge of the world of reality is consequently impossible? Our sensations would tell us what nerves in our body are affected but not the nature of the stimuli which affect them. Because of this consequence some try to minimize the law of Müller.

There seems to be no real foundation for these misgivings. We shall often have occasion to point out that our basic certitudes come from our intellect, not from our senses. The senses give us pragmatic certitude, and that certitude is not endangered by the law of specific nerve energies. For it is a fact that the different senses are adapted to their respective stimuli and that only occasionally, and under artificial circumstances, will a sense organ react to the stimulus of another sense. Our intelligence warns us of these special circumstances and keeps us from error.[1]

It is not necessary to explain what is meant by the intensity of a sensation. We all know loud and light sounds, strong and dim lights. To a more intense sensation must correspond a stronger stimulus;

[1] Furthermore, the fact discovered by Adrian that all sensory nerve impulses are fundamentally the same throws some doubt upon the validity of Müller's law, as formulated by him.

physical intensity and psychological intensity vary together. But they do not vary in exactly the same way. Every increase in physical intensity is not matched by an equal increase in the experienced or psychological intensity. Weber's Law states that the psychological intensity increases as the logarithm of the physical intensity. In other words: where the physical intensity increases geometrically, the psychological intensity increases arithmetically.

A simple example will make this clearer. Suppose that a room is first lighted by one candle. When another candle is added the physical intensity is doubled. The brightness which we experience (the psychological intensity) has also increased, although it is difficult to say whether it has doubled. But let us admit that it has doubled. Hence to physical intensity 1 corresponds psychological intensity 1, to physical intensity 2 corresponds psychological intensity 2. The point of Weber's Law is that if we add one more candle and reach physical intensity 3, we shall not get the same increase in the psychological intensity. It takes 4 candles before we reach psychological intensity 3, and 8 candles before we reach psychological intensity 4. Whenever we double the number of candles, or the physical intensity (geometrical progression), we advance one unit in the psychological intensity, or in brightness (arithmetical progression).

Weber's Law has been the object of much research and discussion. It is generally admitted nowadays that it holds for moderate intensities but that it does not apply where very weak or very strong intensities are concerned.

This law shows again that our senses do not report exactly what happens in the outside world. Nobody has concluded from this that they lead us into error.

Visual Sensations

The sense of sight and that of hearing together constitute the most important part of our human sense equipment. We rely primarily upon these two senses for the acquisition of our intellectual knowledge. People who are deprived of one of these senses, and especially of both, have to overcome great handicaps in their education.

The human retina has two kinds of specialized sensory cells, which, because of their shapes, are called the rods and the cones. The rods are extremely sensitive to light, but they do not register differences

in color. The cones are less sensitive to light, but they react to color differences. Rods and cones are not evenly distributed over the retina: there are no rods on the fovea (the part of the eye we use when we focus on an object), but they occur in increasing concentration towards the periphery. The cones are numerous on the fovea and in the central part of the retina, and their numbers decrease towards the periphery. This explains why the fovea possesses excellent color-discrimination and is almost useless in very dim light, why the peripheral area is color-blind. The rods adapt themselves to dim light by building up "visual purple," a chemical extremely sensitive to light. It takes about thirty minutes for the rods to build up their maximum amount of visual purple in total darkness; afterward the eye may be a million times more sensitive to dim light than at the start of this process. A short exposure to intense light destroys the visual purple at once, producing a dazzling or blinding impression.

Man therefore has a double system of vision: a twilight system, very sensitive to brightness, insensitive to color, and a daylight system, much less sensitive to brightness but able to distinguish the various colors. This is the gist of the "duplicity theory," first formulated by the German physiologist von Kries.

Visual sensations, or colors, can be divided into two main groups: achromatic colors (black, white and gray) and chromatic (all other hues). The achromatic colors can be represented by a straight line, going from black to white through all the shades of gray. The chromatic colors can be represented by a circle, described by the following series of colors: red, orange, yellow, green, blue, indigo, violet, purple, and again red. Some of these colors are intermediate hues, obtained by blending the two neighboring colors. If we keep only the colors which cannot be obtained by blending others, we find the following four fundamental colors: red, yellow, green and blue. All other colors can be obtained by mixing some of these fundamental colors.

Therefore the chromatic colors are better represented by a square, each corner of which is occupied by one of the fundamental colors. And the totality of all colors is often represented by a double pyramid, whose main axis is the line of the achromatic colors, and whose basis is the color square (Fig. 2).

Every color has three characteristics: hue, brightness and saturation. Hue is that which makes one color of the spectrum different

from another. Brightness is the similarity of a color to white. Saturation refers to the richness, the fullness of the color. Thus blood-red is saturated red, whereas pink is unsaturated red. In the color pyramid, hue varies as one travels along the sides of the basis or of any plane parallel to the basis. Brightness increases from the bottom of the double pyramid (absolute black) to its top (absolute white). Saturation decreases as one penetrates into the pyramid along a line perpendicular to the axis.[1]

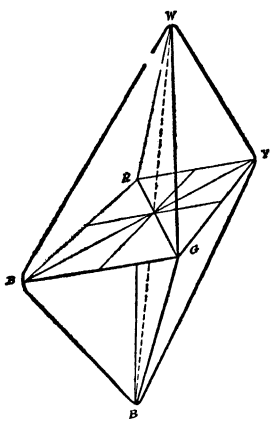


Fig. 2

Colors can be mixed psychologically, a phenomenon which occurs when two different hues are projected simultaneously, or almost simultaneously, onto some part of the retina. When mixed in that way, some chromatic colors produce an achromatic result. Thus when blue and yellow are mixed psychologically they produce white or gray. The same thing occurs when green and red are mixed. Colors which, when mixed psychologically, produce either white or gray are called complementary colors.

Complementary colors have the further characteristic of tending to induce each other in their immediate neighborhood. This phenomenon can be observed in a room where red and white lights are used

[1] The Gestalt psychologists have emphasized the fact that the colors studied in the early stages of experimental psychology are all surface colors. Nature offers other kinds of colors, such as the color of liquids, fog, smoke, glass, glowing embers, etc.

simultaneously: all the shadows in the room are green. We expect them to be gray, but because they are surrounded by large red fields which tend to induce their complementary color, they take on a greenish cast. This is the phenomenon of simultaneous contrast.

Successive contrast occurs when, having looked for about half a minute at an object of a certain hue, we rest our gaze on a gray surface and see a spot of the complementary color. This is called a negative after-image.

Complementary colors are further combined in the phenomenon of color-blindness. The normal eye is color-blind at its periphery, where only black, white and gray are perceived. The central part of the eye perceives all hues. Between the central zone and the periphery there is an intermediate zone in which, of the chromatic colors, only blue and yellow are perceived.

In some individuals color-blindness extends over the whole retina. The hues they do not see are generally red and green. About four per cent of all men suffer from this defect, which is much rarer among women. In some cases there is yellow-blue color-blindness. Very rare is total color-blindness, wherein only the achromatic colors are perceived.

Auditory Sensations

Auditory sensations are divided into two main categories: noises and tones. Noises are irregular, rough, arising from complex physical stimuli. Tones are regular and smooth, produced by a simple stimulus. Although most sounds affecting our ears are noises, the psychologists have especially studied the tones.

Tones have three main properties: loudness, pitch and timbre. In loudness, tones range from slight to loud. Loudness depends on the physical intensity of the stimulus, more specifically on the amplitude of the sound vibrations. In pitch, tones range from low to high. The pitch of a tone increases with the frequency of the vibrations. The timbre of a tone, or its quality, allows us to distinguish a tone of the same loudness and of the same pitch, when played on different instruments. Timbre depends on the complexity of the sound waves.

The human ear can perceive tones ranging in frequency from about 20 to 20,000 double vibrations per second. The high limit usually comes down as people advance in age. Music uses tones ranging in

frequency from about 16 to 4,000 double vibrations per second. Pitch discrimination is best within that range.

Tones cannot be classified in groups like the colors. However, proceeding from lower to higher tones, we observe that certain tones can be blended more smoothly than can other combinations. These tones have frequencies which stand in a simple mathematical relation to each other. Thus two tones whose respective frequencies stand to each other as 1 to 2 blend so harmoniously that an untrained ear cannot distinguish them. They differ by an octave. Tones having a relation of 2 to 3, 3 to 4, et cetera, are also harmonious in combination; they correspond to the different notes of the octave.

The sounds which are most useful for man's intellectual life are the sounds of human language. They are classified either as consonants or as vowels. Consonants are noises, and they are complex in their physical structure. Vowels are tones, and their physical structure is relatively simple.

Smell and Taste Sensations

The sensations of taste and smell have little importance for man's intellectual life; on the other hand, they are of great biological importance and generally possess a strong affective character; usually an odor or a taste is agreeable or disagreeable, rarely is it a matter of indifference.

These two senses work in intimate association. In particular, many so-called tastes have a strong olfactory component. There are only four basic taste qualities: sweet, salt, sour and bitter. The great variety in the taste of foods and drinks must be explained mainly by differences in aroma, in smell. Furthermore, the basic taste sensations are often blended with sensations of temperature, of touch (crispness), even of pain (horse radish).

There is immense variety in the smell sensations, and psychologists have met with great difficulties in their attempts to classify them. The classification which is most generally accepted at present is that of Henning, who distinguishes six main odors. These odors, with an example of each, are: flowery (violets), fruity (peaches), spicy (cloves), resinous (turpentine), burnt (coffee), foul (carrion).

The phenomenon of contrast occurs in the domain of taste: lemonade tastes sweeter after pretzels. The sense of smell shows a marked

capacity for adaptation: an odor which is very noticeable at first is no longer consciously perceived after a while, e.g. in a hospital.

Cutaneous Sensations

The cutaneous sensations, whose nerve endings are localized in the skin, correspond to the former fifth sense, the sense of touch. They are the most essential for biological survival; many animals possess only these senses, and no animal is without them.

Modern psychologists distinguish four categories of cutaneous sensations: pressure, cold, warmth and pain. This classification is based on the fact that each category has its own specialized nerve endings in the skin.

If the skin of the forearm is gently pricked with a hair, certain spots yield a definite sensation of pressure, of touch, while other spots do not react. Pressure spots are unevenly distributed over the skin; some parts of the body possess many of them, e.g. the tips of the fingers and of the tongue; others have very few, e.g. the abdomen and the thickened skin on the soles of the feet. Pressure sensations show great adaptability, which explains why we are not aware of the pressure of clothes on the skin.

If the skin is touched with a blunt, cold object, certain spots give a clear sensation of cold. It is even possible to stimulate some of these same spots by means of a warm object; the cold spot then reacts with its specific response and yields an impression of cold (paradoxical cold sensation). Other parts of the skin react with a sensation of warmth if stimulated with an object whose temperature is higher than that of the skin.

The sense of cold and that of warmth give us relative, not absolute knowledge[1] of the temperature, as can be demonstrated by the following simple experiment. Plunge your left hand into warm water and your right hand into cold water. Then put both together into lukewarm water. This water will feel cold to your left hand and warm to your right hand. Objects which have the same temperature as the skin do not produce any temperature sensation. Skin temperature is called the "physiological zero"; any object whose temperature is above the physiological zero is felt as warm, any object whose temperature is below it is felt as cold. The physiological zero can be

[1] We shall show later that all sense knowledge is relative.

moved slightly up or down through adaptation, as shown in the above experiment.

Pain sensations are obtained at definite spots in the skin when these are lightly stimulated by some sharply pointed instrument. Where there are no pain nerve endings, this slight stimulation is not felt, or is felt only as pressure. Of the four kinds of cutaneous nerve endings the pain spots are the most numerous. They react more slowly than any of the others and show little adaptation.

Certain portions of the skin yield a special reaction called tickle—particularly little-used parts, such as the skin of the armpits and under the instep. These sensations are a peculiar mixture of pleasure and pain and have marked affective character. Certain authors claim that they belong to an older "protopathic" kind of sensibility. This sensibility does not produce any real information about the outside world, but only affective reactions; it has been overgrown by the "epicritical" sensibility in most parts of the body.

Intra-organic Sensations

The cutaneous sensations have their nerve endings in the skin and inform us with regard to conditions affecting our body from without. The intra-organic sensations have their nerve endings within the body and inform us about the position, the movement or the state of parts of the body or the body as a whole.

There are three groups of intra-organic sensations: the static, the kinesthetic and the visceral.

The static sensations inform us first about the position of our body with relation to space or to the force of gravity. We usually know whether we are standing upright, or leaning at a certain angle, or lying in a horizontal position; we gather this information from visual or touch sensations. However, it has been demonstrated that, even when these visual and tactile sensations have been eliminated or neutralized, we still have a certain idea of our position in space. This information is supplied by the static sense. Very often we do not experience our static sensations directly, but only through the reflex actions which they elicit. Thus when we are riding a bicycle, we must continually make slight movements whose purpose is to maintain our equilibrium. These movements are automatic, and they are guided by the static sense.

The static sense informs us also about the movement of our body as a whole through space. This does not apply to steady movement in a constant direction. But every acceleration or deceleration, any change of direction in our movement, is felt by the static sense. Generally we rely so much upon visual and tactile sensations that we do not notice these data of the static sense. When the movement of our body is very irregular—e.g. in a tossing boat—the static sense may produce reflex reactions of a highly disagreeable nature, such as dizziness, nausea, sea-sickness.

The organs of the static sense are situated in the inner ear.

Kinesthetic sensations inform us about the position of our limbs and about the strains and pulls which they undergo. If you move your arm slowly with your eyes closed, you will be aware of its successive positions. And you can evaluate with fair accuracy the weight of an object which you hold in your hand without seeing it.

Kinesthetic sensations are very important in the management of our own body. When a baby begins to move his limbs he is in somewhat the position of one who has to learn without an instructor how to operate a complicated machine with many levers and switches. The child will spend years building up thousands of connections between his visual or auditory sensations and his kinesthetic sensations. The easy skill of a great athlete is based on such connections. All our own skills and movements depend on them. Take the function of speech. How do we know the exact position of the mouth, the lips, the tongue, the exact amount of contraction of the vocal cords required for the many words of our language? We learn by experimenting until the emitted sound seems to be right. Connections are established between our auditory sensations, which tell us when we are right, and our kinesthetic sensations, which direct the various positions and contractions of our speech organs.

The great importance of our kinesthetic sensations is tragically demonstrated in cases of ataxia, which consists in an impairment of the kinesthetic function. Patients suffering from this disease can no longer control their muscular reactions. When they reach for an object, they reach too far or not far enough, and only with great difficulty can they bring their hands to the right place.

The organs of the kinesthetic sense are embedded in the muscles and tendons.

Visceral or organic sensations inform us about the conditions of the various parts of our body, especially about disturbed conditions of the organs. To this group belong the sensations of fatigue, exhaustion, inner pain, freshness, "pep."

Other visceral sensations derive from the digestive organs. Such are hunger, which is produced by strong contractions of the stomach; thirst, which is connected with a dehydrated condition of the membranes of the mouth; sensations of indigestion and nausea. Other sensations originate in the circulatory and respiratory tracts. Finally we must mention a general bodily feeling, a blend of many visceral sensations, which gives us an all-over impression of the state of our body and may produce a sense of general well-being or of vague discomfort. This general impression is sometimes called coenesthesis. It has a strong affective tonality and provides the basis for our general mood.

Visceral sensations explain how we are aware of the passing of time; how, without a watch or any other outside help, some individuals have a fair idea of how much time has elapsed. Some people, wakening in the night, may be able to tell the time with remarkable accuracy. This feeling of time is connected with sensations deriving from the visceral organs.

Perception of Space

In the preceding paragraphs we have considered our most elementary cognitive reactions, the sensations. Next we must examine more complex cognitive operations, by means of which we know, not some abstracted aspect of a total situation, but real objects and the space in which they are situated. These mental operations are called perceptions.

We shall first consider the perception of space. Four problems will be examined: (1) the relation between space perception and the retinal image; (2) the monocular perception of space; (3) the binocular perception of space; (4) whether the perception of the third dimension is inborn or acquired by experience.

1. We mention the problem of the relation between space perception and the retinal image because it shows how flexible our

perception is and what a complex background of experience even the simplest perceptions presuppose.

The problem is this: why do we not see objects upside down, since their image on our retina is upside down? This question assumes that there is a strict point-to-point correspondence between every spot on the retina and a definite point in space. That there is no such exact correspondence has been clearly demonstrated in the famous experiment of Stratton.[1]

Stratton built a system of lenses which, when held before the eye, inverted the retinal image, so that objects appeared on the retina right side up. He wore these lenses over one eye for a whole week, taking them off only in the dark. (He kept his other eye out of service during the experiment.) At first all objects were seen upside down. He had great trouble getting around in the most familiar places, and the trouble was aggravated by the fact that objects were "felt" in their right locations, although they were not seen there. The sound of someone approaching came from the right, and that person entered the visual field from the left. All his visual-kinesthetic and visual-auditory connections were disturbed. His past visual experience had helped him build up a picture of reality which was not conformable to the present situation.

After he had stumbled about for a few days, parts of the visual field came into order again. Objects appeared in their right position. At the end of the week, the visual field looked quite normal; only some of the connections with the other sensory spheres were still resisting the necessary adjustments.

From this experiment we conclude that the position of the retinal images does not matter. What matters is the associations established between these images and the other sensory fields and the movements of the body. Early in the experiment, when an object affected the upper portion of Stratton's retina, he would reach for it in the lower part of his visual field, and the object would be seen there. At the end of his experiment he reached for that object in the upper part of the visual field, where the object was now seen. It is a question of associations and past experience. Our simplest visual perceptions are not passively received pictures of reality but have been actively constructed with the aid of experience.

[1] J. M. Stratton, "Vision without Inversion of the Retinal Image," *Psychol. Rev.*, 4 (1897), pp. 341-360 and 463-481.

2. How do we perceive the third dimension with one eye?

The retina is a two-dimensional field. There is no difficulty in understanding how it can record the width and the height of objects. But how can it represent their depth? How can it grasp the third dimension?

This problem is analogous to the problem of the third dimension in drawing and painting. Students of the history of art know how long it took painters to master this problem. Leonardo da Vinci, the great Italian painter of the Renaissance, was the first to set down the rules of perspective. He mentioned the following monocular cues for the third dimension. The same cues are at work in our monocular perception of depth.

a. Linear perspective. The farther an object is from us, the smaller it looks. We have all seen how railroad tracks, a road and telephone wires seem to converge in the distance at what is called a "vanishing point."

b. Aerial perspective. Remote objects lose all their details; their colors become duller and grayer. Nearby objects show many details and their colors are clear-cut.

c. Shadows. Shadows are of two kinds: those which appear on an object because of the angle at which light strikes it or the irregularity of its surface, and those which the object itself casts on neighboring objects. Both kinds make the objects stand out in strong relief and give a vivid impression of depth. Compare two photographs of the same face, one which shows few shadows and one with deeper shadows.

d. Overlapping or covering. If an object covers part of another object in the visual field, we know that the former is nearer to us.

Furthermore there is a kinesthetic monocular cue of the third dimension which is called accommodation. A camera must be focussed if we want a clear picture. This is done by modifying the distance between the objective and the film. It is, of course, impossible for the human eye to modify the distance between the eyeball and the retina. The focussing of the eye is accomplished through a modification of the curvature of the lens. The kinesthetic sensations which accompany this curving of the lens have been frequently associated in our experience with the varying distances of objects. Hence the sensations, of which we are vaguely aware, can become

cues to distance. However, experimental research has established that such a cue is only approximate and is of little use in most cases.

3. How do we perceive the third dimension with both eyes?

The best cue of depth perception within a range of twenty yards derives from the fact that we have two eyes and the picture we get of the same object is slightly different for each eye (binocular disparity). Look at the inside of a box first with the left eye, then with the right eye alone. With the left eye you will see more of the right inside wall, with the right eye more of the left inside wall.

If we imagine the two retinas put one over the other, we can say that the points which cover each other are corresponding points; points which do not cover each other are called disparate. An object striking corresponding points upon both retinas is seen as single. If it strikes disparate points, it is seen as double. However, if it strikes points which are only slightly disparate, which are almost corresponding, the object is seen in relief, in three dimensions. This is the principle of the stereoscope; two slightly different views of the same object are presented, one of which is seen by each eye; the pictures are somehow fused in the brain, and the effect is a striking impression of depth, or relief.

A kinesthetic binocular depth cue sometimes mentioned is that deriving from the phenomenon of convergence. When we look at a far-away object, the eyes look in parallel directions. When we look at an object which is very close, the eyes converge on it. The nearer the object, the greater the convergence of the eyes. The kinesthetic sensations produced by this movement of convergence, having been frequently associated in our experience with the distances of objects, eventually serve to indicate such distances. It has been shown experimentally that this cue is not very important.

4. A much-debated question is that of nativism versus empiricism. Is space perception inborn or is it acquired by experience?

As long as Associationism prevailed in psychology, it was held that space perception was entirely, or almost entirely, a product of experience. The first and simplest perception is that of a point. Experience, it was said, taught us to combine points to produce lines, lines to produce planes and planes to produce volumes.

The Gestalt psychologists, or Configurationists, whose theory is

essentially anti-associationistic, claim that perception of the third dimension is spontaneous and inborn. They do not deny that experience exerts an influence on the perception of depth; experience renders that perception more precise, better articulated. But they have presented strong evidence in support of the inborn character of our perception of space.

The Associationists pointed out that, since our retina is a two-dimensional field, our original space perception could not be three-dimensional. This is denied by the Configurationists. "The retina is the boundary surface of the tri-dimensional optical sector of the brain, and the forces set up in this boundary surface determine a process extended over the whole tri-dimensional sector."[1]

The Associationists considered the simplest visual stimulation to be that produced by a single point in space affecting a single spot on the retina. The Gestalt psychologists deny this, pointing to the phenomenon of auto-kinetic movement. If in total darkness a subject is shown a single luminous spot, he will see that spot—which is objectively motionless—travelling extensively over his visual field. The perception of a single point is a complex phenomenon. For the Gestalt psychologists the simplest stimulation is that produced by a perfectly uniform field affecting the whole retina. Under these conditions the observer will "feel himself swimming in a mist of light which becomes more condensed at an indefinite distance."[2] Such a uniform field could be constituted by an actual fog. But it can also be a white wall, every point of which sends the same amount of light into the eyes of the observer.

Metzger performed an experiment using such a wall as stimulus. The observer sat in front of it, at a distance of slightly more than a yard. The visual field of the observer was restricted by means of side-screens, so that he could see only the wall. As long as the illumination was low, the subject claimed that he saw only a three-dimensional mist.

> If, however, the illumination was increased, something new happened. The fog became condensed into a regularly curved surface which surrounded the observer on all sides; its appearance was filmy like the sky, not surfacy, and similar to the sky it was lightly flat in the centre.

[1] K. Koffka, *Principles of Gestalt Psychology* (New York, Harcourt, 1935), p. 115.

[2] W. Metzger, quoted by Koffka, *op. cit.*, p. 111.

> . . . If the illumination is still further increased, the surface straightens out into a plane whose apparent distance may increase very definitely beyond the real one.[1]

Why was the selfsame stimulus which first appeared as a regularly curved surface seen later as a flat surface? Because with the influx of stronger illumination the field was no longer homogeneous. The wall surface was not perfectly flat, it had grain, and the small irregularities showed up with the greater illumination and better accommodation of the eyes.

Hence for the Gestalt psychologists the original perception is tri-dimensional and becomes two-dimensional only when the field is no longer homogeneous. Experience may improve the perception of depth, but it does not create it. The terms of the problem have been reversed, and the psychologist's main task is now to explain how the perception of two-dimensional and one-dimensional stimuli is possible.

Perception According to the Gestalt Psychologists

The Gestalt school of psychology originated in Germany at the beginning of this century as a reaction against Associationism.[2] The Associationists tried to explain all complex psychic phenomena as aggregations of elementary states; against this the Gestalt psychologists assert that in reality and in our experience the complex phenomena come first, and that the elements are perceived later if at all, and only through abstraction. They have supported their claim very successfully in the domain of perception, and this is a good place to examine their system.

According to what has been called the "mosaic" or the "bundle" theory of Associationism, what come first in our experience are the elementary sensations, corresponding to so many elementary stimuli.

[1] *Ibid.*, p. 114.

[2] The works of the founders of Gestalt psychology abound in statements of a philosophical nature. Many of these statements have a mechanistic or materialistic flavor. The Configurationists seem to deny any real difference between the configurations which occur in the physical world and the configurations which are found in the mind. When they speak of the mind they seem to mean the brain, and only the brain. They forget that the brain is an animated organ which, like the body, is informed by the soul. Therefore the mental configurations are not produced by the brain alone but by the brain working under the formal causality of the soul.

We put these elementary sensations together and obtain the more complex perceptions. Or rather, these elements combine spontaneously under the influence of the laws of association. The human mind is entirely passive in this process. The perceived "wholes" are simply copies of the wholes existing in reality. When I see a wall, every part of that wall sends light impressions to some part of my retina. These simultaneous stimulations unite in my mind under the influence of the laws of association, and their sum-total yields the perception of the wall. This associationistic conception emphasizes the primacy of the parts over the whole and the passivity of human perception.

The Gestalt psychologists reject these views and emphasize the primacy of the whole over the parts and the spontaneity, the activity, manifested in our perception. The first thing we perceive is the totality, the whole, the configuration, the Gestalt. At first no details are noticed, or only such details as are very striking and unusual. For example, when we see a crowd, we do not first perceive a great number of individuals which we put together in our mind and thus see the crowd. We first see a crowd and only afterwards we distinguish individuals.

Furthermore, these wholes which we perceive, of which we are aware, are not passively reproduced copies of the wholes as they exist in reality. They are actively constructed by our own mind, more or less after the model of the objective data. Consider the physiological difficulties which would be involved in a purely passive perception of the objective configurations. We might admit that the retinal image is a passive reproduction of the outside data, but this retinal image is translated into nerve impulses and further into the mysterious activity of the brain cells. How could a point-to-point reproduction of the objective scene be maintained in the course of this cerebral activity?

The problem can be stated in different terms. What meets our eyes is a mosaic of irregular patches of color. Why do we not see these patches of color, but instead trees, houses, a river, a road, a house? The Associationists admitted that at first we saw only these irregular blots of color. Slowly, through repeated experience, we come to associate them with definite objects. After a while these associations become so strong that the objects are perceived at once.

It cannot be denied that experience has a share in our perception

of objects. Let us take an example in the domain of hearing. The reason why the language spoken by foreigners, even a language we have studied, sounds to us like an uninterrupted series of sounds, in which we do not recognize the words we have learned from the dictionary, is precisely that we have not sufficient experience of these words. We do not have any such difficulty where our own language is concerned, even when we hear it spoken very rapidly.

But experience alone is not enough, since it presupposes some knowledge. The question remains: how did we recognize these objects, these words, as units the first few times we met them in our experience? Recognition of units presupposes an original cognition of these units.

For the Configurationists our very first perception, previous to any experience, is not of an irregular assortment of disconnected patches of color. It is from the beginning organized, structured; it contains figures and a background; some parts are grouped together to form units, or wholes. We do not know at once that these wholes are houses or trees; that knowledge presupposes some experience. But before we know what these configurations are, they exist clearly in our perceptual field. In other words, there is within the mind itself a factor which organizes the data of our perception the very first time we perceive them. Our perception is not a passive receiving of impressions but entails active reconstruction and organization.

The Gestalt psychologists offer many experimental data to establish their claims. We shall now mention some of these data.

1. We may perceive an object or a whole before finding out what it is. Thus we see "something," "some object" in the distance or in a fog. We do not know what it is, we do not recognize it, but we perceive it immediately as a distinct unit.

2. The Configurationists have studied the factors which make for such spontaneous groupings in our perception. They mention especially the following:

a. Nearness, or proximity. Stimuli which are near each other are perceived as groups. Thus the nine lines in Fig. 3 are not perceived spontaneously as nine lines but as three groups of three lines.

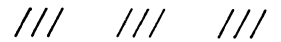


Fig. 3

The law of nearness explains why all peoples have at all times seen some constellations in the sky. Stars which are perceived near each other are seen as groups, or constellations.

b. Similarity or resemblance. In Fig. 4 we spontaneously see vertical lines of crosses and circles, not horizontal lines made up of alternating crosses and circles.

```
+ o + o + o
+ o + o + o
+ o + o + o
+ o + o + o
+ o + o + o
```

Fig. 4

c. Common fate. Planes travelling in the same direction and at the same speed are naturally seen as groups, as perceptual wholes. Nearness and similarity of movement combine here.

d. Good continuation, good curve, good figures. These factors are easier to explain by means of examples than in words. When two lines can be seen as continuing each other smoothly, they will be seen as one. Max Wertheimer, one of the founders of Gestalt psychology, used to camouflage his initials in the following figure, 5,[1] in which the M and the W are difficult to see. Good continuation makes us see the two outside lines as units, and the central diamond as a whole.

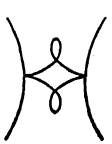


Fig. 5

A figure which is harmonious, balanced, well-proportioned, is seen as a whole. Circles, triangles, squares are good figures, and they show great internal cohesion in perception. This may explain why some animals can be trained to react uniformly to certain of

[1] Figure 5 is reproduced from Koffka's *Principles of Gestalt Psychology* through the courtesy of the publishers, Harcourt, Brace and Company.

these figures even when they are presented in different contexts and with many variations. The abstraction and universalization which seem to occur in such cases are activities which take place on the perceptual level.

We have much more experience of the word "little" than of the upper part of Fig. 6:



Fig. 6

Nevertheless we see that figure, and not the word "little" to which a few lines have been added. If the extra lines do not contribute to the formation of a good figure, they do not interfere with our perception of LITTLE.

3. Perception, especially visual perception, organizes itself spontaneously in "figure" and "background." We see trees and houses (figures) against the background of the sky; furniture and paintings against the background of the wall; words and pictures against the background of the white page. Figures have contour, consistency and unity, and our attention goes spontaneously towards them; the background is unlimited, it seems to continue behind the figures, it is vague and we do not pay much attention to it.

This organization of our perception occurs spontaneously, without previous experience. It is very striking in some cases where figure and background are unstable and shifting, as in Fig. 7. The odd shapes disappear, become background, as soon as you see the word HAT.

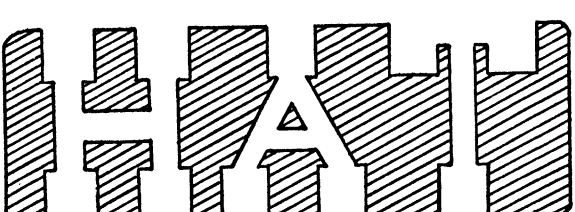


Fig. 7

The same phenomenon of sudden, spontaneous reorganization of a perception is also evidenced in some "ambiguous" figures. Look

for a while at the cube in Fig. 8 and you will suddenly notice a radical change in its appearance. What seemed to be the reverse side of the cube has now become the front side. This change of organization is almost continuous in Fig. 9.

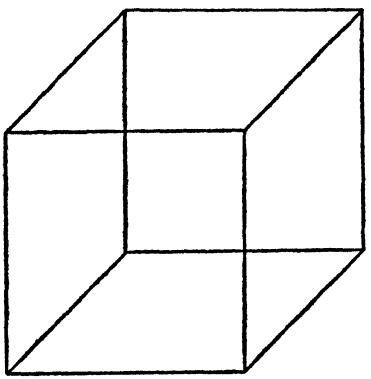


Fig. 8

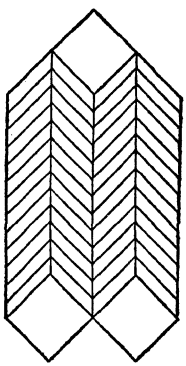


Fig. 9

These examples deserve a word of comment. In the very act of observing these figures, our perception is organized in a certain way. We become clearly aware of this when suddenly, without apparent reason, without any effort on our part, this organization changes, with a corresponding change in the perception. It is evident that this is not an intellectual or voluntary process. It happens entirely on the level of perception, in the sense domain.

This may help us to explain some cases of insight in higher animals. When a chimpanzee suddenly discovers the possibility that a stick or a box will help him reach the desired banana, a similar shift may have just occurred in his perceptual field. At first the stick or the box were in the background, the only figure was the fruit. Under the influence of an intense desire to reach the goal, perception undergoes a sudden reorganization and the stick or the box assumes the features of a figure. This explanation is suggested by the fact that the animal must see tool and goal together, in the same visual field, if he is to discover the solution of the problem.

4. In some diseases of perception the patients lose the power of perceiving forms. Their visual acuity is unimpaired, they recognize ordinary objects through color, size, et cetera; but they do not

recognize any form or configuration. In particular a drawing, in which an object is outlined by its general shape, has no more meaning for them unless they follow the outline with a finger, or at least with a movement of the head. They manage to read in the same way, and if they are asked to read an ordinary word through which a few cross lines have been drawn, they have the greatest difficulties. In the perception of a normal person these cross lines do not interfere, because they are seen as background against which the word, as figure, is clearly observable. But the perception of these patients marks no distinction between figure and background. Wherever one of the lines crosses a letter of the word, the patients hesitate, unable to decide in what direction they should continue their reading movement. Where the normal reader easily distinguishes a letter crossed by a line, the patients might as well perceive some meaningless outline.

From these and many other facts the Gestalt psychologists derived their new theory of perception. At first they claimed that a perception is more than the sum of its elements, that it is constituted of the totality of these elements plus a *Gestaltqualität*, or "form quality," which holds the elements together. Later they went further and denied the very existence of the elements. Our perception is a whole, a totality, it is that landscape before our eyes. If I analyze it, I discover not elements but smaller wholes: trees, houses. Under scrutiny these may, in their turn, yield still smaller wholes. Elements represent the ultimate limit of an analysis pushed to the extreme. Our perception, say the Gestalt psychologists, is "structured," that is, it can be analyzed into smaller components, each of which is itself a totality that derives its meaning from its relation to all the other parts of the global field.

What has been said about visual perception applies also, *mutatis mutandis*, to perception in the other sensory domains. Thus we can easily distinguish figure and background in an auditory perception: a conversation to which we attend against a background of sundry noises, a soloist playing against the background of an orchestra. Thus again, in the auditory domain, the global units come first: a child learning his mother tongue does not start with letters and syllables (as was done in the older, artificial method of learning to write) but with short sentences. He will discover words and syllables and letters later through analysis. And each of these components constitutes itself a smaller totality.

The Gestalt theory also gives us the best explanation for the optico-geometrical illusions, most famous among which is the Müller-Lyer illusion (Fig. 10).

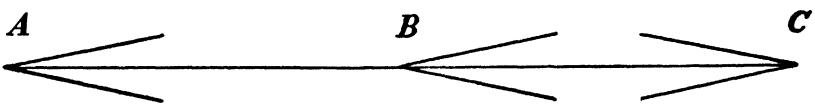


Fig. 10

The two objectively equal lines AB and BC seem unequal in length. The reason is that we do not really see these lines in themselves, but as parts of the two whole designs in which they are submerged and which are objectively of unequal length. The illusion points to the primacy of wholes in our perception.[1]

Perception of Movement

The movements of our own body are perceived by means of our visual, kinesthetic and static sensations. We are interested here in the perception of the movement of objects distinct from us.

For the perception of movements in the third dimension we use the same cues as for the perception of the dimension itself. When an object appears to become smaller as we look at it, vaguer in outline and dimmer in color, and we are conscious of accommodation and convergence in our vision, we know from past experience that it is moving away from us.

For the perception of movements across the visual field, when some object moves from our left to our right, or vice versa, we use several cues. We can compare the position of the object with that of stationary objects. We can turn our eyes and our head to follow the movement of the object. From experience we know that such movements in our own body mean movement of the object. If we do not turn our eyes, the moving object will affect different parts of the retina.

In the latter case our perception of the movement seems to be purely passive. The impressions are passively received and constitute

[1] See further W. Köhler, *Gestalt Psychology*, K. Koffka, *Principles of Gestalt Psychology*, G. W. Hartmann, *Gestalt Psychology*, W. D. Ellis, *A Source Book of Gestalt Psychology*. The last-mentioned book contains important contributions to the field of Gestalt psychology in translation.

the perception of the movement. However, the Gestalt psychologists claim that even here we are active, we reconstruct the movement in our own perception. In order to demonstrate this assertion, they point to instances where no real movement is given, although a movement is really perceived (the phi-phenomenon). On a screen before the observer two luminous spots, A and B, are presented. If A and B are presented in slow succession, the observer sees first A, then B, then A again, and so forth. If A and B are presented in quick succession, they are seen simultaneously; the eyes are too slow to notice the interruption of the stimulus. If A and B succeed each other at a moderate speed, the observer sees only one luminous spot which seems to move, which seems to jump from point A to point B. Although this luminous spot never occupies any of the intermediate positions between A and B, the observer has the impression that it passes through them. This perception of apparent movement explains our ability to perceive motion pictures.

The Configurationists conclude that when a certain number of conditions in the stimulus are fulfilled, we perceive movement, whether the exterior object is really moving or not. Movement is a Gestalt, a configuration, which is evoked when certain well-defined conditions are fulfilled. This happens generally when real movement is given in the stimulus field. But even then we do not passively receive it but actively reconstruct it after the data coming from outside.

Professor Michotte of Louvain University has recently demonstrated something similar in the perception of causality. Many philosophers have claimed that the exercise of efficient causality cannot be perceived by the senses but only conceived by the intellect. If we are to accept their claim, it means that whereas we see the active movement of the cause and the passive movement of the effect, we do not see the cause producing—actually causing—the effect. We see, for example, the knife entering the loaf and the slice taking shape, but we do not really see the knife cutting the bread. Michotte has devised clever experiments which demonstrate that causality can be perceived. This perception takes place when a certain number of conditions are fulfilled, even if no causal influence is actually at work. The Louvain psychologist has carefully investigated the conditions required for us to perceive one object pro-

ducing a causal influence upon another and has demonstrated that empirical causality, just like movement, is a Gestalt perceived by us whenever certain conditions are fulfilled.[1]

Extra-sensory Perception

Can we perceive objects without any help from the sense organs? Some people claim that we can, and they offer as evidence the phenomena of telepathy and clairvoyance. In telepathy a mental content is presumed to pass from the mind of one person to that of another without any intervention of the senses. In clairvoyance a person is supposed to become aware of some object without intervention of the senses.

Most cases of so-called telepathy or clairvoyance must be treated with great caution because they are reported by untrained observers and cannot be checked, and because the element of coincidence cannot be excluded. We do not claim that such events do not occur, but only that it is almost impossible to demonstrate their genuineness.

However, Professor J. B. Rhine, a psychologist at Duke University (North Carolina) who has spent many years in a scientific study of such phenomena, has reported results which deserve attention. He uses a deck of twenty-five cards. The deck contains five cards with a star, five with a circle, five with the plus sign, five with a square and five with wavy lines. The subject of the experiment is supposed to identify each card without seeing it. In telepathy experiments the experimenter sees the card and the subject is supposed to "read his mind"; in clairvoyance experiments, the subject is supposed to tell the order in which the cards occur in the deck. By chance alone the subject should be right once out of five times, therefore five times for each deck. A subject who was consistently right for all cards (provided, of course, that there was no cheating) would show either real telepathic powers or clairvoyance. Rhine reports no such achievement. But he does report many cases of subjects making scores which cannot be explained by mere chance. Elaborate precautions are taken against irregularities in the conduct of the experiment, and

[1] A. Michotte, *La perception de la causalité* (Louvain, Institut Supérieur de Philosophie, 1946). See, for a summary, J. Paulus, "*La Perception de la Causalité selon M. Michotte van den Berck*," in Rev. Phil. de Louvain, 44, 1946, pp. 530 ff.

the use of statistics excludes the possibility of explaining these results by chance.

Nevertheless most psychologists maintain a reserved attitude towards extra-sensory perception. Some admit it as a possibility, most of them are withholding their decision until more evidence is available.[1]

Synesthesia

Synesthesia consists in the action of one stimulus on more than one sense. A rather common example of this phenomenon is called "colored hearing"—i.e., some individuals experience the impression that certain sounds have a definite color. Thus a sound may be heard as high C and produce the impression of whiteness.

The existence of this phenomenon was long ago recognized, but until recently it was considered unusual, occurring only in subjects abundantly endowed with imagination, especially artists. The Configurationists, however, have shown that in certain circumstances synesthesia is a normal occurrence. In line with their general theory, they insist upon the unity of the senses and the relations existing between them, and the consequent possibility of one sense influencing another. They point out that, according to the theory of evolution, all the senses are developments and specializations of one fundamental sense. Since they have a common root, it is not surprising that they maintain intercommunication.

In the study of language we see that there are intersensory adjectives—for example, in English, *dull*, which can be applied to a color, a sound, an odor, a pain; and *bright*, which can likewise be used for several sense modalities. The French verb *sentir* is used indiscriminately with reference to sensations of pain, pleasure, taste, or touch. Such words seem to be numerous in primitive languages.

Synesthesia can be produced experimentally, especially with labile, subjective psychic phenomena. Thus an after-image can easily be influenced by a sound simultaneously perceived. Subjects who were asked to correlate certain shades of gray, obtained by color mixing, with definite sounds showed an agreement which could not be explained by chance.

[1] See further J. B. Rhine, *New Frontiers of the Mind* (New York, Rinehart, 1936) and *The Reach of the Mind* (New York, Sloane, 1947).

Ordinary Images

With this paragraph we begin the study of what the Scholastics call the internal senses. The first which comes up for consideration is the imagination, and its products, the ordinary images. We call them ordinary images in order to distinguish them from special images, such as eidetic images, dream images and projected images.

An image can be defined as a sensorial mental content which represents an object in the absence of any stimuli deriving from the object. When I look at the Statue of Liberty, I have a perception of it; when I picture it to myself in my mind, I have an image of it.

Images exist in all sense domains; there are visual, auditory, olfactory, gustatory, tactile, kinesthetic images. The liveliness of imagery varies considerably from individual to individual. Intellectual development generally decreases the vividness of a person's images, unless the development occurs in the artistic domain.

For a long time it was held that there were definite imagery types among individuals—i.e., that some people belonged to the visual type and had predominantly visual images, others to the auditory, and still others to the motor type. Educators especially were interested in finding out to which type individual students belonged, with a view to adapting methods of presentation and study to each type. Later research has disclosed, however, that there are very few individuals in whose mental life one type of image is clearly predominant. Most people have visual, auditory and kinesthetic images. The other kinds of images are usually less distinct, and in fact are hardly noticed. The variation between individuals consists rather in the degree of vividness of whatever images they experience. In rare individual cases images are almost as vivid as actual perceptions; at the other extreme we find individuals in whom images are very vague, schematic, reduced to the greatest possible simplicity.

It is fairly certain that there is a considerable difference between the images which occur in the minds of men and those of animals. Animals must have images, since it would be difficult otherwise to explain why they exert efforts to obtain objects not present to their perception—e.g., a thirsty cow goes to the waterhole, even if it is not immediately within sight. This kind of imagery is intimately connected with memory. The cow has learned the location of the water-

hole, and when she is thirsty remembers that place. In general it can be said that images arise in the animal's mind only in response to needs. They cannot be evoked at will; there are no images floating free in the animal mind. Furthermore, these images in animals seem to belong to the motor or kinesthetic more than to the visual or auditory type. When the Yucca moth goes through its complex instinctive performances, it must be guided by images. But these images are probably a succession of kinesthetic impulses which unfolds automatically within the insect, and to which its activities respond as to the notes of a musical score.

In man we must distinguish between two functions of imagination, the reproductive and the productive. The first reproduces pictures of objects previously perceived. Although deriving from the past, they are not recognized as belonging to the past. Recognizing former perceptions is a function of memory.

Productive, or creative, imagination recombines previously perceived images to form a fresh synthesis. Walt Disney's many creations are the products of this kind of imagination. It is not creative in the sense that it produces something absolutely new; only the arrangement of the elements is original. This function is closely associated with intelligence, and we shall reconsider it when we study man's intellectual activities.

Since images can be extremely vivid and perceptions very indistinct, instances inevitably occur in which the distinction between image and perception is difficult to make. When an image is mistaken for a perception we speak of an illusion, or a hallucination. Generally speaking, however, we have no difficulty in making the distinction. We use the following criteria:

1. The indistinctness of images, as opposed to the vividness of perceptions.

2. The lack of detail in the images, as opposed to the abundance of detail we can distinguish in our perceptions.

3. The subjective character of our images, as opposed to the objective character of a perception. We can change our images, produce and dismiss them at will; but a perception is not influenced by our desires.

4. In general, an image lacks many of the features which we know,

from past experience, that the perception should possess. Imagined fire does not burn.

All these criteria depend on former experience. Hence the question arises how, before any experience, an image can be distinguished from a perception. Previous to any experience the distinction is not made at all. The human mind spontaneously objectifies all its contents. For a very young child there is no difference between what he imagines and what he perceives. Experience teaches him that some of these contents are not real.[1]

Images which have occurred simultaneously in our experience become associated. They form clusters which are reproduced as such later on. Images also form associations with perceptions. This process is called "association of images," or "association of ideas."

The principal laws of Association, already noted by Aristotle, are:

1. The law of contiguity. Mental contents which have been experienced at the same place or at the same time have a tendency to evoke each other. If we have witnessed an automobile accident at a certain street corner, we may think of it again when we pass that corner.

2. The law of similarity. Mental contents which resemble each other have a tendency to evoke each other. A suspension bridge met in our travels may evoke in our mind the memory of a similar bridge in our home town.

3. The law of contrast. Mental contents which contrast with each other tend to evoke each other. Black evokes white, day evokes night.

The British school of psychologists known as the Associationists tried to explain all the phenomena of mental life in terms of these simple laws. Their effort did not succeed, for although it is true that these laws are constantly at work in our minds, they are inadequate to explain any of the higher intellectual functions of man. For a while it was held that they were sufficient to explain such functions as perception and memory, but the Gestalt psychologists have demonstrated that even on this level association cannot explain everything.

All the perceptions of an adult are accompanied by images which enrich the present perception with data from similar perceptions of the past. When we stand looking at a house, we have the impression

[1] Cfr. J. Maréchal, S. J., *Studies in the Psychology of the Mystics*, trans. by Algar Thorold (New York, Benziger, 1927), Ch. 2.

that we are seeing a house. The fact is that very often we are seeing only one side of the house, a wall with a door and windows. If we had never seen a house before, we should see only that wall. But our present perception is completed by images derived from past perceptions in which we have seen houses from many angles. This amplification of a present perception by remnants of former perceptions has been called "apperception," a term which is used with a quite different meaning by many modern philosophers.

Peculiar Images

We shall now briefly consider illusions and hallucinations, projected images and eidetic images.

Illusions and hallucinations are both images which present a false interpretation of reality. They are considered to be real perceptions. An illusion is an erroneous perception with a basis in reality. When on a dark night we take a tree stump for a crouching man, we have an illusion. Something is there, the perception has a basis in reality; but our apperception is wrong, and we misinterpret the stimulus, thinking it is something which it is not. This usually happens when the subject is under the influence of some emotion, such as fear, hope or anger.

A hallucination is an erroneous perception with no basis in reality. It may be caused by some irritation of the sense organ concerned or some disorder in the corresponding brain center. When a delirious patient sees a nonexistent robber entering his room through the window, he is suffering from a hallucination. These phenomena, too, are generally experienced under the influence of affective factors.

In both illusions and hallucinations there is a projection of subjective images into objective reality under the influence of some emotion or drive. We can therefore learn much about the affective and instinctive life of a person by studying his projected images. That is why psychologists have devised methods to induce the projection of images.

The subject is shown a stimulus which is vague and ambiguous, and is invited to interpret it. This projective method of testing was first used by Rorschach. He offered his subjects a certain number of irregularly shaped ink-blots in black or in various colors and asked them to tell him what these blots represented. Most people have no

difficulty in seeing something definite in these queer shapes. Rorschach studied abnormals and neurotics and discovered, after testing hundreds of patients, that there was a relation between what the patient saw in the ink-blots and the trouble from which he was suffering. This test, whose value has been demonstrated for the examination of mentally disturbed individuals, is being used more and more in the examination of normal subjects.

Other projective tests have been devised. We shall mention only the Thematic Apperception Test of Murray. An untitled picture showing a simple scene is presented to the subject without comment, and he is invited to explain what is taking place in that scene. From the manner in which the subject interprets the picture, an expert psychologist can gather useful information about his feelings, drives and attitudes.

Eidetic images occur especially among children, although a few cases have been reported in adults. The child is shown a picture containing much detail. He is allowed to look at it for only a few seconds. Then he is invited to "see" that picture again on a screen—that is, to project it. If the subject is eidetically endowed, he will be able to do so, to re-examine the picture he has projected on the screen and discover details he did not notice before. Erich Jaensch, who discovered this phenomenon, claims that it is quite common among his German subjects. Other psychologists, examining children in other countries with the same methods, have found very few cases. Did Jaensch unconsciously use suggestion on the children? Or are there regional differences in the frequency of eidetic subjects? Both hypotheses have been advanced to explain the discrepancies between the results of different investigators. Most psychologists now admit that eidetic images exist but think that they occur less frequently than Jaensch claimed.[1]

Memory

Memory is the function which retains, reproduces and recognizes the representations of objects formerly perceived. The main difference between imagination and memory consists in the factor of recognition. Memory not only retains and reproduces, as does the imagination, it also recognizes, it is aware (vaguely or clearly, consciously or

[1] E. R. Jaensch, *Eidetic Imagery* (New York, Harcourt, 1930).

unconsciously) that a certain mental content has been met in the past.

Memory has been a favorite object of study for experimental psychology. Many of the results of these investigations are presented in the chapters on learning, which are among the most important in every textbook of psychology. This material is too extensive and too specialized to be presented here, even in summary. We shall mention only a few points which are of particular interest to the philosopher.

Different kinds of memory must be distinguished. The first distinctions will be between what can be termed motor memory, mental memory and pure memory.

Motor memory is the memory of the living body in motion. When certain movements have been repeated often enough in a fixed sequence, they become automatic, they are executed without volition and with a minimum of attention. Motor memory accumulates and conserves the many skills which every man or animal needs for everyday life. Walking, talking, writing, reading, using tools are different manifestations of motor memory. Many forms of animal training and learning by animals come under this heading.

Mental memory stores its acquisitions in the form of knowledge, consisting in memory images, ideas, judgments or conclusions. This kind of memory frequently operates in conjunction with motor memory. Thus when we have memorized a poem or a song, we remember both the vocal movements (motor memory) and the ideational content (mental memory). When, on the other hand, we remember only the content of a poem or of a lecture, only mental memory is involved.

Pure memory is the result of the spontaneous inscription in our mind of some event we have experienced. This kind of memory just "remembers," whereas motor memory "learns how to" and mental memory "memorizes." Suppose you learn a poem by heart. You read it several times, and after a few repetitions you are able to recite the strophes. This entails the function of motor memory for the vocal movements and mental memory for the ideas of the poem. But your pure memory has been at work too. Through it you remember that you started studying that poem after hearing it on the radio, that you read it a couple of times while you were sitting at your table, that the two last readings were done while you walked in the

garden. No effort has been required to remember these details. They were at once inscribed in your memory as experience, they have become a part of your private past. Compared with the two other kinds of memory, this one has a personal, concrete, living character, because it concerns events in our own history, because it conserves the stuff of which our own concrete duration is made.

Owing to this kind of memory, everything we do or feel or decide or experience becomes in a certain sense part of our own past, of our empirical personality. To a certain extent we are what we have done: there is a cumulative pressure of the past around the core of our personality. We are, and we shall always remain, the one who has done this, omitted that, suffered this or that pain and enjoyed this or that pleasure.

This kind of memory, which has been neglected by experimental psychology, is strongly emphasized by clinical psychology in the techniques of the case history and anamnesis. It is very important in the development of personality, and we shall mention it again when we treat that topic.

Do animals possess such a thing as pure memory? They do, because the animal also is, to a certain extent, the product of its own past. A dog which was treated kindly as a puppy will be different from another dog which was treated harshly at that stage. However, animals cannot remember these facts of their own past distinctly and explicitly. Human beings can; they are able to relive their own history in their memory.

Another important distinction is that between sense memory and logical memory. Sense memory recalls concrete events and individual objects; it does not recognize the past explicitly as past. Logical memory recalls abstract contents and recognizes the past as past.

Sense memory does not recognize the past as past. An animal has no explicit idea of the past. How, then, does an animal recognize something? How, for instance, does a dog recognize his master? Owing to the fact that the master produces in him a feeling of familiarity which consists, according to Bergson, in "the animal's consciousness of a certain special attitude adopted by his body, an attitude which has been gradually built up by his familiar relations with his master, and which the mere perception of his master now calls forth in him mechanically."[1]

[1] H. Bergson, *Matter and Memory* (New York, Macmillan, 1911), p. 93.

This kind of sense memory is also part of man's equipment, but it usually operates in conjunction with intellectual memory, i.e. an explicit recognition of the past as past. Because intellectual memory is more distinct, we do not pay much attention to sense memory. Nevertheless, we can experience the operation of sense memory as such on occasion—e.g., when we recognize one tool among several others just by its "feel," or proceed along a complicated but familiar route without adverting to the directions we are taking.

The word "reminiscence" is used with differing meanings by the Scholastics and modern psychologists. For modern psychologists it refers to the fact that, during a short period after learning, memory traces may increase in strength instead of weakening. Thus a subject who has learned 100 words may be able to recall 80 of them in an immediate test. Next morning, without any further study, he tries again to reproduce the words and is able to recall 85 of them. Overnight the memory traces, instead of diminishing, have grown in strength. This is reminiscence in the modern sense of the word.

For the Schoolmen reminiscence consists in the voluntary recall of past memories. Only man is able to reminisce in that sense. He has a general idea, a "dynamic scheme," of what he is looking for, and he probes his memory for it. He may find it right away or he may be unable to discover it during his search. But later on it may arise spontaneously, as if the efforts made to find it had prepared it for discovery.

In this connection we must say a few words about the important question of the "transfer of training," which has been investigated especially in the sphere of memory. The problem can be stated as follows: when we train a function such as memory in a certain field—e.g., by memorizing poetry—are the effects of that training transferred to other memory domains—e.g., the memorizing of dates or names—or are the effects strictly confined to the specific sphere in which the training occurred? The importance of this issue becomes immediately apparent if we apply it to human intelligence and ask, for example: Does the study of classical languages produce an over-all development of the intelligence, or does it only make the mind fitter for the study of classical language? Or, does the study of mathematics develop a general aptitude for exact reasoning in all fields or are its effects restricted to the field of mathematics?

Until the advent of experimental psychology the prevailing opinion was that such transfer of training took place, and this view was one of the arguments in favor of Liberal Arts education.[1]

Experimental psychologists have devoted much effort to the investigation of this important problem. The first results gave no support to the theory of the transfer of training. The experiments showed that exercising, or training, a function in a specific task strengthened the function only for that task and did not affect it so far as other fields of endeavor were concerned. Only when identical elements were involved in two tasks would there be any transfer. Thus training in addition would improve aptitude for multiplication, because every multiplication contains an addition; multiplication and addition possess identical elements.

This extreme position, denying all real transfer of training, is no longer held by many psychologists. They admit that there is no purely formal development of a function, that a faculty cannot be developed like a muscle. But they add that certain general attitudes and attainments acquired through mental work—application, methods, procedures, motivation, ideals—can be and are transferred from one domain to another. Concretely this means that whereas merely studying Latin will not produce a general development of the mind, if this study helps a student to acquire habits of accuracy, careful analysis, comprehension, and synthesis, these attitudes or procedures may be transferred to other domains.

In conclusion two practical suggestions can be made with regard to memory work. Generally speaking, spaced memorizing is better than massed memorizing, and global memorizing is superior to part memorizing.

Memorizing is spaced when the memory effort is made in short periods, interspersed with periods of rest. Massed memorizing means that the work is continued without interruption until the whole "lesson" is learned. When we set ourselves to learn 100 words of a foreign language, or 100 verses, progress will be faster and retention more certain if the effect is distributed over four half-hour periods than if two solid hours are spent in study. The same principle applies

[1] We say: one of the arguments, because other arguments can be adduced in favor of that kind of education which are in no way affected by the present discussion.

to the acquisition of new skills, such as playing the piano or typing.

Global memorizing is the method of taking the thing that must be memorized as a whole, instead of dividing it into parts to be memorized separately. It is generally better to study a poem of 100 verses, or a speech, as a whole than to master one strophe or one paragraph at a time. This is especially true of meaningful materials and with adult learners, who are not discouraged if no notable progress is made quickly.[1]

[1] Readings: cf. p. 130.

CHAPTER 7

Affective Functions

ON THE SENSE level we may distinguish two kinds of affective phenomena: feelings and emotions.

Feelings

Feelings are elementary affective states which cannot be further analyzed. Psychologists are generally agreed that the elementary feelings can be reduced to only two: pleasantness and unpleasantness, or pleasure and pain (although the word pain is often restricted to a specific kind of unpleasant sensation).

Experience seems to indicate that there are more than two elementary feelings. Thus we speak of feelings of sadness, tiredness or depression. Strictly speaking, however, sadness is an emotion, tiredness is a visceral or organic sensation, depression may be either an emotion or a visceral sensation. The distinction between these phenomena is often difficult to make.

Our affective life is said to have dimensions, since the affective states vary between two extremes. Pleasantness has all the gradations between mild and intense, and so has unpleasantness. We pass along this scale from the extreme of one to that of the other. Therefore there must be some neutral point at which we experience neither feeling, although this is of rare occurrence in our psychic life.

Feelings scarcely ever occur in isolation. They are generally elements in a complex whole. We have already emphasized the affective character of many of our sensations (taste, smell, pain, visceral sensations). Ideas, drives, decisions can be felt as pleasant or unpleasant.

It is only by abstraction and for greater clearness that we distinguish feelings as a group of mental states.

Some authors claim that an affective state must always be preceded by an act of knowledge: i.e., *something* must be felt pleasant or unpleasant. Generally speaking, it is indeed true that feelings develop in us because we have become aware of something that pleases or displeases us. Yet the same feelings may be produced by physiological causes of which we are not aware and which can hardly be identified with any cognitive process. We may have a pleasant or unpleasant feeling without knowing why. There are, of course, causes for these feelings, but they are either merely physiological or unconscious.

It frequently happens that in such cases we project our feeling on to external circumstances or people in our environment, as if we were looking for some reasonable justification for feeling the way we do. For instance, we may have an unpleasant feeling deriving from purely physiological causes, but we explain it by remarking that some person or persons are very disagreeable today. We believe that we feel out of sorts because people are disagreeable, whereas the fact is that people seem disagreeable only because we aren't feeling well. Married people may save themselves much trouble by keeping this simple observation in mind.

Emotions

Affective states of greater intensity and shorter duration are called emotions. The main emotions are: anger, fear, joy and sadness.

Emotions are always accompanied by typical physiological reactions. This has been known from antiquity. The ancients placed the seat of the emotions in the heart or in the viscera. We know now that the physiological modifications which accompany the emotions are under the direct control of the autonomic nervous system and the indirect control of the midbrain, especially of the thalamus. Under the influence of these agencies the activities of the stomach slow down, the beating of the heart accelerates, glucose is poured into the blood. The organism is keyed up and ready for an emergency.

In the ordinary theory of the emotions the sequence of development is described as follows. We become aware of some stimulus (frightening, saddening, provoking), and this produces in us the typical psychological state known as an emotion (fear, sadness,

anger). As a result of this emotion the physiological modifications described above exert their effects throughout the body.

This classic theory of the emotions has been sharply challenged by two psychologists, James and Lange. They claimed that the physiological modifications precede the conscious emotion, that they are directly produced by the stimulus and the emotion is nothing but the awareness of these modifications. We see a bear coming towards us, we begin to tremble, and because we tremble we feel afraid. Such is the gist of the James-Lange theory of the emotions.

This theory is generally rejected by psychologists, and weighty experimental evidence against it has been presented. Nevertheless it contains its grain of truth. The classic theory overemphasized the distinction between the psychic state of emotion and the physiological modifications. We might perhaps say that these modifications neither follow the emotion, as claimed by the traditional theory, nor precede it, as claimed by James and Lange. Emotion and modification occur simultaneously and are but different aspects of the same reality.

What is the purpose of the emotions? Are they useful or are they mildly pathological phenomena? The question may justly be raised. The useful reaction to danger is the movement of escape, not the trembling and blanching which result from fear. Anger is a disturbing factor in a fight; the angry man will strike powerful but ill-directed blows, and his own defenses will often be down. It is better to fight coldly, without anger.

Several theories concerning the finality of the emotions have been presented. Some authors assert that the emotions are actually psychic disorders, offering in evidence of this claim the disturbances in the motor apparatus (trembling, shaking, clumsiness), in the sensory functions (decrease of acuity), and in the intellectual functions (obnubilation) which accompany strong emotions. Other psychologists, without going to this extreme, admit that an emotion is an abortive form of an instinctive reaction, having somewhat the effect of a short circuit in electricity. When danger threatens one should immediately try to take appropriate action—either mental or physical —to avoid it. If this effort is not made or does not succeed, the purposeful reaction will be displaced by the emotion of fear.

On the other hand, Cannon claims that the emotions themselves are purposeful reactions. He emphasizes the fact that the emotion

puts the organism into a state of readiness for emergency. Functions which are not essential to the present exigency—such as digestion—are slowed down or suspended; the acceleration of the heart-beat sends more blood to the muscles; quickened breathing increases the intake of oxygen, and glucose is poured into the bloodstream to provide fresh fuel for energetic movements.

The French psychologist Wallon has presented a hypothesis which reconciles these contradictory theories. In his view an emotion is both useful and harmful; it is useful as long as it is kept under control, harmful when out of control. When an emergency arises, we normally experience emotion. This emotion produces a mobilization of all our powers which enables us to act with extraordinary vigor and dispatch. If we act at once, the emotion abates; it has performed its useful function and may now disappear. If no action occurs, the emotion takes control of our whole system. It floods the body, producing all kinds of disturbing effects. A man who sees a bull bearing down on him feels fear; that fear is said to "give him wings." He should use these "wings" right away to get out of danger. During his flight little or no fear is experienced, he is totally intent on running. But if fear is so strong as to paralyze action, or if some exterior obstacle makes flight impossible, the emotion will take over; the man begins to tremble; he may "lose his head" and be helpless in face of the danger.

Therefore an emotion is useful if it is kept under control and replaced as soon as possible by a reaction, whether instinctive or deliberate, adapted to the circumstances. It is harmful if it is allowed to exert its full influence. Emotional reactions are controlled by the midbrain; in an emergency control should pass from the midbrain to the lower brain centra which control instinctive reactions or to the higher centra which direct conscious adapted behavior.

But if emotional extremes are harmful, why do they occur so frequently in man? Wallon explains their presence in us as a psychic vestige of the evolutionary process. These emotional seizures served a useful purpose earlier in the development of the race and the individual. In gregarious animals they may still be useful, since they are a powerful means of unifying the herd and making it capable of concerted action, common flight or fight. A strong emotion spreads automatically, by some kind of psychic contagion, from one individual of the herd to another. Where language is lacking, it is the

best means of unifying a group. In much the same way a mob of human beings which has lost all intellectual control of its actions is united in rage or panic.

Strong emotions may also be useful in the development of the individual. Before the child's higher functions are active, he cannot adapt his behavior to his needs. A baby who is in pain or is hungry cannot help himself by any purposeful activity. But he manifests a strong emotion of fear, grief or anger which will powerfully influence his mother and thus produce the needed relief.

In other words, strong emotions are useful in man before the higher brain centra are developed. They are no longer useful in the adult because he has better methods of adapting himself to his environment. Their occurrence in adults is a vestige of an earlier stage of development.[1]

Expression of the Emotions

We have already described certain physiological modifications which accompany the emotions. Some of the modifications are visible and serve as external expression of the emotions—for example, trembling, blushing, blanching, sobbing, smiling, laughing, et cetera. Others can be observed only with the aid of special apparatus—e.g., the increase of blood pressure and the psychogalvanic reflex.

Because of their special interest for the philosopher we shall briefly consider two of these expressive movements, the psychogalvanic reflex and laughter.

1. The psychogalvanic reflex (P.G.R.) consists in a lowering of skin resistance to an electric current, in a subject under the influence of an emotion. It is measured by the pathometer, better known as a "lie-detector."

When a light electric current is sent through a human body by means of two electrodes placed in the subject's hands, great resistance is opposed to it by the organism. But if the subject is suddenly frightened or affected by some other emotion, his resistance decreases and the current passes through more easily. It has been demonstrated that the resistance comes from the skin and that its diminution with the onset of emotion is brought about by the secretion of microscopic drops of sweat on the palms of the hands. The glands which

[1] H. Wallon, *Les Origines du caractère chez l'enfant* (Paris, Boivin, 1934).

secrete these sweat drops are controlled by the sympathetic division of the autonomic nervous system, which also commands all the other physiological modifications accompanying an emotion. It is a remarkable fact that even when the subject is able to control all other external expressions of his emotion, and even when he does not "feel" any emotion at all, this phenomenon occurs and can be measured. We have here a very sensitive indicator of the slightest activity of the sympathetic nervous system.

Is this activity always accompanied by an emotion? Only if the word "emotion" is taken in a very wide sense. Experimental research has established that the P.G.R. always accompanies an "emergency," be it ever so slight, even if it consists only in an embarrassing or unexpected question. A new event of some kind has taken place to which the subject must make an appropriate response. Therefore, when an innocent suspect is questioned with a lie-detector, his skin resistance will go down. If the questions are repeated several times, they lose their newness, and the P.G.R. wanes and disappears. With the guilty suspect, who lies consistently when answering compromising questions, the emergency persists and so does the P.G.R. Even in such a case, however, a competent psychologist will not affirm that the subject lies, but only that he shows continued signs of emotion, of embarrassment, when a certain question is repeated.[1]

The psychogalvanic reflex is interesting for the philosopher because it demonstrates so clearly the intimate interaction between the psychic and the physiological components of the organism.[2]

2. Laughter interests us as philosophers because it is so characteristic of man that Aristotle and the Scholastics called it a "proper accident" of human nature, something which occurs in all men and only in men, and which can therefore be considered to be a distinguishing feature of the human being.

First, a few words about the related phenomenon of smiling. Many muscles of the face are involved in smiling, not only the muscles of the mouth, but also those of the cheeks, the nose, the eyelids, the forehead—all the facial muscles except those of the chin.

[1] Not all pathometers or lie-detectors use the P.G.R. to detect emergency feelings of the organism. Others use changes in blood pressure or in breathing.

[2] Cf. W. Summers, S. J., "Science Can Get the Confession," *Fordham Law Review*, 8 (1939), pp. 334-354; also R. S. Woodworth, "The Psychogalvanic Reflex" or "Galvanic Skin Response" in *Experimental Psychology* (Holt, 1938), Ch. 13.

Smiling is generally the manifestation of a feeling of joy, well-being, or euphoria. Such a feeling produces a slight stimulation which is expressed by the most mobile muscles of the organism. The muscles involved will be those which contract easily, which have no heavy parts to move and which are synergic—that is, which work naturally together. In man these muscles are the muscles of the face. In animals they may be located elsewhere. Thus a dog shows the slight stimulation produced by joy or euphoria by contracting the most mobile muscles of his body, which happen to be located in his tail. A dog smiles with his tail.

In man smiling may arise from physiological or psychological causes. The physiological causes consist in organic euphoria, such as may be produced by a good meal or a feeling of health or energy. That kind of smile appears very early in the baby. The psychological causes usually involve some mild amusement or some agreeable sentiment, such as approval or benevolence. The latter kind of smile is typically human and supposes a certain development of the higher functions.

Physiologically, laughter is more complex than smiling. The contraction of the facial muscles is more intense. There is contraction of the internal intercostal muscles resulting in the convulsive expiration interrupted by inspiration which is so characteristic in laughter. Furthermore the sides of the glottis contract, causing the vocal phenomena in laughter. In violent laughter, many more muscles of the body may be involved.

Laughter, like smiling, may be produced by physiological and psychological causes. The mechanism of these two kinds of laughter is the same but their meaning is quite different. The first is the result of a feeling of bodily well-being; the second is generally caused by the perception of something funny.

Why does the perception of something funny contract the muscles of the face, the ribs and the glottis? Why is it that it can, in some cases, shake the whole human body? This fact is best explained by the theory which attributes laughter to a sudden release of tension. As we await the outcome of a funny situation or listen to the telling of an amusing story, a certain amount of suspense or tension is usually built up, which is then suddenly released. The body gets rid of that tension by the muscular contractions which laughter provokes. However, this theory does not explain all instances of laughter.

CHAPTER 8

Appetitive Functions

IN THIS chapter we shall consider first the inborn sensory tendencies of man, then his acquired sensory tendencies, or habits. This distinction between innate and acquired tendencies is clear enough on paper but very difficult to maintain in practice, since man has in fact no tendencies which are totally inborn, yet every one of his acquired tendencies is based upon innate elements. A further difficulty derives from the fact that, in the sphere of the tendencies more than in any other, there is an intimate connection between the sensory and intellectual levels. Finally, in this same sphere, the existing terminology is so abundant and so ill-defined that there is danger of considerable confusion among the various synonyms used in everyday language to designate human tendencies.

What is the relation between terms such as tendency, striving, appetite, inclination, drive, impulse, need, passion and instinct—to mention only a few? Very roughly, we may suggest the following distinctions. Appetite will be used as a technical term of the widest meaning to designate all mental processes through which we strive towards some good or pleasure or try to avoid some evil or pain. The words "tendency" and "striving" may be considered everyday equivalents of "appetite." An "inclination" is a relatively weak, a "drive" is a strong, form of tendency. An "impulse" is a tendency to act. A "need" is a tendency produced by the conscious lack of something. A "passion" is a powerful and lasting tendency deeply rooted in the mind and associated with strong feelings or sentiments. Finally, an "instinct" is a tendency which is inborn and present in all the individuals of a species.

Inborn Sensory Drives of Man

In ordinary speech inborn sensory drives are called instincts. But does man actually have any instincts? This question has been vigorously debated for the last half-century. Before the study of experimental psychology began, the use of the term instinct was ordinarily reserved for animals, and man was considered to have no instincts, although an exception was usually made with respect to the sex instinct. William James, in reaction against this position, claimed that man possessed several real instincts. He was followed by William McDougall, whose very popular *Introduction to Social Psychology* was based in great part on the concept of human instincts. With the advent of Behaviorism another reaction set in which went all the way to the opposite extreme, at least among experimental psychologists. Many of them asserted that there were absolutely no instincts in man and some tried to eliminate the concept of instinct even from the study of animals. The Behaviorists claimed that all tendencies were learned, derived from experience and molded by environment. However, one important school of psychologists resisted this anti-instinctivist trend; in the psychoanalytic school and the systems derived from it, the concept of instinct has never been relinquished. The sex instinct and—of later date—the aggressive instinct are essential features of the Freudian system.

At present a new trend is taking shape in psychology which reconciles the divergences between the older and more recent psychologists and correlates the theories of experimental and clinical psychology. Experimental psychologists have come to admit more of an inborn element in human drives, and clinical psychologists are paying greater attention to the influences of learning and environment.

The present theory may be summarized as follows. Man possesses a certain number of inborn tendencies. However, these tendencies are considerably modified by experience and learning. Real instincts, ready to enter into action from the moment of the individual's birth, are found only in lower animals. In the higher animals and especially in man the instinctive tendencies are molded to a great extent by influences from the environment.

With these restrictions many of the ideas of McDougall may be adopted, and they have, in fact, been taken up again by some

modern psychologists.[1] McDougall distinguished three aspects in every instinct: a cognitive aspect, which explains why the individual pays attention to certain objects in the environment; an affective aspect, which produces in him a certain feeling in the presence of such an object; an appetitive or active aspect, which causes him to perform certain movements aimed at that object.

In the study of animal instinct, only the first and last aspects are emphasized, the intuitive knowledge of the animal and its complex activities in certain specialized domains. We have no means of knowing how the animal feels while under the influence of its instinct, but when there is question of human drives,[2] the affective aspect may be observed by means of introspection. McDougall claims that this affective component is the most reliable clue to the presence of a drive. The other two components may be considerably modified by experience. Consider, for instance, the aggressive drive and the corresponding emotion of anger. The cognitive aspect of that drive may be modified by learning: a baby becomes angry if you pin his arms against his body; an adult becomes angry when he hears that taxes are going up. The active aspect of the same drive has been modified too: the baby sets up a powerful howling; the adult votes against the party in power. Both the baby and the adult feel angry; the affective aspect of the drive has remained unchanged.

McDougall distinguished the following human drives with their corresponding emotion:

Drive	*Emotion*
Escape	Fear
Combat	Anger
Repulsion	Disgust
Parental	Tenderness
Mating	Lust
Curiosity	Wonder
Submission	Subjection
Assertion	Elation

McDougall recognized more than these eight unlearned drives in man. The other drives are not listed in this table either because there are no emotions corresponding to them or because the cor-

[1] Cfr. R. B. Cattell, *Personality* (New York, McGraw, 1950), Ch. 7.

[2] Where McDougall speaks of instincts we shall speak of drives, in order to emphasize more than he did the acquired features of our tendencies.

responding emotions are too undefined to be designated by specific names.

Instead of mentioning the other drives enumerated by McDougall, we shall here transcribe the more complete table given by R. B. Cattell and derived from the work of McDougall and other psychologists who have studied this complex field. Cattell warns us that his list is preliminary, or tentative:

I. Organic Needs:
To seek air; to avoid physical pain, heat, cold; to seek water; to urinate and defecate.

II. Propensities which are organic, viscerogenic. . . .
1. (a) To seek stimulation, exercise, activity, when well rested.
(b) To play.
2. To avoid stimulation, lie down, sleep, and rest when tired.
3. To seek food. This may be functionally connected with storing food, with restless wandering (as in the herbivorous animals) or with hunting readiness (as in carnivorous).
4. To court and mate (sex drive).
5. To feed, protect, and shelter the young.
6. To reject and avoid noxious substances.

III. Propensities showing no clear organic rhythm. . . .
7. To escape from violent impressions by
(a) flight.
(b) "freezing" to the spot.
8. To defer, obey, abase oneself in the presence of superiority and dominance behavior in others.
9. To appeal, cry aloud and seek help when utterly baffled.
10. To acquire, collect, possess, and defend whatever is found useful or attractive.
11. To explore strange places and things or manipulate and pull to pieces strange objects.
12. To remain in or seek the company of one's fellows.
With this go the functionally related tendencies
(a) to assume, by primitive sympathy, the feelings of the group;
(b) to evoke emotional responses from others; and
(c) to imitate.
13. To assert oneself, achieve, domineer, lead, display oneself.

14. To resent resistance to the expression of any propensity; to attack and destroy such resistance.
15. To laugh and destroy tension in certain tension-provoking situations.
16. (Questionable) To construct shelter and implements.[1]

The question may be raised: How are we certain that these are real inborn drives, and not just tendencies acquired under the influences of education and environment? To make sure that his instincts were really inborn, McDougall used mainly two criteria: (1) they must be found in animals as well as in man—at least, in the higher animals; (2) they must sometimes assume pathological forms. McDougall had no difficulty in demonstrating, for instance, that the instinct of escape operates in all animals and that in man it sometimes assumes the pathological form of one of the various phobias.

That these various drives, although primarily inborn, need environmental influences to complete their development is demonstrated by the fact that a few of them may be entirely lacking in some individuals, and even (if we are to believe the reports of ethnologists) in entire tribes. Thus we have all encountered people who seem to lack the parental or the acquisitive drive, and some ethnologists have reported the discovery of primitive tribes among whom the fighting drive seems to be nonexistent. There is no question of the absence in these individuals or tribes of the innate core of such drives. Environmental factors have prevented the development of these propensities. A different environment would have evoked the same fundamental drives as are seen in the average human person.

Habits in Man

A habit can be defined as a disposition to act in a uniform and easy way in certain circumstances. Before we study human habits, it is imperative to make a few distinctions. Much confusion obscures this topic because the necessary distinctions are not made and properties are attributed to all habits which belong only to certain kinds of habits.

We can distinguish at least four kinds of habits: physiological, motor, psychological and moral. In this chapter we shall not con-

[1] Cattell, *Personality*, pp. 180-181.

sider the last-mentioned. Moral habits are habits of a free will and will be considered when we study that faculty.

A physiological habit is a habit developed by the body. It would be more precise to call it a "habituation," since it occurs when the body becomes accustomed, or habituated to, say, a certain climate or a certain altitude, or to smoking. Such habits produce a facility in the body for performing the action corresponding to them and also a real need for the repetition of that action. The first cigarettes are usually disagreeable and may make the smoker sick. He smokes them for extrinsic reasons—in order to act like a grown-up or because everybody else smokes. Gradually, however, the body gets used to this mild drug and develops a need for it.

Motor habits are skills. They consist in a complex organization of movements which, through practice, have become easy, smooth and well-adapted. Thus we have all acquired the habits of walking, talking, writing and reading. We may acquire the habits of typing, playing the piano or the violin, driving a car, playing tennis or golf. Such habits make the corresponding actions easier to perform, but they do not of themselves induce any need for the repetition of those actions. A professional typist feels no need for typing, a taxi-driver develops no addiction to driving his cab.

Motor habits *in the making* are usually enjoyed for their own sake; they produce a need for repeating the corresponding action. A child learning how to walk enjoys walking for walking's sake. A new driver loves to drive. Some motor habits are never entirely mastered and may be exercised with pleasure for a very long time, e.g. playing tennis or golf. As long as we meet opponents who are not too easy to beat, these skills will be enjoyed for their own sake, but to play tennis or golf with an inferior opponent is not pleasurable, since we have sufficiently mastered the habit to defeat him with great ease. On the other hand, a well-mastered skill may be pleasurable as a means to an end. The "cabbie" who hates to drive through the streets of New York may enjoy a drive in the country with his family.

Under the label "psychological habits" we have put the vast collection of habits which are neither physiological nor motor nor moral. To this group belong such habits as rising early, brushing one's teeth, taking a nap, reading the paper, avoiding drafts, watching television; workmanship, thrift and orderliness.

The characteristic feature of the perfected motor habit is the ease and smoothness with which rather complicated actions or movements are performed. There is nothing of this nature in the psychological habit; it takes no great skill, requires no long practice, to get out of bed, to watch television or to save money. Skills may be involved in these habits (e.g., in reading the paper), but they are only tools used by the habit, they do not constitute the habit itself. The typical feature of this group of habits consists in a certain need for repetition which they bring with them. I feel unhappy or restless if I did not rise early, or if I cannot read the paper right after breakfast, or if everything is not orderly in my room. Psychological habits may therefore be considered *acquired* needs, as opposed to the inborn needs mentioned in the previous chapter.

All these psychological habits do not originate in the same way, and they are not kept alive by the same forces. We can distinguish at least three ways in which they may arise.

In the first case, the need is predominantly inborn but the way of satisfying it has been learned. Curiosity is an inborn need, and therefore every normal person likes to hear news. One way of satisfying that need is to read the paper. But why do we insist on reading the paper at a certain time, in a certain place? Why do we feel that something is wrong with our day if we did not have the paper right after breakfast? This habit requires another explanation. Man is a spirit in matter. Because of his material component he is unable to be unintermittently spontaneous and creative in his actions; the continuous effort of attention required would tax his mental energies. He will wisely reserve his attention for special situations in which it is needed. As for unimportant daily actions, he will allow himself to glide slowly into a certain routine which frees him of the duty of continual reflection and deliberation. This routine is felt as satisfactory, it runs very smoothly, a growing need arises to leave it undisturbed. Reading the paper right after breakfast is part of that routine, it is a daily rite. We naturally look forward to it, and it is not surprising that a certain amount of displeasure is felt if circumstances make that daily rite impossible.

The second case refers to habits in which the need itself, not just the manner of satisfying it, has been acquired. A certain course of action has been frequently repeated under the influence of social pressure or some other extrinsic factor. That action produces useful

results which are increasingly appreciated by the individual. Let the social pressure or the other extrinsic factor then disappear, and the individual will continue with the same action because of the advantages he derives from it. In this event, what was first a means to reach a certain end, e.g. parental or social approval, has become the means of reaching some other personal end. Thus a boy may have learned to rise very early each morning because his parents wanted him to. Rising early was a means of obtaining parental approval. Slowly he came to recognize the many advantages of this course of action. His parents are no longer with him, but he rises before the sun. He has acquired the habit of rising early.

The third case refers to habits in which a certain action, having long been used as a means to an end, has become an end in itself. Take, for example, the habit of thrift. We presume that it is not exercised for moral reasons but is merely a psychological habit, that the thrifty person is unable to explain why he parts so reluctantly with even small amounts of money. To explain such a habit, G. W. Allport introduced the notion of "functional autonomy."[1] Thrift may have been useful or necessary to such an individual during his first years of earning his living. Now he has become a very wealthy man, yet he remains so thrifty that some people call him a miser. The habit was acquired as a conscious means to an end. It has now become an end in itself, it is autonomous.

A final remark to close this chapter. Although we have distinguished various ways in which a habit may originate and be kept alive, few habits can be confined entirely to any single category. Several influences are usually at work in a habit. Thus, to return to our example of the early riser: his habit has been explained as a psychological habit; yet it is undeniable that a physiological habit is also involved—the body has become accustomed to a certain rhythm of retiring and rising, to the extent that the young man may spontaneously awaken around his usual time of rising and find it rather difficult to go to sleep again. This physiological component is a powerful adjuvant of the psychological habit.

[1] G. W. Allport, *Personality* (New York, Holt, 1937), Ch. 7.

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SECTION II

Philosophical Study of Man's Sense Life

CHAPTER 9

Cognitive Faculties

BEFORE we study the cognitive faculties in detail, we must know something about knowledge in general.

KNOWLEDGE IN GENERAL

Knowledge is one of the greatest mysteries confronting the human mind in the natural order. The phenomenon of knowledge is so common, so continually with us, that we do not realize how mysterious it really is. It is the task of the philosopher to wonder at those elementary mysteries which habit makes inconspicuous.

Take a simple act of knowledge, I see a tree before me, and I affirm: This is a tree. A simple act of knowledge. Yet how difficult to understand and to explain! From the physical tree are reflected light waves which affect my retina, produce in it chemical transformations which provoke physiological modifications in the optical nerve and the optical brain center. And then, suddenly, the mysterious thing happens: I *know* that tree, I *become aware* of that tree. How the passage from the ultimate physiological modifications in my brain to the act of awareness and of knowledge occurs, nobody has ever been able to explain. Between these material modifications and the immaterial act of knowledge there is an abyss, and our act of knowledge somehow bridges that abyss. This is one aspect of the great problem of the relation between matter and mind, between body and soul. We know that there is a relation between them, but

how it operates we cannot understand. We stand before a real mystery: How is knowledge possible?

Yet if we look at reality from another point of view, the problem changes entirely; the question becomes: How is it possible that some beings do not know, are not conscious? This way of putting the question may bring us nearer to an understanding of knowledge.

If we try to understand what being really is, we shall realize that it consists fundamentally in consciousness, in an "active identification with oneself." To be is to be conscious, to identify oneself with oneself. Where do I come into contact with being in the most perfect way? In my own being. If I reflect on my own being, on that fundamental, inescapable truth "I am," I notice that it means "I am myself, I am conscious of myself, I will myself." Each of these expressions points towards a duality—I, myself—and an identification of this duality: I know myself, I will myself, I am conscious of myself.[1]

In God this identification is infinitely more perfect. It is not only an active identification, but an active identity. One way of conceiving God is for us to think of Him as an Infinite Intelligence which knows Itself in an infinitely perfect way, or as an Infinite Will loving Itself in an infinitely perfect manner. In God too there is active Self-Identification (God knows Himself, God wills Himself)—or rather, God is Active Self-Identity. For an identification supposes a previous stage at which the two elements were not identical, and this never occurs in God. In fact, between the elements which are identified there is in God no distinction.

We have already indicated some of the differences between God's Infinite Self-Knowledge and our own finite, imperfect self-knowledge. We know ourselves explicitly only at times, God knows Himself con-

[1] "Consciousness understood in its widest possible meaning is a possession of oneself in oneself, an immanence of all that which we are in all that which we are, a perfect identity of being with itself, a manner of being which makes us exist in ourselves and for ourselves, so that we are not for ourselves as if we were not, in a word a manner of fully existing.

"The notion of consciousness coincides with the notion of being. Being is knowable and known insofar as it is in act. Hence to be conscious is to be. But it is to be so thoroughly that one is oneself for oneself, that one possesses one's own being by and in oneself merely by being. Non-conscious beings do not know themselves, and they remain shut off from themselves and strangers to themselves." E. Mersch, S. J., *La Théologie du Corps Mystique* (Brussels, L'Edition Universelle, 1946), Vol. I, p. 94. (Our translation.)

tinually. We know ourselves only imperfectly; God knows Himself perfectly. We know ourselves only after having first known something else; God knows Himself at once, eternally, without any need of an object distinct from Himself. He does not become Self-Knowing (that is the error of pantheism), He is Self-Knowledge.

Therefore we can say that to be is to be present to oneself, to be conscious of oneself, to know and to will oneself, to identify oneself actively with oneself, to return to one's own essence.[1] This is just a more psychological way of repeating the truths established in Ontology, that being is one, is true and good.

But since every being is one, true and good inasmuch as it is being, it would seem that every being should be conscious of itself, should know and will itself. We have seen that the principle of proportionality, or of analogy, affirms that there is indeed, even in the lowliest beings, in minerals and plants, something which is with relation to their essence what consciousness, knowledge and love are to the essence of spiritual beings. We do not claim, however, that there is real knowledge or consciousness in minerals and plants. In our philosophy only the term "appetite" is wide enough in its implications to be attributed even to the lowest degrees of being.

Why is there no knowledge or consciousness in minerals and plants? Because they are too material. One of the fundamental tenets of our philosophy is the following principle borrowed from Aristotle and St. Thomas: "The root of all knowledge is immateriality, and the perfection of a being's knowledge is measured by the degree of its immateriality." God is entirely immaterial: therefore His knowledge is infinitely perfect. A mineral is entirely material, its form is immersed in matter; therefore there is no knowledge in a mineral. In a plant the form emerges somewhat from matter, but the plant's immateriality is too slight in its degree to allow of any real knowledge. Yet there is in the plant something which foreshadows knowledge, a beginning of active self-identification—the plant's immanent, self-perfective activities, its intrinsic finality. However, it is only with reference to the animal that we begin to speak of real knowledge. Here the form emerges still further from matter, and some knowledge is possible. But this knowledge is imperfect, because the animal's degree of immateriality is still insufficient. An animal knows objects,

[1] "To return to its own essence means only that a being subsists in itself." *S. Theol.*, I, 14, 2, ad 1.

but it does not know itself. Its being contains too high a proportion of materiality to make possible self-possession, self-consciousness or self-knowledge. Only in man does the form emerge sufficiently from matter to make that self-knowledge possible. But that self-knowledge is still imperfect because of the element of materiality in man.

Knowledge is something very mysterious when we look at it from the scientific point of view. When we look at it from the central point of view of metaphysics it is not mysterious. Knowledge goes with being and the real mystery is: How is it possible that some beings do not know?

We must immediately add another fundamental principle. Each being is "knowable," or "cognoscible," insofar as it is immaterial. The degree of a being's immateriality determines not only its degree of knowledge, but also its degree of knowability. The most knowable being is God, the least knowable being is the mineral—or rather, prime matter, which is not knowable at all in itself, but only "co-knowable." Many people do not admit this. For them it is much easier to know minerals than to know God; they claim that the more material a being is, the better we can know it.

That is partially—or, as we say in technical language, accidentally —true. But it derives from the imperfection of our intelligence, not from any lack of cognoscibility in God. If our intelligence were perfect, no being would approach God in cognoscibility. The more luminous an object is, the better our eye can see it. Yet the sun, the most luminous of objects, is not a fitting object for our eyes, not because it is not visible but because it is too visible, because our eyes are too weak to look at it. God is in the world of intelligible reality what the sun is in the world of visible reality. No being is more intelligible than God because no being is further removed from matter than God. As for our vaunted knowledge of the material world, metaphysically speaking that knowledge is very inadequate. We know a lot "about matter," but we "know matter" hardly at all.

Continuing our study of knowledge in general, we discover another fundamental principle which is too often overlooked even in Thomistic textbooks. "The more perfect knowledge is, the more it comes from within," and vice versa, "The more knowledge comes from within, the more perfect it is."

At first sight this statement seems to be false. We have the impression that real knowledge comes from without, from a close examination of the object of that knowledge. Subjective knowledge is considered unreliable knowledge. So far as our imperfect human knowledge is concerned, that is very often true. But even with respect to human knowledge it is not always true. Nobody knows the George Washington Bridge better than its designer. He does not have to look at it, or to read about it: he knows it in himself, where he first conceived it in his mind.

But our principle applies especially to God's infinitely perfect knowledge. God knows everything perfectly without ever having to "look outside Himself." He knows all reality *in* Himself. God does not look at me in order to know what I am and what I do. He knows all this in Himself, without experiencing any influence from outside. Yet, although His knowledge is entirely from within, it is absolutely perfect, sure and infallible. We should even say that because His knowledge is from within it is perfect and absolutely certain. All knowledge which really comes from within a faculty shares in this certitude.

If we go down one step in the scale of beings, we see that in angels also all knowledge comes from within. Angels are not passive in relation to exterior reality, they know it by means of ideas which they have received directly from God. A pure spirit knows the universe not because he sees it or has studied it, but because he finds, in his own intelligence, a perfect picture of it. You may know the whole structure of a great mansion without ever having been near it, if its architect gives you a blueprint of it. God, the architect of the universe, has imprinted in the mind of the angels a blueprint of reality. This knowledge is absolutely certain and reliable, because it comes from the Creator of reality.

Quite naturally, then, the question arises: Is there anything similar in us? Are there in human knowledge any elements coming from within? It would be most surprising if there were no such elements. In God, the Infinite Spirit, all knowledge is from within. In the angels, finite spirits, all knowledge is from within, although it derives ultimately from God. That in man, finite spirit in matter, all knowledge should come from without seems entirely impossible. In that case man would not be a spirit. There must be in us some

element whereby our knowledge resembles, although in a humbler degree, the knowledge of the pure spirits. Knowledge which was derived entirely from without would not in any respect resemble angelic knowledge. And in such an event it would no longer be true that "the highest aspects of a lower being resemble the lowest aspects of a higher being."

On the other hand, one of the fundamental tenets of our philosophy is that "There is nothing in the intellect which has not first been in the senses." All our knowledge passes through the senses, comes from without.

Thus we arrive at two seemingly contradictory conclusions. On one hand, there must be in our intellectual knowledge some elements coming from within. On the other hand, we maintain that our knowledge comes entirely through the senses, from without.

Both statements are true, and they can be reconciled. In every act of intellectual knowledge there are some elements which come from within and others which come from without. We never have any intellectual knowledge without some contribution from the senses and some contribution from the intellect.

The contribution of the intellect consists in the first principles. These principles are "habitually" present to our intellect. We have a "habitual knowledge" of them (*habitus primorum principiorum*). The certain knowledge which we have of them is inborn to our intellect, comes directly from God, although explicit knowledge concerning them requires some co-operation of the senses. That habitual knowledge of the first principles makes our intellect resemble the angelic intellect. While the angel receives all his knowledge directly from God, we receive directly from Him the virtual or habitual knowledge of the first principles.

Because this essential aspect of St. Thomas's thought is often overlooked, we must mention a few texts which emphasize it.

"For the intellect knows principles naturally, and from such knowledge in man comes the knowledge of conclusions, which are known by him not naturally, but by discovery or by teaching" (*S. Theol.*, I, 60, 2, c).

"Although the knowledge of the human soul is properly by way of reason, yet there is in it some sharing of that simple knowledge which is found in the higher substances" (*Ver.*, 15, 1, c).

"For in every man there is a certain principle of knowledge, namely the light of the agent intellect, through which certain universal principles of all the sciences are naturally understood as soon as proposed to the intellect" (*S. Theol.*, I, 117, 1, c).

"As from the truth of the divine intellect proceed in the angelic intellect the inborn forms of things, according to which the angel knows everything; so from the truth of the divine intellect proceeds in an exemplary way into our intellect the truth of the first principles according to which we judge of everything" (Ver., I, 4, ad 5).

Yet in other passages St. Thomas seems to say just the opposite. Thus, for instance, "Some people have believed that the agent intellect is nothing but the habitual knowledge of the first indemonstrable principles in us. But that is impossible, since we know the first indemonstrable principles themselves through abstraction from the singular" (*De Anima*, 5, c).

Actually there is no contradiction between these statements. St. Thomas means that, even in order to know the first principles, we must first have obtained knowledge of their terms from the senses through abstraction. Thus the principle "Every effect has a cause" cannot be understood by us unless from experience, by means of sense knowledge and abstraction, we know what is meant by "effect" and "cause." But as soon as we understand these terms, the principle is evident, and this evidence does not derive from experience. As St. Thomas puts it, we have passed "from experience to the first principles which are known as soon as their terms are understood."

Although we possess these principles naturally, we cannot discover them in our intelligence before, or independently of, any sense experience. But as soon as some object from without enters our intelligence, that faculty impresses upon the object the seal of these principles. Therefore it is in the objects themselves, as known by our intelligence, that we discover these principles. They seem to come from without, although we do really possess them within ourselves. In this context St. Thomas adopts a remarkable expression first used by Aristotle. Speaking of the "first principle" Aristotle said, "*Advenit quasi habenti ipsum*"—"It comes from outside to somebody who, as it were, possesses it already."[1] That is exactly the formula of a virtual a priori.

[1] In *IV Metaph.*, lect. 6.

A comparison may help us to understand this. When you drive at night on a highway, the road signs stand out in clear light. That light seems to come from the signs, although actually it comes from your own headlights. You may not see the light of your car, except as reflected on the signs, yet it is the light of your own car. Thus our intellect sees objects in its own light, the light of the first principles. That light seems to come from the objects; in reality it comes from our intellect, and what we see in the object is its reflection.

These principles are possessed naturally although virtually by the intellect. But we cannot know them or see them directly in the intellect itself: the intellect imprints them upon every object entering it, and it is in these objects only that they can be directly studied. They are the fundamental principles of metaphysics, or Ontology. This explains the supreme dignity and importance of the science of metaphysics.

Take the most fundamental of these principles, "Whatever is, is," or, in its negative form, "It is impossible for a being to be and not to be at the same time." We know that principle with absolute certitude. Do we know it from experience? Must we first study a certain number of objects before we are certain of it? Would it apply likewise in a different universe, with other kinds of possible beings? We know with absolute certitude that this principle applies always and everywhere—in the past, in the present, in the future, in this universe or in any possible universe. Such certitude cannot be based on experience.

It should be well understood that we absolutely reject the concept of inborn ideas. We have no inborn ideas. If we did not know exterior objects, we should never become aware of first principles.

In this way we have reconciled the two foregoing statements: there are in our intellectual knowledge some elements which come from within; in all our knowledge there are some elements which come from without. It is only when the two kinds meet that we have real intellectual knowledge. The fundamental Thomistic principle may be completed thus: "There is nothing in our intellect which was not first in the senses except the intellect itself."[1]

Another question arises naturally. Do we find anything similar in sense knowledge? Does the faculty here too contribute something to

[1] This completed formula was first presented by Leibniz.

knowledge, or does sense knowledge come entirely from without? A faculty of knowing which was entirely passive would be inconceivable; knowing is an activity, and only prime matter can receive in a purely passive way. And if the faculty is not entirely passive, it contributes its share to the object of knowledge. That share from within will, of course, be less important than in intellectual knowledge, because there is greater passivity in the senses than in the intellect. That share from within consists in the forms of space and time.

This does not mean that we agree with Kant's dictum that space and time are nothing but the a priori forms of our senses. Space and time have an objective basis in reality, independent of our mind, in the world of external objects. But space and time as we imagine them are not exactly like space and time as they exist in objective reality. Our senses invest all objects with a space and a time which corresponds rather closely with their objective counterparts, but the correspondence is not necessarily perfect. If we were pure spirits, we should not know space and time as we know them now. And it is most probable that animals do not experience space and time in the same way we do.

Metaphysics gives us absolute certitude in the domain of being, and from this we have concluded that metaphysical knowledge does not come entirely from without. Geometry gives us hypothetically[1] absolute certitude in the spatial domain, and we must therefore conclude that geometrical knowledge cannot come entirely from without. If we accept Euclid's postulates (and we naturally do), we are absolutely sure that in all triangles the three angles add up to two right angles. This can be explained only by saying that in geometry we study the necessary laws of our own way of imagining space. Geometrical certitude is different from the certitude of physical laws, which is based on induction. Geometrical certitude is not based on induction, not derived from experience.

We have seen in the study of Gestalt psychology that it can be shown even experimentally that the perceiving functions contribute something of their own to our perceptions, e.g. the movement in a moving picture. It would be surprising if we did not find something similar in our philosophical study of sense knowledge.

[1] Hypothetically absolute, because the certitude is based upon our acceptance of the postulates of Euclid. Once we accept these postulates the whole of geometry follows with absolute necessity.

From the preceding we see that our system occupies a middle position between the two extremes of empiricism and the theory of innate ideas. The theory of innate ideas maintains that some ideas are actually inborn in the mind and that we can become aware of them independently of any data of the senses. We deny the existence of such inborn ideas. Before sense knowledge there are no ready-made ideas in the mind. All our ideas come from the senses.

Nevertheless our ideas do not come entirely from the senses. The intellect contributes its share to the formation of every idea. Therefore we reject empiricism, which claims that our ideas come entirely from experience. For the empiricists our intellect is merely passive in knowledge, it is like a wax tablet on which nothing has been written (*tabula rasa*). Such a system leads logically to scepticism and materialism. Sometimes the Thomistic system is so presented that it is difficult to see wherein it differs from empiricism. This version of Thomism avoids the destructive consequences of empiricism only by evading the conclusions which would logically follow from its own premises. Empiricism is right when it denies the existence of innate ideas; it is wrong when it asserts that our ideas come entirely from experience.

But does not our own conception lead to subjectivism, does it not give rise to serious doubts about the validity of our ideas? This is a problem of Epistemology which cannot be treated here. It will be enough to remark that anything which is contributed to our knowledge by the very nature of a faculty comes directly from the Maker of that faculty, from Truth Itself.

General Theory of the Intentional Form or Species

Disregarding, for the time being, what we have said of those elements in our knowledge which come from within, we shall now consider the fact that all our knowledge comes from outside through the senses. Then a new problem arises. Knowledge is an immanent action, more perfectly immanent than nutrition, growth and reproduction. It begins and ends within us. It is more perfect than the immanent operations of the plant because its effects remain not only within the acting subject, but within the acting faculty of the subject.

Knowledge is immanent, it occurs entirely within the acting faculty.

But the object we know is generally exterior to the faculty. How can the act of knowledge take place entirely within the faculty if the object of that knowledge is outside the faculty? The object itself must in some measure be present in the faculty. Since it cannot be there in its natural, physical reality, it must be there by means of some representative, some substitute. That is why every act of knowledge requires an "intentional form" or "species" to make cognition possible.

To understand this better, we may compare a camera taking a picture of a tree with the visual faculty seeing that tree. In both cases the first stages of the process are much alike. Light waves coming from the tree impinge upon the plate of the camera and the retina of the eye respectively. In the operation of our visual faculty, the physical impression proceeds from the retina, through the optical nerve, to the optical brain center. Hence we have in the camera a chemical modification corresponding to the tree, in the visual faculty a physiological modification corresponding to the tree. But there the resemblance ends. The camera does not know the tree, whereas my visual faculty does. Therefore further processes are required in my visual faculty. To the concrete physiological modification in my brain must correspond an invisible mental modification which affects the faculty as such. This is called the "intentional form" or "species." The species is not material in the everyday meaning of that word, it cannot be seen or in any way experienced by the senses. It is a purely mental modification, corresponding to the physiological modification in the brain. It replaces the object in the act of knowledge.

This helps us understand the profound analysis which St. Thomas makes of knowledge in general. For him beings which know are superior to beings which do not know, inasmuch as the knowing being not only possesses its own form, but also the forms of all the objects which it knows.[1]

Every being has a form—or, rather, many forms, one substantial form and many accidental forms. These forms have two modes of existence: a natural and an intentional mode of existence. The natural mode of existence refers to the way in which the form exists in the physical object. The intentional mode of existence refers to the way in which the form exists in the faculty which knows the object.

When we know an object, we possess the form of the object, not

[1] Cfr. *S. Theol.*, I, 14, 1.

the natural form but the intentional form. Possessing the form of that object, we become that object, not naturally but intentionally. To know an object is, in a certain sense, to become that object. We become intentionally all that which we know. Knowledge allows us to become everything.

Different Kinds of Knowledge

The main cognitive operation by which man knows reality is the judgment. Judgment is an act of the intellect by which we affirm or deny something of something. That river is, or is not, wide. Paul is, or is not, big. If we want a more psychological definition we may say that the judgment is the act by which we guarantee the objective value of a subjective state. Every judgment is a complicated act in which many elements can be distinguished. We must first distinguish:

1. The matter of the judgment, which consists in the terms of the judgment considered in themselves as simple concepts. River, wide, are the two terms of our first example; they constitute the matter of that judgment.

2. The form of the judgment, which unites these two concepts and guarantees that they really do belong together.

We shall consider here only the matter of our judgments, the concepts. A concept is materially the same as an idea, a simple apprehension, a notion. It can be defined as the act by which the mind grasps or becomes aware of an object, without affirming or denying anything of it.

In fact, our intellect cannot grasp an object without affirming something of it—at least that it is, or that it is possible. Therefore the judgment is the first act of our intellect, and a new concept is reached only in and through a judgment. Notice how you acquire new concepts. "That is a finch"—"A mastodon is a species of prehistoric elephant." These new concepts come to you in judgments. The judgment is the central act of man's intellectual life from which all others derive.

In every concept we may distinguish intellectual and sense elements. It follows that animals have no concepts, since they have no intellect. When we take away by abstraction the intellectual elements of a concept, that which remains is either a perception or an image.

It is a perception if the object is actually present to one or more of our senses. If the object is not actually present to the senses, we have either a memory image or a pure image: a memory image if we remember having seen or otherwise known the object before; a pure image if we do not remember anything of that kind.

When a dog sees a cat, it has a perception of that cat. A perception can be defined as the act by which we project a sensation, or a cluster of sensations, into external space. Or, more simply, a perception is the sensuous cognition of an object in space.

Human beings never have a perception without an idea, at least some vague idea. In us the intellect and the senses always work together. A perception is not the same as a sensation. Generally a perception contains several sensations; furthermore, it is projected into space and completed by a certain number of images supplied by past experience.

If man never has pure perceptions, a fortiori he never has pure sensations. Our sensations are always enveloped in a complex structure. Our senses are never mistaken about their proper object, sensations as such cannot be false. But we may err in our perceptions because memory may supply elements which do not really pertain to the present object.[1]

THE PHILOSOPHY OF SENSE KNOWLEDGE

The Different Stages of Sensation

In every sensation[2] four stages may be distinguished: the physical, the physiological, the passive psychological and the active psychological stage.

1. The physical stage consists in the action of external forces or stimuli on some sense organ—light waves impinging on the retina, sound waves striking the eardrum, etc. This stage is studied in Physics.

2. The physiological stage consists in the physiological or neurological reaction produced by the physical stimulus in the sense organs,

[1] Readings: see pp. 157-158.

[2] Although we shall speak of sensation throughout this section, much of what we shall say applies also to perception. Sensation is taken here in a wider sense, for every form of external sense knowledge.

in the nerves running from them to the brain and in the brain itself. When light strikes my eye, all kinds of physiological reactions occur in my retina, in my optical nerve and in my optical brain center. This stage is studied in Physiology.

3. The passive psychological stage. The preceding stage was still material in the strict sense—visible, observable by Science. The passive psychological stage is not material in the strict sense;[1] it cannot be observed by the senses, it must be inferred by reasoning. We know that it must occur because without it we cannot explain sensation.

It consists in some intentional modification of the faculty, corresponding to the physiological modifications occurring in the brain center. The form of the object is impressed upon the faculty; not its substantial form, which can be known only by the intellect, but some accidental form, such as color or sound. This form is not physically impressed upon the faculty, for this would make the faculty itself colored or sonorous. But it is intentionally impressed, making the faculty able to become conscious of these accidental forms of the object.

Can we compare the intentional form to a photograph of the object? In a certain sense, yes. A photograph resembles the object, yet it is quite different from it. The intentional form likewise resembles the object, although it is quite different from it. In another sense, no. For the photograph is a material object like the object it represents. Whereas the intentional form is not material in the strict sense; it is intentional, mental, psychic. Another important difference between intentional form and photograph will be mentioned in the next stage.

4. The active psychological stage. Until this stage we are still without any knowledge, or consciousness, of the object. If the process of sensation stopped at the third stage, we should not know anything. We should be prepared to know, everything would be in readiness for a sensation, but there would be no actual sensation. It is as if you were holding a picture of an object in your hand in complete darkness; the only thing required for you to see the object is light. When, at the third stage, the intentional form of the object is present within the faculty, the only further requirement for knowl-

[1] It is, however, material in the wider sense of that word, meaning that it intrinsically depends on matter.

edge of the object is light, consciousness. At this fourth, the active psychological stage, there is, as it were, a flash of light, a surge of consciousness, an active turning of the faculty towards the object, and through this I become aware of the object, I see or hear or smell or taste it.

Therefore this is really the central stage of sensation, for which the other three stages were only a preparation. Every act of knowledge is an immanent operation, an activity which begins and ends within the faculty. Only this fourth stage fulfills these requirements. Therefore the object of our knowledge must be in us before we can know it. It is precisely the function of the three first stages to make the object intentionally present within us. They take an intentional picture of the object, but that picture is not known, lies in the darkness of the "unconscious," until the immanent flash of light occurs. When that flash occurs, we become aware of the *object*.

Of the object, not of the intentional form. That form is absolutely necessary for knowledge, is a prerequisite of knowledge, but it is not directly known in itself. Here is one more difference between an intentional form and a photograph. When our photograph lies ready in the dark room and we turn on the light, what we see is the photograph on which we find a picture of the object. When the intentional form is ready in the faculty and the flash of consciousness occurs, what we know is not the intentional form but the object.

Therefore it would be more exact to compare the intentional form with a mirror. When we look into a mirror, what we see is not the mirror but ourselves in the mirror. Or better, we should compare the intentional form with the retinal image. We can see nothing without a retinal image; yet we are not aware of that image itself but of the object whose image is on our retina. There is the following difference, however: the retinal image is a material picture of the object on the retina, while the intentional form is an immaterial picture[1] of the object in the faculty.

Therefore the philosophers say that the intentional form is not *that which* we know but *that by means of which we know*. Not ID QUOD but ID QUO *percipitur*.

How do we demonstrate all these statements? By showing that without them we cannot explain the act of knowledge. They are

[1] Immaterial in the sense that it is invisible and imperceptible by the senses, not in the sense that it is intrinsically independent of matter.

philosophical hypotheses demonstrated by the fact that they explain knowledge, and that without them knowledge is unintelligible.

Our theory of sensation, and of knowledge in general, provides us with a philosophical interpretation of the Unconscious. Phenomena are unconscious when they are psychic or mental, yet not conscious. The third stage, the passive psychological stage, is mental or psychic, yet it is not conscious. From this it is evident that our philosophy postulates the existence of some unconscious phenomena.

What We Know Through Our Sensations

Not the intentional form but the object itself. Not the object as object but the object as it affects us.

Our senses do not know objects as objects. To know an object as object, you must know yourself as subject. But the senses[1] do not know themselves as subjects, a sense faculty is not conscious of itself. Furthermore, to know an object as object implies the knowledge of the substantial form of that object; but the senses know only the accidental forms of objects. And even these accidental forms are known by the senses only materially, not formally, not as accidental forms. For in order to know something as an accidental form, we must know it as inhering in some substance. Since the senses do not know substances, they cannot know accidental forms as such.

All this amounts to saying that the senses give us no noumenal knowledge of reality. They do not know the objects or their qualities as they are in themselves.

On the other hand, it would be false to say that the senses give us only subjective knowledge, that they tell us merely how we feel, how we are affected.

What we know through the senses is the object as it affects us, or ourselves as affected by the object. The senses give us phenomenal knowledge of reality. Sensation is neither strictly objective nor strictly subjective, it is relative.

To say that the senses give us relative, or phenomenal, knowledge of reality implies that if our senses were altered, reality would look different to us. Reality looks slightly different to color-blind people because their visual sense is slightly different from that of the

[1] Or, more correctly, man inasmuch as he is endowed with sense knowledge, when we do not consider his intellectual knowledge.

majority. As Dr. Carrel puts it, "Should the retina record infra-red rays of great wave length, nature would take on a different visage. The color of water, rocks and trees would vary with the seasons because of the changes in temperature."[1] What would happen if, by a clever operation, the optic nerve were linked up with the brain center for hearing and the acoustic nerve with the brain center for vision? Some psychologists hold that, in that eventuality, we should hear colors and see sounds.

Does this not lead to utter scepticism? Absolutely not. Our senses, however altered, would be as reliable as they are now; they would know objects as they affect us, which is the only function they are supposed to serve, taken in isolation. Our fundamental certitudes do not come from the senses alone but from the senses in conjunction with the intellect.

We must not forget that we never have pure sensations. Every one of our sensations is supported by ideas and judgments which contain intellectual elements, giving us objective information, telling us something about the objects as they are in themselves, providing us with noumenal knowledge.

Since scientific knowledge is always based on the data of the senses and uses the sense element as an essential constituent, the natural Sciences give us only phenomenal knowledge of reality; they tell us how the world affects us, not what it is in itself. Knowledge of objects as they are in themselves comes only from Metaphysics. Our ordinary knowledge in everyday life is a combination of phenomenal and noumenal knowledge, since it contains both sense and intellectual elements.[2]

From the preceding we can also conceive (although we cannot imagine) how an animal perceives the world. It does not know the objects as objects since it does not know itself as subject. The animal does not realize that there is an entitative distinction between itself and its environment. The only distinction it knows is a spatial distinction. How such a purely spatial distinction looks in experience we cannot imagine because we have never experienced it in its pure form. For us every spatial distinction is supported by an entitative distinction.

[1] A. Carrel, *Man, the Unknown* (New York, Harper, 1935), p. 66.

[2] The same is true of scientific knowledge. But the scientist, as such, is only interested in the phenomenal aspects of his knowledge.

The Materiality of Sensation and Its Difference from Ideas

Sensation is a material process. Material, as we have seen, can have two meanings: first, something which can be seen, touched, or in another way examined by the senses; secondly, something which is intrinsically dependent on matter.

Sensation is material in the second, not in the first sense. Sensation cannot be seen or touched, but it is intrinsically dependent on the brain, the nerves and the sense organs. These parts of the body are not only a condition but a real cause of our sensations.

Our sensations have certain properties, such as quality, intensity, extension. These properties are determined by the sense organ, the nerves and the brain center. Therefore these parts of the body are a real cause of our sensations.

Thus the quality of our sensation, the fact that it is visual or auditory or olfactory is determined at least in part by the nerves and the brain center affected, as is demonstrated by the law of specific nerve energies.

That the intensity of our sensations is proportionate, at least roughly, to the physical intensity of the stimulus affecting the organ is a fact of experience.

In the sensations which possess extension this property is proportionate to the area which receives the stimulus. Thus we get a more extensive sensation of warmth when we plunge our whole arm into warm water than if we put only our finger into it.

Hence the parts of the body are a real cause (together with the vital principle, or soul) of our sensations. Our sensations are intrinsically dependent on matter, they are material.

We shall demonstrate later that our ideas are not material, that the brain or the body is not a real cause of them.

We may then, in conclusion, make a brief comparison of our ideas with our sensations. Our senses know only material things, and they know them in a material way—that is, as singular, concrete, individual objects. Our intelligence can know both material and immaterial objects, and it knows both in an immaterial way, without intrinsic dependence on matter. Therefore our ideas apply to all individuals of a species. The mountain I see is a singular, concrete,

individual mountain. The idea I have of a mountain is universal and applies to all mountains.

Furthermore, our senses know their objects only insofar as they affect us, not as they are in themselves. Our intelligence knows them, at least to some extent, noumenally, as they are in themselves independent of our knowledge of them.

In ordinary mental activity the senses and the intelligence are always used together, The intellect gives us universal and abstract knowledge which we apply to individual objects by means of our senses.[1]

THE INTERNAL SENSES

Internal senses are senses which are not directly in contact with external reality but refer to it indirectly, through the agency of the external senses. Thomistic philosophy distinguishes four internal senses: the central sense, imagination, memory and the estimative power.

Central Sense

The central sense is the center where all the data of the external senses are collected and integrated. Three main functions are generally ascribed to the central sense:

1. The central sense makes the animal (and man on the sense level) aware of the activity and the objects of its external senses. Without that sense the animal would see and hear but would not be aware that it saw and heard. When a dog sees a cat, it is aware that it sees that cat. It is not the eye that is aware of this fact, for the eye does not see that it sees; a sense cannot reflect upon itself. There is, moreover, in the animal no intelligence which can make it aware of its sensations and their objects. Therefore there must be in the animal a higher sense which performs that function. We call it the central sense.

Through the central sense the animal possesses sense consciousness. That sense consciousness in the animal corresponds at its degree to the self-consciousness of man (law of proportionality). Man's conscious-

[1] Readings: see p. 158.

ness is capable of reflecting perfectly upon itself; man is conscious of being conscious, he is aware that he is aware. The animal is not conscious of being conscious, but it is conscious of its acts and of their objects. The exterior senses are not conscious of their own activity; the central sense is not conscious of its own activity, but it is conscious of the activity and of the objects of the external senses. Therefore we call the reflection of the central sense an "imperfect reflection." In perfect reflection subject and object coincide: I am aware of being aware. In imperfect reflection one aspect of the subject coincides with some other aspects: I am aware of seeing a boat.

2. The central sense enables the animal to distinguish between the different sensations deriving from the various senses. The eye can distinguish black from white, the taste organ differentiates between bitter and sweet. But the animal can also distinguish black from sweet. Neither the eye nor the taste organ enables it to do that, since these senses know only their own qualities. Therefore there must be a superior sense which receives the impressions of all external senses and can compare them with each other.

3. Finally the central sense integrates the data of the external senses and refers them to their common object. It is the same pie whose color and shape I see, whose odor I smell and whose savor I taste. I refer all these sensations to the same object. My individual senses cannot do this, it is the function of my central sense.

Memory and Imagination

The greatest part of our information about these two internal senses derives from empirical and experimental psychology and has been reviewed in the preceding section. A short philosophical note will complete this information.

All knowledge requires an intentional form or "species." This applies also to memory and imagination. We call this intentional form the "impressed intentional form," or *species impressa*. But memory and imagination need in addition another kind of form, which is called the "expressed intentional form" or *species expressa*.[1]

[1] Some authors have proposed to replace these clumsy terms by the words "impression" and "expression." We shall occasionally use this simpler terminology, hoping that the student will remember that these terms are used here in a technical sense.

If we recall the four stages which we distinguished in external sensation, we shall see at once that in the case of memory and imagination there is no physical stage, because their object is not present to, and cannot actually affect, these senses. There is, however, a physiological stage, which consists in the reactivation of some neural trace of past perceptions. Next follows the passive psychological stage, with the "impression." Finally comes the active psychological stage. At this stage, the external senses actively turn towards the object which is influencing them. But memory and imagination cannot turn actively towards an object which is not present. They turn towards a conscious substitute, a picture, a representation of the object, which we call the "expression," in which these senses know their object. This is the "image," either the pure image of imagination or the recognized image of memory.

The differences between "impression" and "expression" can be summarized as follows:

IMPRESSION	EXPRESSION
Presupposed by knowledge	Its production is the act of knowledge
Unconscious	Conscious
That by means of which I know	That in which I know

The Estimative Power

This is the traditional Scholastic name for the fourth internal sense. It corresponds to the cognitive aspect of instinct. The concept of instinct is wider than that of estimative power, since it includes the motor aspect, which makes the animal capable of performing complex activities.

We are forced to admit the existence of such a power on the sense level, to explain the fact that animals, which have no intelligence (in the philosophical sense), can perceive what is useful or harmful to themselves and to their species. Usefulness and harmfulness are not sensory qualities which might be perceived by the external senses or by the internal senses mentioned previously. The squirrel avoids the dog not because it is disagreeable to look at, or because its odor is repellent, but because it is dangerous to squirrels. There-

fore the squirrel must have some cognitive power enabling it to perceive qualities which are beyond the reach of the other senses.

That power involves some kind of judgment, but a judgment which uses no ideas, which is singular, concrete and pragmatic. Squirrels do not know that dogs in general are dangerous to squirrels in general, but when they see a representative of the canine species, they know at once that this creature is dangerous to them.

Using the principle of proportionality, we can say that the estimative power is analogous on the sense level to reason on the intellectual level. It observes relations (useful to, harmful to), but it observes them in a concrete way.

Man also possesses an estimative power. In man this power is subject to the influence of reason and is called the cogitative power.

Co-operation between External and Internal Senses

We must consider more carefully why the co-operation of the internal senses is required in all sense knowledge.

> Every act of knowledge supposes the unification of its raw data. What kind of unification must the subject impose upon the form which is passively received in the sense faculty? . . . First, of course, a unification of its spatial dispersion. For the extension of the form, which is materially received in the organ, is nothing more, in this first stage, than a point-to-point and, as it were, disjunctive correspondence between the extension of the subject and the extension of the environment. But the . . . only kind of unity which space or extension can receive, in order to become the "specifying form of a strictly immanent operation," seems to be the formal unity of an interior movement which would take up in succession the juxtaposed parts of that extension or space, in order to fuse or totalize them in a definite temporal continuity. The unification of space is performed by means of time.[1]

An example will make this clearer. From the top of a hill you are admiring a wide sweep of landscape. You see it as one beautiful spectacle, although your eyes can never take it in at one glance. When you look to your left, you do not see the river at the right, and when you look right, the farm houses are out of your visual field. But your eyes keep moving right and left, up and down, and this movement of your eyes brings together all the elements of the

[1] J. Maréchal, S. J., *Le Point de Départ de la Métaphysique, Cahier* V, 2d ed. (Brussels, L'Edition Universelle, 1949), pp. 170-171.

picture. What you cannot take in at one single moment of time, you know in succession, through the movements of your eyes. Your visual field is unified by this movement which occurs in time. You have unified space by means of time.

The impression of the observer is that the landscape itself is a unity, and that the unifying element is space. Reflection shows, however, that space does not unify but disperses. In space every point is outside every other point, there is merely a juxtaposition of countless details. This multiplicity is unified only in and by your knowledge, which seizes all the elements in temporal succession.[1]

Nevertheless, such temporal succession likewise lacks real unity. Every moment of time is outside every other moment. Time itself needs unification. Time will be unified only if each passing moment is not entirely lost but persists somehow in you. This is the function of memory, which retains something of every moment of the past. The movements of your eyes would not help you to get a complete picture of the landscape if, as soon as you stopped looking at one part of it, you should completely forget what you had seen. Time, which unified space, is itself unified by memory.

The unifying function of memory is likewise very clear in the field of auditory sensations. We should be unable to understand a simple sentence if a word were entirely forgotten as soon as it was heard. What we should hear in such a hypothetical case would be a succession of unconnected words, not a sentence. The same remark applies to the hearing of a melody.

Therefore every sensation or perception supposes the co-operation of memory. The external senses suppose the continual co-operation of the internal senses.

It might be objected that such a unification of space by time is required only when the field of perception is wide. When the field is narrow, its whole content can be taken in at one glance and no unifying movement is necessary. When I see my watch on the table, my gaze does not travel all over it, the whole watch is seen at once.

We must remember, however, that actually the watch is represented by a retinal image composed of many points, each one of which is outside every other; that these points must be unified by some movement in time. In this instance we are not aware of the unifying movement, but it must occur, since we cannot otherwise explain how the

[1] Of course, the object in space is unified; not by space, however, but by its own substantial form.

spatial diversity is unified. Without such a unification there can be no knowledge.[1]

Therefore we say that the external senses invest their data with the form of space, and the internal senses invest their data with the form of time. The space in which the landscape is unified is not objective space, exterior to my mind, but my own space, supplied by my senses, what we can call my "imaginary space." And the time which unifies that space is not the mathematical time of our clocks but my own time, the duration which I personally experience.

Hence in a certain sense Kant was right when he claimed that space is the a priori form of the external senses and time the a priori form of the internal senses. Kant's error consisted in denying the existence of real objective space and time, both independent of my knowledge. As Fr. Scheuer, S. J., puts it, "Every faculty has its form, its way of knowing things, according to the principle, 'That which is known is in the knower after the manner of the knower.' As universality is the form of our intelligence, so spatiality is the form of our sensibility. To say that space is the form of our sensibility means that the senses necessarily perceive everything spatially, as intelligence necessarily conceives everything universally."[2]

Every single sense has its own formal object; thus the formal object of the visual sense is color, the formal object of the auditory sense is sound. But these formal objects have a common element, which is space. Our eyes see color in space, our ears hear sound in space. And thus the doctrine of the a priori character of imaginary space meets an ancient doctrine of Aristotle and the Scholastics, the doctrine of the "common sensibles."

> Size, shape, and the like, which are called *common sensibles*, are midway between *accidental sensibles* and *proper sensibles*, which are the object of the senses. For the proper sensibles first and of their very nature, affect the senses, since they are qualities that cause alteration. But the common sensibles are all reducible to quantity. . . . Now quantity is the proximate subject of the qualities that cause alteration, as surface is of color. Therefore the common sensibles do not move the senses first and of their own nature, but by reason of sensible quality, as the surface by reason of color. Yet they are not accidental

[1] Experimental psychology demonstrates that there can be no perception in the visual or tactile domains without some movement in the sense organ: "A motionless eye is a blind eye."—M. Pradines, *Traité de Psychologie Générale* (Paris, Presses Universitaires de France, 1948), Vol. I, p. 46.

[2] P. Scheuer, S. J., Unpublished Notes.

sensibles,[1] for they produce a certain diversity in the immutation of the senses. For sense is immuted differently by a large and by a small surface, since whiteness itself is said to be great or small, and therefore is divided according to its proper subject.[2]

Fr. Maréchal comments this text as follows:

> Everything which, in sense perception, can be reduced to quantity (size, figure, concrete number, motion or rest) is therefore, from that point of view, a "sensible commune," that is, a formal object which is common to the specialized objects of the various senses. But for the Scholastics the formal object reveals directly a formal aspect of the active faculty itself. . . . Therefore, according to the Scholastics, there must exist, in the sense faculty, a general disposition—an a priori condition—corresponding to the common quantitative determinations of the sense data. Kant says nothing more when he speaks of the a priori form of space or (mutatis mutandis) of time.[3]

Therefore, although St. Thomas never spoke of space and time as a priori forms of our sensibility, he held a doctrine which can be interpreted as analogous if not identical. But he held, and we affirm with him, that space and time correspond to something in objective reality. Denying this was Kant's mistake.

READINGS

Knowledge in General

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[1] Accidental sensibles are intellectual aspects of the object, which are known by the intellect on the occasion of a sense presentation.

[2] *S. Theol.*, I, 70, 3, ad 2. Quoted from A. C. Pegis's translation in *Introduction to St. Thomas Aquinas* (New York, Modern Library, 1948).

[3] *Le Point de Départ de la Métaphysique*, V, pp. 179-180.

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CHAPTER 10

Appetitive Faculties

BEFORE studying sense appetite, we must know something about appetite in general.

APPETITE IN GENERAL

Our general conception of appetite follows from our conception of knowledge. We have seen that to know an object is, to a certain extent, to become that object. But everything strives towards its own perfection. The objects which I have become through knowledge are no exception to this rule, they strive towards their own perfection in me. Therefore, I strive not only towards my own perfection as a natural being, but also towards my perfection as a knowing being, as a being who has intentionally become all that which he knows. This means that I somehow shall strive towards the natural possession of the objects which I possess only intentionally through knowledge.

A being strives towards its own natural perfection because of its very nature; that kind of striving does not require a special faculty. It is called natural appetite and is found in all beings, whether they have knowledge or not. On the other hand, the striving which results from the intentional presence of objects in me does suppose a special faculty, which is called elicited appetite. Elicited appetite is a faculty which strives towards objects presented by knowledge.

An objection to this doctrine may be raised. If striving is determined by knowledge, we should strive towards every object we know. But this is contradicted by experience, for many objects

which we know do not produce any striving in us. We must bear in mind, however, that the striving of the objects which we have become through knowledge is not independent of our own striving towards perfection. We shall not be forced by them to strive towards things which harm us or are disagreeable to us. That striving will occur only if the object of our knowledge is or appears to be agreeable or useful to our own nature.

We may also interpret appetite and striving in the light of our fundamental conception of being as an "active identification with oneself."[1] An identification supposes two terms which are to be identified and which we can call subject and object. Since there is identification, subject and object are in reality one and the same being, but conceived under two different aspects. This active identification can occur in two directions and in two directions only. Either the subject draws the object into itself, and then we have knowledge; or the object draws the subject towards itself, and then we have striving, or appetite.

In both cases the action is immanent. Fundamentally each being knows itself, wills itself. But when it knows itself, the subject represents itself to itself; being as object becomes present to itself as subject through some activity of the subject. In appetite the same being unites itself to itself, but here it is not the object which comes to the subject and which is, as it were, passively received by it, but it is the subject which is drawn by the object, which goes out towards it and unites itself with it under an influence proceeding from the object. Under the first aspect being is called true, under the second aspect it is called good.

In knowledge the subject remains within itself, it interiorizes the object which was first exterior. In appetite, the subject ceases to be interior and becomes exterior to itself, steps outside itself.

The intelligence operates like a progressive enlargement and enrichment of the subject, while the will as it progresses, assumes more and more the aspect of renunciation, a giving up of self. The subject loses itself, in order to find itself in the object. However, in this life, intelligence, although it means a progressive enrichment, is the less effective way of coming into contact with being. Intelligence assimilates objects to itself, it brings them down to its

[1] What follows is taken from the unpublished lecture notes of Fr. P. Scheuer, S. J.

own level, so that any reality which is greater than the knowing subject is stripped of all that in which it exceeds the capacity of this subject. The will, on the other hand, is attracted by the object as it really is in itself. The object of the will is being as it is in itself; whereas the object of intelligence is being as it is known, as it is possessed intentionally.

Therefore, in this life, real contact with the Supreme Reality is established through the will; it is through the will that we enter into contact with the Absolute. The will reaches further than the intellect; but since its union with the good does not entail a representation of that good, it brings no light to the intellect.

Degrees in Appetite

The degrees of appetite correspond to the degrees of being (principle of proportionality).

The first object of appetite is the reality of the subject. Any other reality can become the object of appetite only insofar as it becomes one with the primary good, which is the subject's own being.

Divine Being is infinite. Therefore in God there is perfect identity, the Divine Will is perfectly in act. Its good is fully realized. God wills, by one and the same act, all other realities, because they all depend on Him. God does not love creatures for their own sake, as if they had any goodness independent of His goodness. Yet He loves the intrinsic goodness of all creatures as participations of His own goodness.

In a creature the primary object, the creature's own being, is not fully in act, it is not identical with absolute goodness. Therefore the will cannot rest in it. A created being loves itself, but it is also attracted by the Infinite Being; it can really love itself only inasmuch as it is a participation of that Infinite Being. As every human intellect strives unconsciously towards the knowledge of the Infinite Being, so every human will strives unconsciously towards the possession of the Infinite Being. And as we can, on the natural level, know God only by way of negation and supereminence, so the will must give up finite goods, transcend them, and strive towards the Infinite Good.

It follows that, in the human will, there is always a mixture of enjoyment and desire: enjoyment of the good which is present,

desire for more and ever more. This mixture corresponds to the ontological composition of act and potency.

The angel loves his spiritual nature. He loves it necessarily; he cannot not will the spiritual good. He wills himself as an intellect and a will directed by that intellect. His will is necessarily good. On the natural level an angel cannot sin. Sin became possible to the angel only when he was raised to the supernatural order; that is the only time angels could sin, and some angels did sin.

Man loves his spiritual nature in the same way in which he understands it. As our intellectual activity is intimately connected with our sense knowledge, so our volitional activity is connected with our sense appetite. The possible deviations are the same in both faculties. Our intellect confuses sensible being with being as such, and from this derive all errors. The will confuses the sensible good, that which is good for our material nature, with that which is absolutely good. Therefore, like our intelligence, our will needs education. The great difference between intellect and will is that error in the intellect is due to the union of the intellect with the senses, not to the intellect as such; whereas that which is in the will is willed by it—the confusion between the two kinds of good is voluntary, it is a sin. In the intellect a disorder happens; in the will, it is willed.

The animal also strives towards the perfection of its own nature. But because its nature is purely material, its appetite is finite, particular, subjective, relative. The animal wants only that which is good for its material nature, that is, finite, material goods.[1]

SENSE APPETITE

Appetite in general implies striving towards some good or away from some evil. Appetite is divided into natural appetite and elicited appetite. Natural appetite is possessed by all beings; it is a striving which is not directed by any knowledge. Thus the roots of a plant strive towards moisture; chemical substances strive towards other substances for which they have an affinity.

Elicited appetite is a special faculty by which conscious beings strive towards a good or away from an evil which has been previously perceived by a cognitive faculty. It is striving preceded by knowl-

[1] P. Scheuer, S. J., Unpublished Notes.

edge. It follows that there will be as many kinds of elicited appetite as there are different kinds of knowledge. In man there are two different kinds of knowledge, sense knowledge and intellectual knowledge; hence also two kinds of appetite, sense appetite and intellectual appetite, which is called the will.

Since sense knowledge knows only material, single, concrete objects in a material way, sense appetite will strive only towards or away from material, single, concrete objects in a material way, that is, with intrinsic dependence on matter.

Because sense appetite is material, it is not free; it strives necessarily towards pleasure or away from pain. In an animal a drive can be inhibited only by another drive which happens to be stronger at a given moment. Thus a hungry dog, on meeting food, must necessarily eat it, unless his hunger drive is inhibited by a stronger fear drive. In man, too, sense appetite may be inhibited in the same way, as when a man refrains from stealing because he is afraid of the police. However, in man the lower appetites may also be inhibited by the higher appetite which we call the will.

Our sense appetite is constituted by our drives and instincts. Although we have them in common with animals, and they are thus "lower," they are not evil. Because they are not free, their activity involves neither responsibility nor sin. As long as their striving is in accordance with the order imposed by reason, it is perfectly legitimate. Even when they strive towards something which is forbidden by reason and opposed by the will, this is not, in itself, wrong or sinful. Sin occurs only when the will yields to such a striving and identifies itself with it. Then the rational appetite acts like sense appetite; man descends to the level of the unfree animal; there is moral disorder and sin.

St. Thomas distinguishes two main aspects in sense appetite, the concupiscible and the irascible appetite. The concupiscible appetite strives towards pleasure and away from pain, the irascible appetite deals with obstacles which impede the functioning of the concupiscible appetite. The various motions of both appetites are called the passions. St. Thomas distinguishes eleven of them, six in the concupiscible appetite and five in the irascible appetite.

Of the six passions of the concupiscible appetite, three refer to that which is good and three to that which is evil. Directed towards the good in general, there is love; towards an absent good, there is

desire; towards a present good, there is joy. Towards evil in general, there is hatred; with regard to an absent evil, there is aversion; with regard to a present evil, there is sorrow.

Of the five passions of the irascible appetite, two deal with some good which is difficult to reach, three deal with some evil which is difficult to overcome. When the difficult good is within range of possibility, there is hope; when it is not, there is despair. When the evil can be overcome, there is courage or anger; when it cannot be overcome, there is fear.

St. Thomas' Treatise on the Passions (*S. Theol.*, Ia IIae, QQ. 22-48) contains what we might call his "Empirical Psychology." Using the accumulated psychological knowledge of Aristotle, the Stoics and the Fathers of the Church and completing it with the results of his own observations, he has left us in these pages a wealth of practical psychological knowledge. Some of the most famous discoveries of modern experimental and clinical psychology can be found in germ in these Articles. As Father Sertillanges remarks, one of the best ways of becoming acquainted with the highest abstractions of Thomistic philosophy is to study these Questions. Although the framework in which these data are presented may seem antiquated and although the opposition between the concupiscible and the irascible appetite is given up by some Thomists,[1] modern Phenomenology insists that it corresponds to a fundamental opposition between two categories of human drives.[2]

READINGS

St. Thomas Aquinas, *Summa Theologica*, I, Q. 19, a. 1, 2; Q. 80, a. 1, 2; Q. 81, a. 1, 2, 3; Ia IIae, Q. 6, 1, 2. Marc, *Psychologie Réflexive*, Vol. II. pp. 9-61. Gilson, *The Spirit of Mediaeval Philosophy*, pp. 269-303, and *The Philosophy of St. Thomas Aquinas*, pp. 284-303. Klubertanz, *The Philosophy of Human Nature*, pp. 205-225. Brennan, *Thomistic Psychology*, pp. 147-168. Wild, *Introduction to Realistic Philosophy*, pp. 469-475.

[1] A. D. Sertillanges, O. P., *La Philosophie de St. Thomas d'Aquin*, rev. ed. (Paris, Aubier, 1940), Vol. II, p. 185.

[2] Cfr. P. Ricoeur, *Philosophie de la Volonté* (Paris, Aubier, n.d.), pp. 111 ff.

PART FOUR

Human Rational Life

SECTION I

Empirical Study of Man's Rational Life

CHAPTER 11

Human Intelligence

What Is Human Intelligence?

Human intelligence differs considerably from the intelligence of animals. Taken in its everyday meaning, it is not quite the same function as the "intellect." Our intellect does not grow, it cannot be measured, it does not differ measurably from individual to individual. We know, on the other hand, that experimental psychology studies the growth of human intelligence, measures the degree of its development, and can determine how intelligence is distributed in a certain population.

What, then, is the relation between these three terms: animal intelligence, human intelligence and the human intellect? We might express it as follows.

Man is both an animal and a spirit. As an animal he possesses a cognitive function similar to that of the higher animals, which makes him able to adapt himself to new circumstances and to learn from experience. As a spirit he is endowed with a cognitive function akin to the angelic intellect, which makes him capable of reflecting upon his own intellectual activity and being conscious of himself as a subject. Human intelligence is neither of these two functions but may be considered a combination of both.

The relation between intelligence as the power of learning and the intellect as the faculty of self-reflection is analogous to the relation between matter and form. In human intelligence the material element is represented by the power of learning from experience, whereas the formal element consists in the purely spiritual

function of self-reflection. Because of its material element our intelligence gives evidence of growth, can be measured, is unequally distributed among men. Because of its formal element, human intelligence is totally different from its animal counterpart. From a certain point of view, considered materially, human intelligence is comparable to animal intelligence. From another point of view, considered formally, it is entirely different from the animal mind.

If, in spite of material similarities, there is an essential difference between human and animal intelligence, that difference must manifest itself in the ordinary activities of man's intelligence. In fact we discover such differences. Man engages in abstract thought, the animal does not. Man is capable of formally knowing universals and relations, while the animal discovers them only materially if at all. From these deficiencies of animal intelligence derive the two most visible differences between animal and human development: the total lack in all animals of real language and real culture.

How can we explain the quantitative development, the quantitative differences in human intelligence? The intellect as such is intrinsically independent of matter, as will be demonstrated in the next section. Therefore all quantitative differences must derive from the material element of intelligence. Since this material element itself depends on the senses and their organs, it seems that the degrees of intelligence are ultimately based on the body, the sense organs, and especially the brain. The kind of intelligence an individual possesses, whether brilliant or dull, quick or slow, depends mainly on the kind of brain he has inherited from his parents. The specific feature or quality of the brain which makes for high intellectual endowment has not yet been discovered. The new science of Cybernetics, which studies the structure and functioning of electronic computing machines and artificial brains, will probably shed some light on this important problem.

Intelligence as the Faculty of Thinking

Thinking is the typical activity of human intelligence. The senses perceive, memory recalls, imagination pictures objects before the mind; intelligence alone thinks. What thinking is in itself can be explained only by philosophy. Yet experimental and empirical psychology can tell us something about the thinking process in man.

Experimentally the study of thinking has been undertaken by the Würzburg School of systematic introspection. Under the leadership of Oswald Külpe the psychologists of that school tried to apply the introspective method to an investigation of the higher faculties of man, his intelligence and will.

For the experimental study of man's thought processes, the following method was used. The subject, a psychologist well-trained in introspection, is given an intellectual task, either simple or complex, to perform. While he is carrying out that task, he pays careful attention to what happens in his mind. The duration of the operation is measured very accurately, to a thousandth of a second. As soon as the task is completed, the subject reports in detail all the mental processes which he has observed in himself during the experiment.

Most subjects agreed that thinking, as it occurs during these experiments, is different from perceiving, imagining or remembering. It involves no concrete representations, no mental pictures or images which could be observed and described. The best way of explaining what the subject experiences is to say simply, "I know, I think, I am aware that . . ." It is impossible to describe these mental contents more accurately, whereas images and perceptions can be observed by the mind's eye and described to a certain extent. Sometimes the thinking was accompanied by images; then again the subject was not aware of any images while he was solving his problem. In all cases the subject was wholly aware of the distinction between his thoughts and his images.

These experiments and their results have given rise to endless discussions. Other psychologists, using the same methods, report no difference between ordinary images and what the Würzburgers call ideas or thoughts. Each observer seems to discover in himself what his philosophy and his conception of human intelligence lead him to anticipate. When two groups of observers disagree in that way about their findings, there is no objective method for determining which is right. The accurate measurements taken during the experiment did not shed any light on the nature of the phenomena under observation.

In brief, systematic introspection, for all its scientific appearances, lacked some of the requisites of scientific work, especially the possibility of checking the reports and devising crucial experiments to settle the divergent claims and interpretations. We know from

philosophy that the Würzburg psychologists were right when they insisted upon the difference between thinking, on one hand, and perceiving, remembering and imagining, on the other. But they were mistaken when they hoped to demonstrate this philosophical truth by means of strictly scientific procedures. The method of systematic introspection is no longer used by experimental psychologists.

Empirical studies of human thinking can be found in the works of philosophers such as John Dewey and psychologists such as G. Heymans and E. Claparède. Our exposition in the following paragraphs will be substantially that of Heymans. In its broad outlines it agrees with the conclusions of the other authors in the field.

1. That which sets the thinking process in motion is always some problem. We are arrested in our daily routine by some question which invites or demands an answer. It may be a practical problem: how to play a hand at bridge, where to find a drink of water. Or it may be a theoretical problem: is the universe finite or infinite, are sponges animals or plants?

2. Supposing that the necessary data are available, the first requisite for solving such a problem is concentration. We must be able to focus our mind upon the problem at hand and to keep it focussed until a solution is reached. If we do not or cannot concentrate, distractions arise, our mind loses track of the problem and no solution will be found.

Concentration supposes attention. There are two kinds of attention, spontaneous and voluntary. Spontaneous attention is that with which we advert to objects that interest us, whether this interest arises from inborn factors and is related to biological needs (e.g., we naturally pay attention to strong noises), or is acquired (a philatelist pays spontaneous attention to new stamps). Voluntary attention is the attention which we direct consciously and voluntarily towards some object. In spontaneous attention the object and the immediate motive of attention coincide, while in voluntary attention object and motive are distinct. We fix our attention on a difficult book not because the book itself interests us, but because our study will help us to acquire knowledge which we desire for an ulterior motive.

The concentration required for solving problems is generally based on voluntary attention, so that successful thinking requires a highly developed power of voluntary attention. However, a genuine interest

in the problem at hand makes concentration easy and natural, and therefore one of the best ways of alleviating the difficulty of thinking is to acquire and develop a wide range of interests.

3. It sometimes happens that as soon as a problem arises before the mind, the solution takes shape without any effort on our part. Generally, however, some effort is required. Several possible solutions or "hypotheses" present themselves, and each must be examined for its applicability.

Suppose that I am writing a poem and looking for a word which rhymes with "sweet." If my mind is working efficiently, several such words are evoked at once, allowing me to make a choice and select a word which fits into the context of my poem.

Efficient thinking demands that the possible solutions shall arise in the mind quickly and in great numbers. Such efficiency depends on a good memory, which recalls solutions used in similar situations, and especially on a highly developed creative imagination, able to rearrange many data from the past in new, original ways, well adapted to the present situation.

4. The next step in the solution of our problem consists in a rapid review of the proposed hypotheses and the selection of the best among them. Although this step is distinct from the previous one, in practice the two are continually overlapping.

A good solution must fulfill a certain number of conditions. Therefore our mind must be able to examine each suggested hypothesis and its consequences in relation to every one of these conditions. This process would be complicated enough if all the conditions were simultaneously and clearly present before the mind. But that is impossible, because the mind can grasp only one fact at any given moment. To compare each hypothesis explicitly with every condition would be a long and tedious process. If the "censoring" of each hypothesis is to proceed quickly, it will have to take place unconsciously. The mind must be endowed with some power through which the possible objections to each solution can be sifted without emerging into the full light of consciousness.

Consider the following situation. You meet the mother of a very good friend unexpectedly and learn that he has just been reported missing in action. You must say a few words to the grieving mother. Your words will not be appropriate unless you take into account what you know about your friend, about his mother, about their

relationship. Some expressions come to mind which you immediately reject because they are too trite, or would not sound sincere, or would recall things that would increase the mother's distress. You have no time to consider all these factors explicitly, and yet somehow you must take them into account. An efficient mind performs this task very quickly; in some mysterious way it produces a formula which satisfies all the vaguely recognized requirements of the concrete situation.

We possess a great mass of information concerning the problem at hand, acquired from past experience or from reflection. All this information must actually be used. It is not enough to have it present somewhere in our memory; its influence must be brought to bear on the present situation while we are quickly weighing each possible solution. This entails what some psychologists have called a strong "secondary function." The secondary function of a mental content is the influence which such a content exerts on our conduct even when we are not at that moment aware of it. In people with a weak secondary function the past is not only lost from consciousness, it is even forgotten to the extent that it has no bearing on their present conduct. Those who have a well-developed secondary function can, without recalling past experiences, take them into account when making a decision. They are able to check quickly and accurately any hypothesis arising in their minds for its fitness and adaptation to the present circumstances, without even becoming aware of the reasons why they reject one solution and prefer some other. They "feel" which solution is best, and that feeling is usually reliable.

Summarizing, we may say that the following factors are required for efficient thinking: concentration, which allows the subject to bring all his mental powers to bear on the problem; a lively creative imagination, which provides him at once with a great variety of possible solutions; a strong secondary function, which makes it possible for him to test and weigh each solution as soon as it occurs to him.

When these three abilities are highly developed in an individual, we have a very intelligent person. Very intelligent people constitute a minority in a population. This can be attributed not only to the fact that each of these abilities seems to be the result of the chance combination of a great number of independent factors, but also to the further circumstance that these abilities have a tendency to

exclude each other, at least if any one of them is overdeveloped. Thus an excessive power of concentration adversely affects the power of creative imagination. A too lively imagination impedes the secondary function. Only an optimum development of the three factors makes for a superior mind.

If only two of these three abilities are well developed, we have a mind in which some factor necessary for superior intellectual achievement is lacking. A lively imagination and a strong secondary function combined with weak powers of concentration produces the intelligent dilettante whose mind is acquainted with many fields of knowledge but has a solid grasp of none. Excellent powers of concentration and a strong secondary function combined with an insufficiently developed imagination are found in many scholars and savants who know everything in their own specialized fields but seem incapable of creative innovations. Finally, when we have great powers of concentration and a lively imagination combined with a deficient secondary function, much will depend on the nature of the deficiency. Where the secondary function is uniformly undeveloped, there may be brilliant flashes of insight, making possible occasional bits of solid intellectual work, but the mental process will lack the logical coherence required for outstanding achievement. If, on the other hand, the secondary function is one-sidedly developed, we may find a "one-track" mind, clever in presenting and defending its own point of view but unable to see anything beyond it.

Quantitative Study of Intelligence

Intelligence as generally understood is present in various degrees in different individuals. Some people are "more" or "less" intelligent than others. They show it by the way in which they solve the various problems, theoretical or practical, which confront them in everyday life. In the field of education especially, an evaluation of the pupil's intelligence by the teachers has been a customary practice. Education aims to develop the intelligence of the students. Therefore, if we are to gauge the value of educational systems and methods, it seems imperative to measure the degree of intellectual development obtained by means of these methods.

Teachers measure the intellectual development of their students by

asking them questions or by having them solve problems and observing how they perform these tasks.

The intelligence tests used in psychology for the measurement of intelligence employ fundamentally the same methods. Questions are asked and problems are submitted, and the subject's reactions are recorded and evaluated. But the test method introduces great improvements into the traditional ways of evaluating intelligence.

1. In a test all the questions are asked and all the problems presented within a short time (usually not more than two hours), whereas in the ordinary method the process is extended over months and years.

2. In a test a great variety of questions and problems are included, so that every kind of intelligence is given a chance. Too often teachers rely on a small variety of tasks when they are evaluating intelligence in the ordinary way.

3. The questions in a test have been carefully devised, they are generally clear and unambiguous—and this cannot always be said for the questions used by a teacher.

4. In a test the questions are generally so worded as to allow of only one solution. This solution is known to the person applying the test, which makes the scoring of the answers quick and objective. In the traditional methods many good solutions are possible, and the subjective element is very important in the evaluation of the answers.

5. The norm used in evaluating test results is clearly defined. In the ordinary methods of evaluating intelligence a norm is always used, but it is vague and usually very subjective. A teacher finds the answers of his pupil outstanding or weak to the extent that they stand above or below what he expects from the average student in the group. But he would be unable to tell exactly what the standard is that he expects from an average student.

This requires some explanation. Suppose that 1,000 individuals of a more or less homogeneous group (e.g., college freshmen chosen at random) have taken a test comprising 200 questions. One member of the group, John, has 172 answers right. This figure alone does not tell us how intelligent he is. But if we are told that among the 1,000 freshmen who took the test, 500 had more than 172 right answers and 500 had less than 172 right answers, we conclude at once that John's score is average.

The results of a test are often given in "percentiles." Among the

1,000 subjects who have answered the test questions we take the 1% whose answers are best. Let us say that they have 195 or more right answers. If John has 196 right answers, he is said to fall into the 99th percentile, and we know that among 100 college freshmen taken at random only one will equal or exceed his mark. If, on the other hand, we are told that Paul falls into the 15th percentile, we know that 85% of an unselected group will do as well as or better than he. In this way the use of tests makes it possible to avoid such vague terms as "excellent," "good" or "poor" in the evaluation of a subject's responses and allows us to state with great precision where he stands in comparison with others of his group.

Much painstaking work goes into the preparation of a good test, and great care is taken to make sure of the test's validity and reliability.

A test is valid when it really measures what it purports to measure. Thus an "intelligence test" which in fact measured almost exclusively the testee's memory or imagination would not be a valid test. The validity of a test is ascertained by comparing its results with those obtained by other methods of measuring the same function, where these methods have been demonstrated to secure reliable measurements. Although one teacher who has known a pupil for only a short time may be wrong in evaluating this pupil's intelligence, it is generally admitted that a sound estimate of the pupil's intelligence can be given by a good teacher who has observed his performance over a long period, or by a number of teachers, even though the period during which they have observed the pupil's work is shorter. If, therefore, the results of a test agree with such reliable estimates, this test will be considered valid.

A test is reliable when it yields fairly constant results in repeated applications. A yardstick which shrank or expanded to any real extent with changing temperatures would not be reliable. An intelligence test which, when used several times on the same subject, yields results which are considerably at variance, is not reliable. Checking the reliability of a test is a rather complicated procedure which we cannot explain in this book. One of the main difficulties involved is that the subject may remember the questions of a test and the answers he gave to them, so that a repetition of the test would measure his memory more than his intelligence.

A valid and reliable intelligence test given by a competent psychologist is a useful means of finding out how intelligent a given individual is. However, even in the best circumstances, too much reliance should not be placed on the results of such a test, especially when these results are negative.

One reason for this is that certain kinds of intelligent answers or reactions are difficult to put into words or write down. A man may do poorly in an intelligence test, yet be able to run his business in an efficient and intelligent way. The average intelligence test measures what has been called "Academic Intelligence," the intelligence required for success in academic pursuits, and although this kind of intelligence is not entirely different from the kind that makes for success in everyday life, these two forms of intelligence are not equally well-developed in every individual.

Experimental psychologists are well aware of this difficulty. They have devised tests of practical intelligence, also called "performance tests" since questions and answers are not presented in words but certain practical problems are submitted to the testee and his performance is watched and measured. However, these practical problems are necessarily simple as compared with some problems of real life, and therefore an outstanding performance on such tests of practical intelligence does not always demonstrate that the subject will be highly successful in real-life situations.

Another reason why test results may give a wrong idea of a subject's intelligence is that most tests put a premium on speed, which is not an essential component of real intelligence. A subject who is quick in his mental operations will often get better results in such a test than a slower person who is actually more intelligent.

Finally, since the score in an intelligence test is based on the work done in a set period of time, it may happen that a subject who, for some accidental reason (headache, worry), is unable to muster all his intellectual resources will be considerably underestimated.

For these reasons high results on tests are more reliable than low results, in this sense, that high results (supposing that there has been no cheating) can be explained only by the presence of a high degree of at least "academic" intelligence, whereas low results may occasionally be explained by causes other than an undeveloped intelligence. This applies especially to subjects to whom only one test has been administered.

The most famous of all tests is the Binet-Simon test. It was the first as to date and is still used extensively. Early in this century, the French psychologist Alfred Binet devised a certain number of questions or problems and tried them out on a fairly large number of children taken at random from the schools. He wanted to establish the standard of accomplishment which could be expected at each age level, and his object was to find a small number of problems of such a nature that the majority of children at a certain age could solve them, whereas the majority of children who had not yet reached that age could not. Take a group of simple problems which can be solved by most 8-year-old children but are too difficult for most 7-year-old children; then the mental development required for solving these problems is the 8-year level, and a child who can solve them has a Mental Age of 8 years. Now if the subject is able to answer not only the questions devised for age 8 but also all the questions for age 9 and even a few of the questions for age 10, he will be credited with a Mental Age of 9 years and a few months. Another child of the same age who is able to answer only the questions of age 6 will be considered as having a Mental Age of 6 years.

The Intelligence Quotient (I.Q.), which is generally used as a measure of intellectual development, is obtained by dividing the Mental Age by the Chronological Age and multiplying this quotient by 100. Hence $\text{I.Q.} = \frac{\text{M.A.}}{\text{C.A.}} \times 100$. An average child of 8 will have an Intelligence Quotient of 100; a child who at the age of 8 has an M.A. of 10 possesses an I.Q. of 125; a child who at the age of 8 has a M.A. of 6 has an I.Q. of 75.

Binet prepared three editions of his famous test and published it in its last form a short time before his death in 1911. Ignored in France, his work was accepted eagerly in other countries. Several revisions and adaptations have been published, the most intensive and complete of which is the revision made by Professor Terman of Stanford University, widely known as the Stanford Revision of the Binet Test, or the Stanford-Binet Test.

The Binet test is an oral individual test. The questions are asked and the answers given orally. Only one individual can be tested at a time. Other tests have been devised which can be administered in writing and to a group. They are known as the paper-and-pencil group tests.

The aim of all these tests is to measure the native intelligence of the subject; hence they are called Intelligence Tests. Other tests are used to measure abilities which seem to be, to a certain extent, independent of intelligence—for instance, mechanical ability, musical ability. Such tests are known as Aptitude Tests.

Another group of tests are designed to measure the progress made by children in the different branches of the curriculum—spelling, arithmetic, biology. These are the Achievement Tests, and they are in fact nothing but standardized examinations.

Data Derived from Intelligence Testing

From the great number of investigations carried out by means of tests, it is possible to reach certain conclusions with regard to the distribution of intelligence among individuals, how it grows, its relation to other functions, and so on.

How is intelligence distributed in a normal population? All investigations point to the conclusion that this distribution is normal, in the statistical meaning of that word. Whenever an Intelligence Test is administered to a great number of subjects chosen at random from a large population, we discover that the results can be graphically represented by the probability-curve of Gauss. This means that the I.Q.'s of the subjects will tend to occur in the greatest density around the average I.Q. of 100; in proportion as the extremes on either side, the very high and very low I.Q.'s, are approached, the number of subjects decreases regularly. In other words, there will be very few I.Q.'s which are either very high or very low; most quotients are average; they gravitate around 100, as many below that figure as there are above it. In the scale of intelligence ranging from the genius to the idiot, with the average individual at the center, there is no gap but a gradual transition.

It has been demonstrated that whenever a phenomenon is distributed according to the curve of Gauss, the different degrees in which this phenomenon occurs can be explained by the operation of many factors acting independently of each other. If you use a dozen dice and record the number of points you obtain at each throw, your scores will agree with the probability-curve more closely with an increasing number of throws.

From this the psychologists have deduced that the development of

human intelligence depends on a great number of independent factors. Some of these factors are organic, either hereditary or acquired—for example, the quality and number of the brain cells, the blood supply which reaches them. Other factors are social or environmental, such as the intellectual development of the parents, the training they give their children.

Suppose that a highly developed intelligence should depend on only one hereditary factor, on the presence of only one gene. Then all those who possessed that gene would be very intelligent, those who did not possess it would be dull. If high intelligence depended on the presence of two genes, A and B, there would be four possibilities. Some individuals would possess A and B, others only A, others only B; finally, some neither A nor B. Under that hypothesis, one individual out of four would be very intelligent, one would be dull, and two would be average. Continuing in this line, and supposing that the development of intelligence required the presence of three genes, A, B and C, we discover that there are now eight possible combinations: ABC, AB, BC, AC, A, B, C, and, finally, the case in which none of the three is found. Here again there would be one very intelligent and one very dull individual. Three would be above average and three under average in intelligence.

There are, of course, many more than three hereditary factors influencing the development of intelligence, and to them must be added a host of environmental factors. As the number of factors increases, the ensuing distribution of intelligence assumes more and more the outline of the curve of Gauss (Fig. 11).

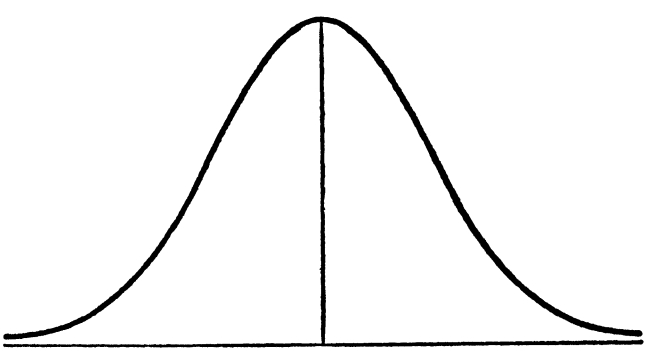


Fig. 11

The following table,[1] based on a great number of cases, shows how the various I.Q.'s are distributed in a large unselected group of people:

I.Q.		% IN POPULATION
above 140	Genius	1
130-139	Very superior	2
120-129		8
110-119	Superior	16
100-109	Average	23
90-99		23
80-89	Dull average	16
70-79	Borderline	8
60-69	Mentally deficient	2
below 60		1

The mentally deficient are further subdivided into idiots, imbeciles and morons. An idiot is absolutely unable to take care of himself; he cannot wash or dress himself or avoid ordinary dangers. His speech is restricted to a few unconnected sounds. The I.Q. of this group varies between 0 and 25. Imbeciles have an I.Q. which varies between 26 and 50. They can take care of their own biological needs, they are able to speak, but they cannot learn how to read. Only the most intelligent among them are able to perform some simple work, under continual supervision. The I.Q. of morons ranges from 51 to 70. Morons can hold a very simple, routine job in a rural environment. The complex life of big cities is too confusing for them, and in that milieu they easily drift into delinquency or crime.

Some authors have attributed most incidences of delinquency and crime to undeveloped intelligence, but the many investigations carried out with delinquents and criminals have not substantiated this view. Although some of these individuals are decidedly below average in intelligence, quite a number of them possess well-developed mental ability.

The test method has discovered only small differences in the intellectual development between boys and girls. In general intelligence the two sexes show no reliable differences. A slight superiority on the part of boys has been demonstrated in mathematics and mechanics, for girls in verbal ability. It is impossible to say whether these differences should be explained by hereditary or environmental factors. Many psychologists prefer the second hypothesis. It has also

[1] This table is reproduced from R. S. Woodworth and D. G. Marquis, *Psychology*, 5th ed. (New York, Holt, 1947), p. 54.

been demonstrated that around the time of puberty girls develop more quickly than boys.

Children coming from wealthy families and attending private schools often have higher results in intelligence tests than children from less privileged milieus. This difference must be explained mainly in terms of factors in the environment, especially the greater intellectual stimulation to which the child is exposed in a more prosperous environment.

It is very difficult, and often impossible, to compare the intelligence of widely different races by means of ordinary intelligence tests. The background, say, of an African Bushman is so utterly different from that of a white American that, even if there were no language barrier or if performance tests were used, no common measure is available. Where psychologists have been able to measure racial differences, as in the United States, a considerable superiority on the part of the white race has generally been indicated. From this it does not follow that the average white individual is congenitally more intelligent than the average colored individual. Most test results point to the difference in educational opportunities as the main, if not the only, explanation of such differences. This is suggested, for instance, by the fact that the I.Q.'s of Negro children who have moved from Southern rural districts into New York City increases regularly, the increase being proportional to the length of their residence in the city.[1]

Intelligence tests have been used to good effect in studying the growth of intelligence. These studies show that growth proceeds rather quickly during childhood and early adolescence, after which it slows down and finally stops. However, some psychologists do not admit this conclusion, because they claim that the test items used at different age levels are not equidistant in difficulty.

When does intelligence stop growing? No definite answer can be given to that question. The limit is placed by various authors between the ages of 14 and 20. This does not imply that no new mental acquisitions are possible after the age of 20. It only means that such acquisitions are no longer the effect of spontaneous growth but are only the result of personal reflection or intentional learning.

Does the I.Q. remain constant throughout life? This question has more than a theoretical importance; it may have great practical con-

[1] About the problem of race differences in intelligence, see O. Klineberg, *Race Differences* (New York, Harper, 1935).

sequences. If we can measure the intelligence of a six-year-old child, and if furthermore we know that his I. Q. will remain the same during the ensuing years, we can decide very early whether that child is fit to undertake advanced studies.

Most psychologists agree that if the environment remains constant, the I.Q. of an individual living in that environment will also remain fairly constant. A radical change in the environment may result in a corresponding change in the subject's I.Q. This explains why intelligence tests administered to pre-school children are generally not a sufficient basis for long-range prediction of their future achievements, because the passage from the home to the school may mean for many children a considerable change in environment.

Intellectual endowment and scholastic achievement are not necessarily parallel. Achievement generally supposes effort and hard work, and these factors depend on the subject's motivation, not on his I.Q. A hard-working student with an I.Q. of 115 may get better results in his studies than a lazy student with an I.Q. of 130. Hence the knowledge of an individual's I.Q. usually allows us to predict his capabilities but not necessarily his future achievements.

The famous British psychologist Spearman noticed that the best intelligence tests, those whose results agreed most closely with the estimate of experienced teachers, always examined a great number of mental capacities, such as sound judgment, discrimination, reasoning, imagination, even sense acuity and motor co-ordination. Yet the ultimate result is given as a measurement of "intelligence." Therefore intelligence is a factor which determines at least in part the degree in which these different abilities are present in an individual.

Spearman tried to demonstrate this conclusion mathematically, by means of statistical computations which are too complicated to explain here. He claimed that all these functions are determined by two factors: a general factor designated by the letter g, which remains constant in each individual and influences the level of all his performances, and as many specific factors (factor s) as there are distinct abilities.

Furthermore, the respective influence of either factor varies greatly from one ability to another. Some abilities seem to be due almost entirely to factor g, whereas in others the specific factor is more important. Thus in learning Latin and Greek the importance of the

general factor would be about fifteen times that of the specific factor. On the other hand, the specific factor is about four times more important than the general factor in musical ability. It follows that an individual in whom factor g is well developed has great aptitudes for classical studies and may show little progress in music.

Further research has established the existence of group factors, not as general as factor g, but less specialized than factor s. Thus such processes as finding synonyms and antonyms, sentence completion, etc., require, besides general ability and a specific ability for each function, a verbal ability common to all of these functions. The presence of such verbal ability helps the subject to get good results in all tasks connected with words. Other abilities which have been discovered experimentally are: numerical ability, which is required for success in handling numbers; spatial ability, which facilitates the grasping of spatial relationships; musical ability; mechanical ability.

The fact that each mental performance requires the presence of three factors: general, group and specific, explains the great variety of correlations discovered in psychology.

A correlation exists between two functions when these functions vary together, although not at the same rate. Physics discovers relations between phenomena. Thus there is a relation between the expansion of mercury and the rise of temperature; to each increase in temperature corresponds a proportional expansion of the mercury. Psychology discovers no such strict relations between mental functions. Intelligence, memory, imagination do not vary at exactly the same rate. Yet they have a tendency to vary together. An increase in intelligence is generally accompanied by an increase in the other two functions, although the rate of increase is not identical in the three of them.

When two variables increase or decrease at exactly the same rate, we have a relation, or a perfect correlation, indicated by $+1$. When one function increases at exactly the same rate at which another function decreases, the correlation between them is -1. Such perfect correlations are never found in psychology. When there is no connection whatsoever between the variations of two functions, the correlation is 0. The correlations established by psychology between mental functions are generally greater than 0 and positive. A correlation of 0.40 is considered low, a correlation of between 0.40 and 0.70 is medium, correlations superior to 0.70 are high.

Psychology never discovers a correlation of +1 between two mental functions, even when the functions in question are almost identical, as, for instance, memorizing dates and memorizing names, finding synonyms and finding antonyms, canceling a's and canceling e's. This fact can be explained by the presence of a specific factor for each function. On the other hand, all functions in a subject show positive correlations; negative correlations are rarely found in psychology. This can be accounted for by the presence of the general factor. Finally we discover in every subject, functions between which the correlations are high, whereas these same functions show low correlations with other groups of functions. The simplest way of explaining that fact is to admit that each of these groups is influenced not only by the subject's factor g, but also by such group factors as verbal, numerical, mechanical ability.

The factor analysis of intelligence, begun by the British psychologists, especially Spearman, has been developed and improved by American psychologists, especially L. L. Thurstone. These investigations have assumed a highly technical character and cannot be explained in this book.

READINGS

Data about the quantitative study of intelligence will be found in the textbooks of Experimental Psychology listed on p. 130.

Dewey, *How We Think*. Dimnet, *The Art of Thinking*. Heymans, *Einführung in die Spezielle Psychologie*, pp. 53-71. Moore, *Cognitive Psychology*. Spearman, *The Abilities of Man* and *The Nature of "Intelligence" and the Principles of Cognition*. Stoddard, *The Meaning of Intelligence*. Terman, *Measuring Intelligence*, a manual for administering the Terman-Binet test.

CHAPTER 12

The Human Will

Will-power and Will

In the preceding chapter we have explained the difference between intellect and intelligence. Although these two human functions are intimately related, they do not coincide. There are no degrees in the spiritual intellect, and that faculty does not grow. Intelligence grows and individuals differ in intelligence.

A somewhat similar observation can be made with regard to the will. As a spiritual faculty the will does not grow, and it is the same in all human beings. Yet we speak of the education of the will; we say that some people have a strong will, whereas in others the will remains weak throughout life. Unfortunately we do not have two different words to distinguish these two aspects of our higher appetitive power. It is possible to speak of the will considered empirically and the will considered as a spiritual faculty, but to avoid these cumbersome expressions we shall make the necessary distinction by speaking, more simply, of "will-power" and the "will."

The relation between will-power and the will is the same as that which exists between intelligence and the intellect.

Like intelligence, will-power involves sense elements; it is directly connected with the organic drives and indirectly with the body. This explains the possibility of real growth in will-power, the presence of quantitative degrees in that function which allows us to declare that some people have more will-power than others.

However, unlike the term "intelligence," the terms referring to our higher appetitive power, "will" and "will-power," are never

used of animals. Even in our present day and age only man is credited with will.

Success in life depends more on the will than on intelligence. Great achievements are not possible without a strong will. Hence it is important to know what is meant by a strong will and what means can be used in the development of will-power.

What Is a Strong Will?

A strong will is a will which strives constantly towards a self-chosen goal under the influence of self-supplied motivation.

This definition of a strong will involves three elements: constancy, a self-chosen goal and self-supplied motivation.

It is obvious that constancy and perseverance are indispensable ingredients of real will-power. The true test of will-power is not found in the decisions the individual takes or in the eagerness with which he sets to work, but in the way he behaves when obstacles and other difficulties present themselves in his path. These impediments may come from without—people or the circumstances of life—or from within—weariness, discouragement, the very monotony of the task. It takes a strong will to overcome all difficulties and keep up one's efforts in spite of them.

Furthermore, real will-power supposes a self-chosen goal, a goal freely accepted by the person. A drug addict may show great constancy and perseverance in the pursuit of his goal, the enjoyment of his morbid pleasure. He is ready to sacrifice his health and wealth, his reputation, the honor and well-being of his family in order to indulge his craving. All the obstacles which society multiplies around him are thrust aside whenever his demon possesses him.

Yet this is not real will-power, because the individual has not freely chosen his goal; he has submitted to the tyranny of an unruly drive, he is the prisoner of a blind passion. In his better moments he is aware of this degrading servitude and deplores it. He would like to shake it off, but it is stronger than he.

It does not follow that passion and will-power are always in conflict. Passion, which we can describe as a powerful drive deeply rooted in a person's mind and polarizing all his energies, is a powerful adjuvant of a strong will if that passion has been wholeheartedly accepted by the person, if it is harmoniously integrated with the rest

of his personality. Typical of this is an ambitious man who has freely decided to live only for the acquisition of power, or a Saint whose passionate love of God directs all his energies towards the service of the Divine Majesty. But wherever passion is not harmonized with the personality, wherever it grows like a cancer at the expense of the sound elements of that personality, it is incompatible with real strength of will.

The other element of our definition, "under the influence of self-supplied motivation," is also essential. Quite a number of people who do not possess a strong will nevertheless strive constantly towards a self-chosen goal. They persevere in their efforts only because motivation is continually supplied to them from without, by their environment. Take any student who is "getting an education." From the age of six to the age of twenty he may persist in this purpose. He has freely chosen it, he really wants an education. He meets obstacles of all kinds, especially in himself: weariness, monotony, desire for a more interesting or more immediately rewarding occupation. Despite all these obstacles he keeps striving towards his goal. But the motivation which keeps him in his course is supplied mostly from outside, by his parents, the school, the whole environment. Quizzes, examinations, praise and rebuke, sanctions for absence or for failure keep him steadily at his work. Would he continue to strive towards his distant goal if all this social pressure were withdrawn? In most cases the answer would be no. A student who would not slacken his efforts in the absence of such outside motivation can be credited with real will-power, because he strives constantly towards a self-chosen goal under the influence of self-supplied motivation.

Methods for Developing Will-power

Some authors claim that the will, like any other faculty, is developed by practice and training. The child is supposed to perform tasks which are disagreeable or difficult, and it is presumed that after prolonged practice of this kind he will have developed a strong will.

Many difficulties can be raised against this theory. The will is not a muscle which can be strengthened by repeated use. Experimental psychology has demonstrated that training a power or function in one definite task does not automatically result in an over-all development of that function. The many experiments performed on "transfer

of training" have clearly shown that there is transfer only when methods, attitudes, motives, or principles acquired in one field can be applied in the other field. Furthermore, where will the child find the will-power required for the repeated performance of these difficult tasks? How will he keep up such a training program unless he already possesses the will-power which this program is supposed to develop?

There can be no doubt that practice and exercise help to develop the will, but only in connection with strong motives, only when and inasmuch as they make these motives more personal and cause them to become more deeply rooted in the mind. Practice without simultaneous development of motives is useless.

Another method which is often recommended for the development of will-power is the acquisition of habits. This theory claims that every habit makes the corresponding action easier to perform and produces a need for repetition of that action. We have already shown that this is true for physiological and psychological habits, but that it applies to motor habits, to the skills, only when these habits have not yet been perfectly mastered. Perfectly mastered motor habits make the corresponding action easier to perform, but do not impel the subject to repeat that action.

The same remark applies to the moral, or voluntary, habits. They may make the action easier to perform, but of themselves they do not impel us to repeat that action. I may by frequent acts of patience have acquired the virtue or the habit of patience, but I shall not look for opportunities of repeating acts of patience the way a smoker looks for opportunities to smoke or a golf-player looks forward to his next game.

We may even wonder whether a moral habit as such, considered apart from its motivation, makes the action easier to perform. In other words, we doubt whether real moral habits can be acquired without strong motivation. Everyday experience confirms our doubts. For example, newly married people generally start their life with excellent dispositions, and they repeat, time and again, acts of kindness, patience, self-forgetting charity for each other. Repetition should engrave these habits in their nature, so that such actions should become easier as the years go by. We know that this is not always the case. Let the first flush of love (that is, the motivation) wane, and what came easily and as a matter of course a few months ago

becomes more and more difficult. The habit, which should have developed from frequent repetition, seems to have grown weaker instead of stronger, because the motivation has been allowed to decrease.

When we speak of moral habits, we too easily forget the important observation of St. Thomas,[1] that only intense actions will strengthen a habit, not the mere repetition of any kind of action. It is not repetition as such, but only the repetition of intense actions, which produces a moral habit. And what makes these actions intense? Not, of course, the habit itself, but only the motives which inspire the actions. Hence habit formation is useful for the development of the will only when it is backed by strong motives.

Everyday experience and philosophical reflection therefore agree on this basic truth: the will is a striving faculty and, like any other striving faculty, it is set in motion only by some apprehended good. A motive is precisely such an apprehended good. Any good, any value presented to the will through the senses and intelligence, may set that faculty in motion, will at least attract it. Hence in order to influence and to educate the will, we must learn how to use the most powerful motives.

There is a scale of motives as there is a scale of values. Not all motives are equally useful for the formation of the will. We can distinguish, in ascending order, the following groups of values or motives:[2]

1. The sensory values, which satisfy any of our segmental drives or the body as a whole. Such are food, drink, rest, comfort, sex.

2. The vital values, which derive from the harmonious development of the body: health, strength, forceful and harmonious activity, physical beauty, playing. These values have their greatest appeal during later childhood and adolescence.

3. The social values, which satisfy the individual as the member of a group: love of the parents, heterosexual attraction, friendship, human society, reputation, power.

4. The spiritual values, which appeal to the spiritual faculties of man, to his intellect and will; they can be further subdivided into

[1] *S. Theol.*, Ia IIae, q. 52, a. 3, c.

[2] To every group of positive values corresponds a group of negative values, which repel the will and which the person tries to avoid. Thus negative sensory values are lack of food, pain, etc.

intellectual values (knowledge, discovery, truth), aesthetic values (artistic beauty in its many forms), moral values (goodness, honesty, justice, generosity).

5. The religious values, which refer to God and to our life after death. Some of these presuppose the supernatural virtues of faith, hope and charity. Others are accessible to unaided human reason. The former include the fear of hell, the desire of heaven, the love of God.

It is with these values, or rather with a combination of some of them, that the educator must operate when he wants to strengthen the will of his charges.

What Is Required for Efficient Motives?

The values or motives mentioned above will be efficient if they fulfill the four following conditions:

1. The motives must be adapted. A value may be very noble and high, but if it does not appeal to the mind it will remain fruitless. In general we may say that the higher the motive, the less it will appeal to the undeveloped mind of the child. Promise him some candy or a visit to the movies, and you will get immediate results. But appeal to his sense of social responsibility, point out to him that the progress of the human race demands that he should study his lessons, and the results will be disappointing. The conclusion seems to follow that in the education of young children, we must use only the lower values, the sensory values and, to a certain extent, the vital and the social values. The higher values are useless in early education.

2. The values must be lasting, enduring, permanent. This requirement seems to be incompatible with the former one. Lower values are not lasting. They produce immediate results, but they drive no permanent roots into the mind. They have to be presented ever anew from outside. On the other hand, the higher values are permanent and lasting, deeply rooted in man's intelligence and will. Anyone who can develop a real enthusiasm for intellectual, aesthetic or moral values will find in them a source of permanent motivation, of durable will-power. This leads us to the following rather discouraging conclusion: the adapted motives are not permanent and the permanent motives are not adapted.

The same difficulty can be presented under another form, which

may lead us to a solution. The lower values derive their power from the fact that they are backed by drives and instincts, whereas the higher values appeal only to the will. Because they are backed by drives, the lower motives push; the higher motives draw, and they draw only those who have taken hold of them intellectually.

Therefore, just as it is impossible to educate the intelligence of the child except through the medium of his senses, it is impossible to develop his will without using his drives and instincts. Real educators have always realized this truth. They have generally presented the higher values in such a way as to make them appeal, at first, not directly to the will, but to the drives. We can demonstrate this best in relation to the highest of all values, the religious values, which are also the most easily adaptable. These values, as presented to the child, should not take the form of considerations about the Mystical Body of Christ, but the simpler form of heaven with the Celestial Banquet (sensory motive), or of the eternal Crown which rewards virtue (social motive). Virtue is presented not as the most reasonable form of conduct but as the real test of strength or the essential requisite of beauty (vital motive). As his mind develops, the child should, of course, be gradually introduced into a deeper understanding of the inexhaustible meaning of these values.

3. Motives must be comprehensive in order to be useful in the formation of the will; that means that their influence must extend to all the actions of life, not just to one category of actions. An athlete who has his heart set on winning a race or a game, or on breaking a record, will find in this motive a source of strength for all that lies in the line of his goal. It will carry him through strenuous training, help him to be temperate—to abstain from smoking, drinking and all forms of dissipation. But it will not help him in the least to be honest, truthful and charitable, because these virtues do not come within the scope of his motive.

The higher the motives are, the more comprehensive they become. Secular education in general uses social-moral values or a social-moral ideal,[1] such as "becoming a good citizen, or a useful member of the community, or a real gentleman." Such an ideal is indeed very comprehensive, and it covers most natural and social virtues. But it is inadequate in relation to some of the most intimate struggles of

[1] An ideal is an integrated group of motives, often personified in a real or possible model.

the individual, the struggle for purity, the struggle with apparently meaningless pain. One can be an excellent citizen and member of the community, and have all the makings of a gentleman, and yet have an unclean mind or an inability to accept pain and humiliation. A person confined to bed for long years by a crippling disease does not derive much inspiration from such motives.

It seems that only the religious motives cover absolutely all the activities of life, as is immediately evident to anyone who understands their scope and meaning. This does not mean that they should be used exclusively of the others. The best motivation seems to derive from a combination of social, moral and intellectual values, supported and animated by strong religious motives. Any young man who is inspired by an intense desire of becoming an outstanding Catholic doctor or lawyer or scientist or an accomplished Christian gentleman is well on his way to perfect voluntary control.

4. Motives must be conscious, they must constantly be kept before the mind. We do not derive any strength from motives to which we do not advert. This requirement is most difficult to realize. If we try to probe this aspect of efficient motivation, we shall sooner or later come up against the essential mystery of the will. There are some superficial and artificial methods which may be used to keep the motives in the focus of consciousness, or at least to bring them there on frequent occasions. Such are slogans, written resolutions. There is the better method of meditative reflection by which the motives are, at stated times, renewed before the mind and connected with the many events of everyday life.[1]

Yet, when all is said and done, motives are kept in consciousness only if we really want to keep them conscious, only if we "will" it. This seems to be a vicious circle. In fact it is a manifestation of the peculiar nature of the will, of its power of self-determination.

[1] In his famous book *The Education of the Will*, Jules Payot recommends meditative reflection as the best method for developing will power. A good retreat can have such powerful influence upon a person's life, because it makes him clearly aware of the great religious motives.

READINGS

Aveling, *Personality and Will.* Barrett, *Strength of Will.* Eymieu, *Le Gouvernement de Soi-Même,* Ch. 3, "L'Art de Vouloir." Lindworsky, *Training the Will* and *Psychology of Asceticism.* Moore, *The Driving Forces of Human Nature,* pp. 321-387. Payot, *The Education of the Will.* Godin, "The Tensions of Catholicism" in *Thought* (December, 1950), pp. 630-662.

CHAPTER 13

The Higher Tendencies

Higher Tendencies and Depth-psychology

The will is essentially a rational love of that which is good, or seems to be good. But many things are or seem to be good for man, and therefore his will manifests itself in many different ways. The main directions which the striving of the human will may take can be called the higher tendencies of man, as opposed to the lower or sensory drives which we have studied in a previous chapter.

Experimental and clinical psychology have not been very successful in the study of these higher tendencies. True, the Würzburg school of systematic introspection has devoted a certain number of investigations to the study of the human will.[1] But the results of these studies have not been satisfactory because, as noted earlier, introspection applied to the elusive higher phenomena in man seems to discover nothing but the conscious or unconscious philosophical preconceptions of the scientist who introspects. As a consequence, where a spiritually minded psychologist discovered, through introspection, a real consciousness of free choices, his materialistically minded colleague discovered only images accompanied by muscular tensions in his chest.

Depth-psychology, that is, the psychology of Freud and all the systems directly deriving from it, has emphasized the study of human drives and tendencies. But because it started with a strong materialistic bias and studied exclusively the abnormal aspects of mental life,

[1] They have been summarized and critically evaluated in Fr. J. Lindworsky's *Der Wille*, 3d ed. (Leipzig, Barth, 1923).

its findings are woefully incomplete and give a distorted picture of the normal personality.

Depth-psychology claims that the sex drive and the drive for power are the main tendencies in man, and that all higher tendencies somehow derive from these two fundamental drives.

It is evident that these two drives are very important in human life and that many psychological disturbances have their roots in them. But this does not derive from the fact that they are the only, or even the main human drives, but from the fact that they are the most liable to clash with the norms imposed by society and with man's higher tendencies.

1. The sex and the power drives are the ones most liable to clash with the norms imposed by society. This has always been true, but the observation is especially applicable to our time, to modern society torn between Christian and pagan influences. Most of our contemporaries pay lip-service to the Christian ideal of morality, which emphasizes the control of the sex drive and of aggressiveness. In practice, however, the sex drive is often given free rein, and ruthless competition is the rule rather than the exception. Is it surprising, then, to find that so many psychic troubles can be traced to this ambivalent attitude produced by the cleavage between theory and practice, between early education and the realities of adult life? And should we not expect that the two drives upon which these problems generally center have assumed an importance out of all proportion to their real place in the human mind?[1]

2. The sex and the power drives are not only in conflict with social norms, they are also frequently in conflict with other drives in man. Man is both an animal and a spirit—or rather he is, in a certain sense, a combination of both. As an animal he possesses drives whose satisfaction is not always compatible with his spiritual drives. Unlike the animal, therefore, man is bound to meet psychic conflicts within himself. When he freely indulges his animal drives, his spiritual tendencies continue to exert their pull in other directions. If he tries to satisfy these spiritual inclinations, the animal drives will often rebel and produce mental turmoil. Complete harmony is possible only if his animal drives are subordinated to his higher tendencies. This is not too difficult to achieve with such drives as hunger and thirst, but

[1] Cp. J. Nuttin, *Psychoanalysis and Personality* (Sheed & Ward, 1953), pp. 166-167.

it is much more difficult where the sex drive and the power drive are concerned, and this explains why these drives may take on such ominous dimensions in his mental life.

Man's Higher Tendencies

The human will is a universal appetite for the good as possessed by an individual being.

Inasmuch as it is a universal appetite for the good, it strives necessarily, albeit unconsciously, towards the perfect good, which is God. Therefore man's deepest unconscious tendency goes out towards God.

Inasmuch as it is an appetite possessed by an individual being, the will strives necessarily and consciously towards the possession of what this individual considers to be his supreme good, towards happiness. Man's deepest conscious tendency is the tendency towards happiness.

Here lies the root of a fundamental conflict in human life. Man's conscious willing should coincide with his deeper, unconscious striving. It should, but it does not necessarily coincide, for the will is free. Man may freely decide that his happiness does not lie in the knowledge and the loving possession of God, but in some created good, such as duty, social progress, wealth, power, pleasure.

Happiness is the realization of all man's desires, and implies perfect self-realization. Therefore we may also state that man's deepest conscious tendency is the tendency towards self-realization. If man considers himself as what he really and basically is, a creature, his craving towards self-realization will ultimately be a craving for God. If he overlooks or ignores the fact that he is a creature, his fundamental conscious tendency towards self-realization will assume the form of a drive towards the possession of some created good.

In both cases man wants to realize himself as a being endowed with an intellect and a will, as a being who knows and loves. As a *being who knows*, man wants knowledge and truth. He wants to know not only his environment and its biological resources (this need exists also in animals), but also the meaning of life and reality (philosophy), the nature and functioning of the material universe (the sciences). This need is developed to a greater or lesser extent in different individuals, but it is always present to some extent. Nobody wants to be led into error by others, or takes pride in consciously

being wrong, although quite a number of people occasionally find it useful to deceive themselves.

As a being who loves man wants to possess not only himself but also other creatures. This desire for the possession of other creatures may assume three fundamental forms.

1. Some people want to possess or to use other creatures merely as a means for their own self-realization, without any regard for the nature or the rights of these others. Such people consider themselves the center of the universe. They have excluded God from their thought and from their love, and everybody and every thing must serve them and help them reach their own happiness. This is the picture of the completely egotistic individual.

2. Some people want to possess and use other creatures with due respect for their nature and their rights. They use some creatures merely as means (minerals, plants), others as means but with certain restrictions, imposed by their higher ontological perfection (animals), others never merely as means, but as associates, models, companions, friends—in short, as fellow men. Here possession is of a higher kind, and takes the form of knowledge, reverence, admiration, sympathy and love. No explicit reference is made to the final end for which these creatures exist, to God. The absolute for which such people live is duty, or the progress of mankind, or social justice. Their ideal is a moral ideal.

3. Others want to possess and use other creatures with due consideration for their nature and rights and refer them explicitly to God. Theirs is a religious ideal, which includes and transcends the moral ideal described in 2.

Here again we meet a source of conflict in human life. Very few individuals belong entirely to any one of the three groups outlined above. Every human being is strongly impelled towards egoism, and will at least occasionally yield to it. On the other hand, most persons are attracted, however faintly, by the moral or the religious ideal. Even those who have definitely opted for ruthless egoism will generally clothe their designs in the garb of morality, thus paying an involuntary tribute to the moral ideal.

Another higher tendency which man possesses because he is a spirit in matter is the striving towards beauty, both the enjoyment and the creation of beauty. Part of this striving derives from the sex drive and appears to some extent in animals. But above this bio-

logical drive towards beauty there is a spiritual craving for the enjoyment and the creation of esthetically satisfying objects. That this drive is deeply ingrained in man may be demonstrated by the fact that every human culture shows some artistic production, and that very few human beings are absolutely indifferent to every form of esthetic beauty. However, this drive is strongly influenced by the environment, and it remains very rudimentary in many individuals.

Summarizing, we may say:

Man wants happiness because he possesses a will. But his desire for happiness is vague and, on the conscious level, not specified. He himself must specify it, staking his all on himself or on some Absolute distinct from himself. This Absolute may be God consciously intended, or God unconsciously intended under the guise of duty, the progress of mankind, social justice. God, on the other hand, may be explicitly rejected as the Absolute, and the will may strive towards an egoistic form of happiness based on the possession of some creature. Man's craving for happiness includes a desire for knowledge and truth, a desire for loving possession of other beings and a desire for beauty.

Shall we say that there is a religious drive in man? We can admit the existence of such a drive if we take the word religious in a very wide and rather vague sense. The striving towards truth and happiness is objectively a striving towards God, and it is not surprising that in most cases it is subjectively, although vaguely, felt as such—that is, as a religious tendency. We must remember, however, that, like all other conscious drives, this one depends greatly on the influence of the environment, that it may remain at a very rudimentary stage of development, that it may be hampered or inhibited by other drives and even consciously counteracted by the will. The fact that all human races and cultures show some kind of religious consciousness is a strong argument for the existence of an inborn religious drive in man.

Man's Intermediate Drives

We call intermediate those drives in man which contain both intellectual and sensory components. Because they contain sensory components we find them in animals also; but because in man they

are taken over and animated by the will they present in him a radically different aspect.

We have mentioned these drives on p. 125, as "propensities showing no clear organic rhythm," that is, as drives which are not physiological but strictly psychological. We should mention them here again and study the way in which they manifest themselves in man, when taken over and animated by the intellect and the will. But the process of treating all these drives in that way would be beyond the scope of this book, and we shall therefore consider only one example, the social drive.

The social drive is present in many animals, especially in the higher vertebrates. It is manifested in animals by the fact that they seek the company of their fellows, they "assume by primitive sympathy the feelings of the group . . . evoke emotional responses from others"[1] and imitate them.

Man is the most social of all animals. His social drive is implied in the need for the possession of others, mentioned above. It is not simply assumed by the will, as is the case with the hunger or the sex drive. In man the spiritual need for contact with others combines harmoniously with the sensory need for "belonging to the group" and produces together with it one of the deepest cravings of human nature.

Man needs the company, protection, help, example, admiration and love of his fellow men. During his long childhood and youth he needs continual care, protection and love. He cannot reach the full development of his capabilities without a protracted education. During the first years of his life, he remains for the most part at the receiving end of these social relations. But gradually another need matures which makes him desire to influence, to help and instruct others; to be accepted, esteemed, admired and honored by them. He needs to communicate to them not only his emotions but also his ideas and his intentions. Complete self-realization is impossible without a loving donation of one's self to others. Solitary confinement is one of the most terrible punishments which can be meted out to a human being. The feeling of being rejected, of being useless and of no importance, produces acute mental suffering. Even the hermit living alone in his cave cannot, without doing violence to his own mental and spiritual development, entirely forget

[1] R. B. Cattell, *Personality*, p. 181.

that he belongs to the human family. He has given up the bodily presence of his fellow men only in order to influence them spiritually.

All the other psychological propensities mentioned on p. 125 are, in the same way, "sublimated" through combination with man's spiritual tendencies. Thus animal curiosity (No. 11) blends with the need for truth and manifests itself in man's unending quest for knowledge.

Even the drives which have clearly physiological roots, such as the hunger and the sex drive, are considerably transformed through their assumption under the will. Man needs food, just like the animals. But he has learned to need certain kinds of food, prepared in a certain way, presented in a manner which suits his taste, enjoyed with a certain ritual in the company of others of his kind. His hunger drive, although it may occasionally show itself in grubbing or hunting, manifests itself more frequently in agriculture, industry, business and the huge economic system of modern society. Equally remarkable are the great differences existing between animal mating and the complexities of human courtship and marriage.

READING

J. Nuttin, *Psychoanalysis and Personality*, pp. 159-256.

SECTION II

Philosophical Study of Man's Rational Life

CHAPTER 14

The Human Intellect

THE POSITION and value of a philosophical system depend primarily on its conception of the human intellect. In order to gain a better understanding of our own conception, it is useful to compare it with some other systems. Such a comparison will help us to see where we stand in philosophy and will show that the Aristotelian-Thomistic system tends to take the middle road between the untenable positions at either extreme.[1]

THE POSITION OF OUR SYSTEM

From the point of view of knowledge, we can divide the systems into five main groups:

1. The first group rejects the value of knowledge in general. We know nothing, none of our faculties gives us certain knowledge of reality. This is SCEPTICISM, a system professed by the Greek sceptics of the fifth and the third centuries before Christ. This system cannot be either set forth or defended without internal contradiction, as Aristotle demonstrated. It has no adherents among modern philosophers.

2. The second group holds that only the senses give us certain knowledge. In fact, we have only sense knowledge; that which is called intelligence is only a higher sense, or the sum-total of the senses. This doctrine, variously called SENSISM, EMPIRICISM, POSITIV-

[1] This review of the systems must be very brief, and is therefore necessarily oversimplified. It cannot point out the many good features in these philosophies. The reader is referred to any good history of philosophy.

ISM, necessarily leads to MATERIALISM. The system existed in Antiquity, but it was presented in its purest form by the British Empiricists of the seventeenth and eighteenth centuries, especially David Hume (1711-1776). In some form or other it prevails in many American philosophical circles, and it constitutes the unconscious philosophy of many scientists.

3. At the opposite extreme is a third group of philosophers who maintain that only the intellect gives us knowledge of reality. They either overlook sense knowledge or fail to distinguish it from intellectual knowledge. This system is called IDEALISM, and it leads to Idealistic PANTHEISM. It was presented in its purest form by the great German Idealists of the eighteenth and the beginning of the nineteenth century, especially Fichte, Schelling and Hegel.

4. A fourth group admits the existence of both sense and intellectual knowledge, makes a distinction between the senses and the intellect and affirms that both participate in human knowledge. But it fails to make a satisfactory synthesis of both. This error seems to be very natural to the human mind, and it has been presented in many forms.

a. According to Plato (427-347 B.C.) our soul existed before we were born into this world. In its pre-natal dwelling place the Ideas subsisted in a pure form, not embedded in material things, as in this world. In that heaven of Ideas, the soul contemplated not trees or horses or men but the Idea of Tree, Horse or Man. Now confined in the body as in a prison, the soul has lost this contemplation of pure Ideas. But when physical impressions from individual trees, or horses or men impinge on our senses, our soul "remembers" the ideas corresponding to them, which it contemplated in its former state. Therefore our sense knowledge is real; however, it is not a cause but only an occasion of our intellectual knowledge.

b. Although he did not admit the pre-existence of the soul, Descartes (1596-1650) professed a somewhat similar doctrine. One of the central tenets of his system is that soul and body are both complete substances. He rejected the scholastic explanation of body and soul as complementary principles, as matter and form constituting together one complete substance. As a consequence he had great difficulty in explaining such elementary facts as that when our senses are impressed by a physical object we conceive

the idea of that object in our minds, or that when our will wants us to move a part of our body the body executes that movement. At some point in his system he acknowledged the interaction between soul and body and asserted that it had its source in the pineal gland; but then again, impressed by the impossibility of a material substance influencing a spiritual substance, he denied all interaction. This forced him into the position of denying that our ideas come from the senses and asserting that they are inborn in the mind. The unsolved problem of the interaction between body and soul has plagued Descartes' successors, who have presented the strangest theories in their attempts to solve it.

c. A first attempt was made by Malebranche (1638-1715) who taught the system of Occasionalism. Like Descartes he considered body and soul to be two complete substances and rejected the possibility of any direct interaction between them. How then did he explain the obvious fact that, when our eye sees a tree, our mind conceives the idea of a tree? By saying that the sense perception of the tree was an *occasion* for God to put into our mind the corresponding ideas—i.e., when our body is influenced by a material object, our mind is simultaneously endowed by God with the idea of that object; when our will wants to move a part of our body, God produces that movement in us.

d. Even to Malebranche's contemporaries Occasionalism seemed artificial and improbable, and therefore another follower of Descartes, Leibniz (1646-1716), starting from the same principles (body and soul complete substances, no interaction possible between them), devised the doctrine of "pre-established harmony." God does not intervene every time I have a sensation. He has pre-established a perfect harmony between the series of my sensations and the series of my ideas, so that every time I have a sensation, the corresponding idea arises in my mind; thus the sensation has no influence on the formation of the idea. He used the comparison of two clocks which mark the same time, neither having any influence upon the other. They have been made in such a way as to mark time in perfect harmony. If we wanted a modern example, we could say that whenever Donald Duck opens his mouth we hear him speak, although the movements of his mouth have not the slightest influence on the sounds we hear. Between the film and the sound-track there is a pre-established harmony.

e. For Leibniz the two series of events, one physical, the other psychic, had been freely synchronized by God. For Spinoza (1632-1677) they are necessary emanations of God. Spinoza's system is one of realistic pantheism. Everything which exists is a necessary attribute or mode of God. According to Spinoza, God may be compared with a gigantic tree with many branches which grow out of absolute necessity. We know only two of these branches, the branch consisting of the physical events and that which consists of the psychic events. They are perfectly parallel in their development, so that to each event in the physical branch corresponds an event in the psychic branch. Our sensations are physical events, our ideas are psychic events. Therefore, to every one of our sensations corresponds an idea, although the sensations have no influence upon the formation of the ideas.

All these philosophers reasoned logically from their premises. Yet their systems are untenable, especially the most logical and coherent of these systems, the doctrine of Spinoza. He was led to affirm that God possesses spatial extension because he deduced inexorably all the consequences deriving from his own and Descartes' starting point: body and soul are two complete substances; the senses and the intellect do not really co-operate. Since the consequences are false, the starting point must be false. The errors contained in the system of Spinoza are among the best arguments for our conception of the intimate collaboration of sense and intellect in the formation of our ideas, and therefore also of the substantial unity of man.

5. A fifth group of philosophers admits that the senses and the intellect collaborate in the formation of our ideas, and that without the co-operation of both we can have no intellectual knowledge.

a. Immanuel Kant (1724-1804) was one of the first modern non-Scholastic philosophers who rejected the fundamental assumptions of Cartesianism and Empiricism. At first he had been indirectly influenced by Descartes, but he soon discovered that Cartesianism could not be held. The influence of the British Empiricists made him lean for a while towards Empiricism, but it did not take him long to uncover its weaknesses. By dint of much labor he finally rediscovered the middle position which had been held by St. Thomas (with whose system he was not directly acquainted), and he claimed that both sense and intellect are the necessary

sources of all human knowledge. But he did not rediscover the Scholastic position completely and was thus led into some serious errors which have had a very great influence on the whole of modern philosophy.

Kant was right when he affirmed that the senses and the intellect co-operate in every human thought, but he was wrong when he maintained that intellectual knowledge does not reach beyond the domain of the senses. For him the function of the intellect is to arrange and unify the data of the senses by imprinting its own subjective categories on them. It follows that we can know only sensible, material beings, and that whatever is not material is beyond the range of our knowledge. Man cannot know such realities as God, the soul, liberty. Here lies Kant's fateful error. He did not understand that, although all our knowledge starts with the senses and is accompanied by sense knowledge, our intellect can reach further than the senses. He did not realize that we can "mean" more than we can "represent." Kant rediscovered an important part of the great Aristotelean-Thomistic synthesis and enriched it with many interesting developments which we gratefully accept. But he did not rediscover the whole synthesis; he underestimated the real power of the human intellect and rejected all metaphysical knowledge as illusory. He did not deny the existence of God or of the soul, but he claimed that our intellect as such, our theoretical intellect, could not reach them. Such a system is known as AGNOSTICISM.

b. The Thomistic system likewise rejects the psychophysical parallelism of Descartes. Body and soul are incomplete substances, sense and intellect co-operate in all our knowledge. But the intellect does more than organize the data of the senses, it reaches beyond the senses and can know immaterial realities. In the following pages we must study how this is possible.

IMMATERIALITY OF THE HUMAN INTELLECT

Our intellect is immaterial: that means, as we have seen, that it is not intrinsically dependent upon matter. The brain is that portion of matter which has the closest relation to the operation of our intellect. We claim, therefore, that our intellect is not intrinsically

dependent on our brain, that our brain is not a cause of the operations of our intellect, that our brain does not produce ideas or judgments.

Since we cannot study our intellect directly, we must turn to its operations and show that they are immaterial. For, as a being is, so it acts. If the operations of our intellect are immaterial, their cause, our intellect, must likewise be immaterial.

We shall consider three operations of the intellect: ideas, judgments and reflection.

Every philosopher admits that our intellect is not material in the way a stone is material; it cannot be seen or touched or photographed like a stone. It is not material in the strict sense; that needs no demonstration. But many philosophers claim that there is no difference between the immateriality of our intellect and that of our senses. We claim that our intellect is immaterial in a higher way; that, unlike the senses, it is intrinsically independent of matter.

Therefore we must compare the operations of our intellect with those of our senses, both external and internal, and show that there is a radical difference between them which involves a radical difference in the nature of the faculties.

Comparison of Sensations or Images with Ideas

Sensations are always of single objects or single groups of objects. I see *this* cat, I hear *this* plane, I touch *this* table, I see *this* crowd, I hear *this* squadron flying overhead.

Images likewise always refer to a single object or group of objects. I cannot imagine a tree which is at the same time a poplar and a birch, big and small, with leaves and without leaves. The clearer my image is, the better I realize that it applies only to one individual object or group of objects.

My ideas, on the other hand, are universal. They apply to each and every individual of a species. The idea which I have of a tree applies to all trees, poplars and birches, big and small, with or without leaves, present, past and future, real and possible.

I even possess a few ideas which apply to absolutely every reality. Such are the ideas of "being," "something." The contrast between these ideas and my images and perceptions is most striking to anybody who considers it attentively.

Hence there is an essential difference between sensations and images, on one hand, and ideas, on the other hand. There must be a corresponding difference between the senses and the intellect. The root of that difference is in the materiality of my senses as opposed to the immateriality of my intellect. Wherever there is matter (prime matter or second matter), or intrinsic dependence on matter, there is quantity, therefore spatiality and temporality. An object which is in space and time is necessarily individual, singular, concrete. It follows that where there is generality, universality and abstractness, where there is no localization in space and time, there can be no intrinsic dependence on matter. Therefore my ideas are not intrinsically dependent on matter and my intellect, which produces them, is strictly immaterial.[1]

Comparison of Sensations and Images with Judgments

Sensations and images are always of contingent objects or actions. That means that the objects which I perceive or imagine do exist, but do not exist necessarily; they could also not exist. And the actions which I perceive or imagine happen, but do not happen necessarily.

On the other hand, in all judgments there is an element of necessity. Even a judgment referring to a contingent event contains a core of absolute necessity.

It is raining. That is a contingent not a necessary fact. I may perceive it or imagine it; it remains perfectly contingent. When, however, I pronounce the judgment, "It is raining," this judgment, although referring to a contingent event, contains a core of necessity. If it is raining, it is raining, it cannot not be raining. It is absolutely impossible that at the same moment and at the same place it should be raining and not raining.[2] We have here a hypothetical necessity. Hypothetical: If it is raining. Necessity: It is necessarily raining. That necessity is absent from all my images and perceptions and present in every one of my judgments.

[1] It should be noted that an idea, inasmuch as it is a real accident of my intellect, is a singular, individual being. Singularity and individuality do not always involve matter. But universality always excludes it. Now the meaning, the scope of my idea is universal, and therefore my idea excludes any materiality.

[2] It will be noticed that these contingent judgments are necessary inasmuch as they embody the first principles.

But the necessity in our judgments appears more clearly in certain kinds of judgments, especially in all mathematical and metaphysical judgments. Two plus two makes four. Every effect has a cause. Whatever is, is. A being cannot exist and not exist at the same time. These judgments are absolutely necessary, universally and eternally true. By means of such judgments we dictate, in a certain sense, our law to reality. I do not know what exists or happens on the other side of the moon. But I know that if there are two moon craters and two others besides, there are necessarily four craters, and it is absolutely certain that these craters have a cause.

It is a remarkable fact, and one which passes unnoticed too often, that my intellect, a contingent being, is the source of such absolutely necessary, eternally true judgments. Their truth extends to the past and to the future, to this universe and all other possible universes; the metaphysical judgments apply even to the spiritual world and to God Himself. God might have created an entirely different kind of universe. We might be unable to imagine how such an universe would look. But we are absolutely sure that the metaphysical principles would strictly apply to it.

Therefore we have discovered one more essential difference between the operations of the senses and imagination and some operation of the intellect, which implies a corresponding difference between these faculties. That difference is rooted in the materiality of sensation and imagination, as opposed to the immateriality of the judgment. Potency, and especially its lowest form, prime matter, is the radical principle of contingency and mutability. Wherever we find necessity in the sense of eternal, immutable existence,[1] we know that there can be no intrinsic dependence on matter. Therefore the judgments produced by my intellect are not intrinsically dependent on matter, and my intellect itself is strictly immaterial.[2]

[1] Necessity in the sense of eternal, immutable existence, is to be carefully distinguished from necessity in the sense of determinism. The former is a perfection of being, which is found in its highest form in God. The latter is an imperfection, found in material beings. We are speaking here of the first kind of necessity.

[2] It should be noted again that our judgments, as real accidents of our intellect, are contingent and mutable. They come and they go and they change. But their content and scope extends to something which is hypothetically or absolutely necessary, eternally and immutably true. That excludes any intrinsic dependence on matter.

Comparison of the Imperfect Reflection of the Senses with the Perfect Reflection of the Intellect

One of the most remarkable properties of my intellect is its power of reflecting perfectly on its own activity. I think that I think, I am aware of being aware, I am conscious of being conscious. The intellect not only performs an activity, but it knows that activity while it is going on.

The senses possess no perfect self-reflection. My eye sees, but it does not see that it sees. My imagination imagines, but it does not imagine its own imagining.[1] The senses act, but they are not aware of their own activity. It is true that the animal is aware that it sees or hears. But we have already shown that this fact must be explained through the central sense. No external sense is aware of its own activity; the central sense is not aware of its own activity; but the central sense is aware of the activity of the external senses. This is called imperfect self-reflection.

Since the intellect is capable of perfect self-reflection, whereas none of the senses is, there is an essential difference between the senses and the intellect. This difference is based upon the materiality of the senses, as opposed to the immateriality of the intellect. Perfect self-reflection means self-consciousness, the highest kind of consciousness. But consciousness is opposed to matter, and self-consciousness excludes any intrinsic dependence on matter. Self-consciousness makes a being capable of coinciding perfectly with itself. Matter involves spatiality, and in a spatial being every part is outside every other part, and cannot perfectly coincide with any other part without destroying itself.

We may again conclude that our intellect is intrinsically independent of matter, is strictly immaterial.

Objections against the Foregoing Proofs

Objection 1: The fact that our ideas are universal is not a proof of their immateriality. There are many universal relations and tend-

[1] When we say, "I imagine that I imagine," the first "I imagine" is taken in the sense of "I suppose," which denotes an act not of the imagination, but of the intellect.

encies which are not immaterial. A cat has a universal tendency to kill mice. It is not just looking for this or that individual mouse, but just for mice, for any mouse. Our eye has a universal power of seeing colored objects, any colored object. A hammer is a universal tool for driving nails into boards, any nail into any board. All these are universal tendencies or relations without any immaterial element.

Answer: The universality of these tendencies, powers or relations is purely potential until it is actualized by and in some intellect. The cat has a universal tendency to kill mice, but kills only this or that individual mouse. The same remark applies to the eye and to the hammer. The universality exists only in an actual or possible intellect. Therefore the objection confirms our position. But it suggests that we should say more precisely that "universals known as such" are a proof of immateriality.

Objection 2: There are universal images, concrete and individual representations having a universal meaning. For instance, the poster featuring the typical U.S. Marine, the picture of the typical Yankee farmer, the cartoon of the typical professor. These are material objects, standing for all the representatives of a class, and therefore truly universal.

Answer: In reality these pictures represent a whole class for us because we have an idea of that class. The picture evokes that idea in us, and it is only through that idea that it has this universal power of representation. If we had no idea of the U. S. Marine, the poster would represent only the individual who modeled for it.

Objection 3: "Whether others have this wonderful faculty of abstracting their ideas, they best can tell: for myself, I find indeed I have a faculty of imagining or representing to myself the ideas of those particular things I have perceived, and of variously compounding and dividing them . . . *whatever hand or eye* I imagine, it must have some particular shape and colour. Likewise the idea of *man* that I frame to myself, must be either of a white, or a black, or a tawny, a straight, or a crooked, a tall, or a low, or a middle-sized man."[1]

Answer: The answer to that objection is contained in the objection itself, in the words which have been underlined. "Whatever hand or eye" and "man" does not represent any hand or eye

[1] G. Berkeley, *Principles of Human Knowledge*, Introduction, #10. (Our italics.)

or man in particular, but just any hand, eye or man. Berkeley confuses "imagining" and "conceiving." He is quite right when he affirms that we must always imagine a definite individual; he is wrong when he claims that we cannot conceive or think a universal nature. The confusion may be explained by the fact that every one of our ideas is accompanied by an image.

Objection 4: The necessary judgments are not a proof of the immateriality of our intellect. They are merely a result of frequent association. Because in our experience we have always seen A followed by B, we affirm that A is necessarily followed by B (lightning—thunder; fire—heat; cause—effect). This objection has been cleverly defended by Hume.

Answer: Hume's explanation could perhaps be defended with reference to physical laws, although even for them is not generally accepted. But it is not acceptable in relation to the laws of mathematics, geometry and metaphysics. It is not because I have so often added 2 and 2 and always found that this gave me 4, that I affirm with absolute certitude that 2 plus 2 makes 4. I may never actually have added 67 dollars to 56 dollars, but I know that if I do, I shall necessarily obtain 123 dollars.

This applies a fortiori to the first principles of metaphysics such as: "Every effect has a cause"; "Whatever is, is"; "A being cannot exist and not exist at the same time." Everybody admits the absolute certitude of these principles. But the basis of this certitude has been explained in many different ways. Briefly reviewing these explanations will allow us to strengthen the argument drawn from the necessary judgments of our intellect.

1. The first principles of metaphysics are inborn in our intellect. We do not accept this explanation, there are no inborn principles in our mind. We can have no knowledge without sense experience.

2. These principles derive from experience and induction, like the laws discovered by the Sciences. That answer is quite insufficient. Induction can never lead to absolute certitude. Moreover, a vast amount of strictly controlled observation is required before physical laws are firmly established. Finally, these laws apply only for those conditions in which they have been ascertained. In a different kind of universe these laws might not apply. On the other hand, the meta-

physical principles are absolutely certain, are immediately evident, apply to all reality, even to merely possible reality.

3. Textbooks of Scholastic philosophy generally say that these principles are immediately and absolutely evident, because we notice that the predicate is contained in the definition of the subject, because we are at once aware of the necessary connection between the two terms. This is true, but it leaves one question unanswered. Why do we at once see this necessary connection? Is it on the basis of our former experience? Obviously not. Then it must be because of the very power of our intellect, without direct dependence on experience, from within, a priori. This leads us to the real solution of the problem as it was presented by St. Thomas.

4. St. Thomas says that our intellect possesses the habitual knowledge of the first principles (*habitus primorum principiorum*). In their light we judge of everything else, and therefore every one of our judgments has a core of necessity. We have received that habitual knowledge of the first principles from God Himself, not in the form of actually inborn principles, but in the form of potential or virtual dispositions which are actualized as soon as they enter into contact with exterior reality reaching us through the senses. Therefore we see them *in* experience, although they do not come *from* experience.

The habitual knowledge of the first principles of metaphysics is our way of sharing the intuitive knowledge of the pure spirits (principle of proportionality). It follows that a faculty which contains these principles—albeit only virtually—must be a spiritual faculty.

Although the human intellect is not intrinsically dependent on the brain, it is extrinsically dependent on that material organ. The brain is a necessary condition for the operation of our intellect. Without a brain in good condition our intellect, in ordinary circumstances, cannot produce its operations. In this way the human intellect differs from the angelic intellect, which is entirely independent of matter.

That the intellect is extrinsically dependent on matter can be demonstrated in the following ways:

1. We know that a serious impairment of the brain, either by a lesion or by intoxication, makes intellectual operations impossible or difficult.

2. Every one of our ideas is accompanied by an image. But this

image, being a product of the senses, is intrinsically dependent on matter. If there can be no thought without image, there can be no thinking without some co-operation of the brain.

3. Every human operation is the operation of a being composed of form and matter. Therefore no human operation is possible without some co-operation of matter. Since our thought is not intrinsically dependent on matter, as we have demonstrated above, we must admit an extrinsic dependence of our intellect on matter for its operations.

THE ORIGIN OF OUR IDEAS

How do our ideas originate? They are not inborn and the senses have a part in their formation. That much is evident from ordinary experience. From sense knowledge we pass to intellectual knowledge, from the phantasm[1] we derive the idea.

But the phantasm is material and the idea is immaterial. How then do we pass from a material phantasm to an immaterial idea? Or, in terms of the underlying faculties, how can the material senses influence the immaterial intellect? To this question only three answers can be proposed, and each one has been defended by a group of philosophers.

1. The intellect receives the ideas from the imagination as the imagination receives its images from the senses, and as the senses receive their sensations from the outside world.

Such is the thesis of the empiricists and of the sensists. It leads necessarily towards materialism. According to this conception the intellect is nothing but a higher kind of sense, passively receiving its ideas from the imagination. Senses and imagination can passively receive their contents because they are material faculties. The intellect, being immaterial, cannot passively receive anything from a material object or faculty.

2. The intellect receives its ideas directly from God. This solution has been defended by Malebranche and, in a slightly different way, by all philosophers who admit the existence of inborn ideas. It

[1] Phantasm is a technical philosophical term which means the highest product of the combined senses. It is generally considered as synonymous with image, but it may also stand for a perception. The highest product of the combined senses is a perception when the object is present, it is an image if the object is not present, to the senses.

involves no contradiction; God could put our ideas directly into our mind. But that solution is utterly improbable since God generally uses secondary causes, and since all appearances point to some influence of our senses in the formation of our ideas.

3. If the ideas cannot come from the objects or from the senses and if it is morally certain that they do not come directly from God, there remains only one solution; the ideas come from the intellect itself, the intellect puts the ideas into itself. When a student listens to his professor, it looks as if the professor were putting new ideas in the student's mind. In fact, he does nothing of the kind; he only emits certain sounds which are, for the student, the occasion of developing new ideas corresponding to the ideas which the professor is trying to express. In the same way, when a phantasm is presented, the intellect puts into itself an idea modelled after that phantasm.

We must therefore distinguish two aspects in the intellect, an active aspect, which we shall call the agent intellect, and a passive aspect, which we shall call the possible intellect. The agent intellect, taking the phantasm as a model, imprints the corresponding idea upon the possible intellect. There is a great difference between this solution and the first one presented above. In this hypothesis the intellect does not receive anything from the senses, but only from itself. It actively models its idea after the phantasm and puts it into itself.

That solution is generally accepted by the Scholastic philosophers. They say that the agent intellect "abstracts" the idea from the phantasm and puts it into the possible intellect. To abstract the idea from the phantasm means to leave out of consideration all the material, individual, concrete features of the phantasm and to keep only the general and universal features. In the image of the individual tree the intellect leaves out of consideration the fact that it is an oak or a maple, that it is big or small, that it has leaves or that it has no leaves. It keeps only the "treeness," that which is common to all trees.

But an obvious difficulty arises at once. In order to discriminate between what must be excluded and what must be retained in the phantasm, the intellect must know the phantasm. But the immaterial intellect cannot know the material phantasm. To know it means to be influenced by it, and the immaterial intellect cannot be influenced by the material plantasm.

The solution of this difficulty must be sought in a consideration of the unity of man and the close co-operation of all his faculties. In man body and soul together constitute one being. Therefore the intellect and the senses are most intimately united, they cannot operate independently of each other. The senses are made for the intellect and operate under its unconscious inspiration and guidance. Technically speaking, the intellect is both the final and the formal cause of the senses.[1] The imagination produces the phantasm for the intellect and under its unconscious direction, somewhat in the way in which all the parts of a plant work for the vital principle and under its unconscious direction. The intellect, inasmuch as it unconsciously directs the formation of the phantasm, is called the agent intellect. This vital but unconscious co-operation produces in it a purely intellectual, abstract and universal representation of the phantasm, which the agent intellect itself does not know (since it acts unconsciously), but which it impresses upon the possible intellect, where it becomes known as an idea.

Let us repeat this explanation in other terms. The phantasm is produced by the imagination in the imagination. But the imagination works for the intellect and under its unconscious guidance. The operation of directing unconsciously the work of the imagination produces in the intellect itself an abstract "impression" (*species impressa*), corresponding to the phantasm. This "impression" is not known by the agent intellect, but it is stamped by it upon the possible intellect. The possible intellect utters it to itself, speaks it out, expresses it, produces a corresponding "expression" (*species expressa*), which is the mental word, the idea, the concept.

It is not easy to find a comparison which will help us to understand these abstruse explanations, but we can try. The best way of knowing the structure of your radio set is not by looking at it or reading about it (passive learning), but by taking it apart and reassembling it (active learning). If you can reassemble the parts of your set, especially with your eyes closed, you know it perfectly. And you know not only this individual set, but all sets of the same make; you have acquired the "idea" of the set. The comparison is not perfect. You have rebuilt your set consciously. Suppose now that you could rebuild it unconsciously, while asleep. There would then be in you an unconscious knowledge of the general structure of this kind of radio set.

[1] Cfr. *S. Theol.*, I, 77, 7, c.

Something similar happens to the intellect as a result of its unconscious operation in guiding the formation of the phantasm, and what it knows unconsciously in one of its aspects (agent intellect), becomes luminous and conscious in its other aspect (possible intellect).

Fr. Maréchal, whom we have followed in this interpretation, summarizes it as follows:

> The agent intellect, in the first stage of its intervention, is the intellect itself, inasmuch as, in virtue of the substantial union between soul and body and the active subordination of the different faculties which derives from it, it exercises upon the imagination a causal influence which resembles both a formal and an efficient causality.
>
> The phantasm is the concrete result of the constructive or reconstructive operation of the imagination, an operation which is performed, in the imagination itself, according to the laws of that faculty, but under the influence of the agent intellect.
>
> From this necessary and unconscious meeting of the agent intellect and the phantasm . . . derives a dynamic determination in the intellect which corresponds to the qualitative structure of the phantasm. . . . That is the second stage of the operation of the agent intellect.
>
> The new determination (species intelligibilis impressa) affects the intellect in its "immaterial potency," that is, as possible intellect. The proximate conditions of intellection, which is an act of the possible intellect informed by the species, are now realized.[1]

It is possible to shed further light upon this mysterious connection between intellect and imagination by considering what the modern philosophers after Kant call a "scheme." A scheme is the law according to which we construct an image. Thus the scheme of a circle is, "Make a straight line revolve around one of its ends." A scheme stands midway between the intellect and the senses. It has an intellectual component because it is a law. It has a sense component because the figure which results from the application of that law is a singular, concrete figure, this imagined or perceived circle Combining both intellectual and sense components, the scheme bridges the gap between the intellect and the imagination.

Nobody will deny that we possess such schemes for the construction of geometric figures. Do we have anything similar for the ordinary images of everyday life, for a tree or a house or a dog? Undoubtedly, although these schemes do not have the uniformity and the clearness of geometric schemes. Everyone is capable of imagining, if not of drawing, a sketchy outline of these concrete

[1] *Le Point de Départ de la Métaphysique. Cahier* V, pp. 213-214.

objects. That outline or image is constructed according to a vaguely conscious law which is its scheme.

In the above examples we passed from the concept to the image by means of a scheme; the intellect consciously directed the imagination in the formation of the image. In the first acquisition of a new concept the process is reversed. A certain number of sense data deriving from the object are combined to form an image, a phantasm, of the object. This requires a unification of spatial elements, since knowledge is essentially unification. This unification is performed by the imagination under the unconscious guidance of the agent intellect, and from this active co-operation with the imagination, the agent intellect gains an "intellectual impression" of the object, which becomes an "intellectual expression" of that object in the possible intellect.

CHAPTER 15

NATURE AND FUNCTIONING OF OUR INTELLECTUAL KNOWLEDGE[1]

The Species as a Dynamic Relation

The *species impressa*, or "intellectual impression," is not some kind of intellectual image, it is not an ethereal copy of the phantasm. It can never be known without a reference to the phantasm. It may be compared with the beam of light issuing from a movie projector. This beam alone will never produce a picture on the screen. There will be a picture only if the beam of light passes through the film. The phantasm functions in somewhat the way the film does: the species is comparable to the beam of light carrying an invisible picture. As the picture becomes visible only when the beam of light, having passed through the film, hits the screen, so the *species* becomes conscious, is transformed into an idea, only when in actual contact with the phantasm it is actively impressed upon the possible intellect. This explains why we can become aware of our ideas only by turning to the corresponding phantasm.

The *species* is a relation. A relation involves two terms which are referred one to the other. In the present instance one of these terms is the phantasm. What is the other term? To what is the phantasm referred by means of the *species*? Let us come back to our comparison. The *species* has been compared to the beam of light coming from a movie projector, in which the film represents the phantasm. The

[1] The following pages represent an attempt to introduce the student into the heart of the mystery of intellectual knowledge. They are rather difficult, and not as essential as the previous chapter. Therefore they may be omitted in an elementary course.

beam of light derives from a source of light, a powerful bulb, and connects that source of light with the film. What corresponds to that source of light in our intellectual knowledge? We answer—and we shall demonstrate this later—that it is the unity of Being. Therefore in our every act of knowledge the unity of Being is referred to the diversity of the phantasm by means of the *species*, just as the source of light is connected with the film by means of the beam of light.

The *species* is a dynamic relation through which the multiplicity of the data of the senses (as represented in the phantasm) is connected with the unity of Being. It is "dynamic" because it specifies an activity, our thinking activity. Our intellect thinks, but it must think a definite, specified content. The specification of our thinking is effected by the *species*.

The Understanding and the Intellect

The *species* is the specification of the activity of my intelligence. When I consider my intelligence, carrying a *species*, in its connection with the lower term of the relation, the multiplicity of the senses, I call it the Understanding. When I consider my intelligence, carrying the *species*, in its connection with the higher term of the relation, the unity of Being, I call it the Intellect.[1] Both Understanding and Intellect are aspects of the self-same human intelligence. Intelligence is the cognitive faculty of the human soul. But the human soul is both the substantial form of a material body and a spirit in matter. When we consider our intelligence as the cognitive faculty of the substantial form of a material body, we speak of the Understanding. When we consider it as the cognitive faculty of a spirit in matter, we speak of the Intellect.[2]

[1] This problem is beset with serious terminological difficulties. St. Thomas called the lower aspect of our intelligence *ratio* (reason) and its higher aspect *intellectus*. The moderns use respectively "understanding" and "reason." Hence "reason" means the lower aspect for the Scholastics and the higher aspect for the moderns. Therefore we shall avoid the term "reason" altogether, and we shall call the lower aspect "Understanding" with the moderns, and the higher aspect "Intellect" with St. Thomas. In that specialized meaning we shall always write Intellect with a capital I. Intellect with a lower case *i* is used as a synonym of intelligence. Cfr. *S. Theol.*, I, 58, 3, c.; 79, 8, c.; *Ver.*, 15, 1, c.

[2] We have mentioned a similar distinction in the empirical study of human intelligence. Cfr. p. 169. What we called there "human intelligence" as opposed to "animal intelligence" corresponds to the Understanding.

The understanding always works in intimate connection with the senses. It is a faculty which organizes sense experience, as Kant would have it. It resembles, although on a higher scale, the "intelligence" of animals; it can be measured by intelligence tests; it develops with age and education; it differs from one individual to another. Since it is so intimately connected with the phantasm, the senses and the brain, we can expect an increase of knowledge about that faculty from the new Science of Cybernetics, which studies the functioning of calculating machines and of "electronic brains."

The material object of the Understanding is any material reality, anything which affects our senses. Its formal object is the quiddity, the "whatness" of these beings.

The Intellect, on the other hand, although it needs the collaboration of the senses, transcends the domain of the senses and can reach supra-sensory reality. It is capable of complete self-reflection. It resembles, although on a lower scale, the intellect of the angels. It cannot be studied experimentally; it does not grow with age; it is the same in all human beings. In it we find the habitual knowledge of the first principles. By means of our Intellect we know things as they are in themselves; for, as things appear to the Intellect, so they are in themselves. The point of view of the Intellect is not relative, but absolute, because it is the point of view of a spirit, of the spirit.[1] The object of metaphysics is "being as being." The meaning of that expression "being as being" becomes clear when we realize that it means "being as known by our Intellect."

The material object of the Intellect is any being, whether material or immaterial. Hence that object is coextensive with the whole of reality. The formal object of the Intellect is truth or intelligibility. That means that the Intellect can know any being whatsoever inasmuch as it is true or intelligible.

We must always bear in mind that Understanding and Intellect are not two distinct faculties but two aspects of the same faculty, the intelligence. Taking the terms "material" and "formal" in a wide and analogical sense, we might say that the Understanding is the material, the Intellect the formal, aspect of our intelligence. That implies that our Understanding can never operate without the "in-

[1] ". . . notre esprit juge en tant qu'esprit du point de vue de l'esprit tout court."—A. Marc, S. J., *Psychologie Réflexive* (Brussels, L'Edition Universelle, 1949), Vol. I, p. 195.

spiration" of the Intellect, and that the Intellect requires, in its every activity, some collaboration of the Understanding.

When speaking of the object of human intelligence, Scholastic textbooks distinguish not only a material and a formal aspect, but also a proportionate and an adequate object. The proportionate object of human intelligence corresponds to the object of the Understanding. It is anything which affects our senses (material object), inasmuch as it possesses a quiddity or a nature (formal object). The adequate object of human intelligence corresponds to the object of the Intellect. It is any reality whatsoever (material object), inasmuch as it is true or intelligible (formal object).

Universal Ideas, the Center of Human Knowledge

Many people wonder why Scholastic philosophy insists so much upon the existence and the objective value of universal ideas. The reason may now become apparent. Universal ideas[1] are the center of human knowledge. The seat of universal ideas is the Understanding. Inasmuch as the Understanding collaborates intimately with the senses, universal ideas put us into contact with outside reality, with the material world, and ultimately with prime matter. Inasmuch as the Understanding is "animated" or "informed" by the Intellect, universal ideas put us in contact with the unity of Being, with the Pure Act.[2] Whenever we have a universal idea we embrace, unconsciously but really, the whole extent of reality, from prime matter to Pure Act. In every one of our universal ideas the whole of metaphysics is implicitly contained. When studying metaphysics we do not, as in the study of the Sciences, discover new knowledge which we in no way had before. We make explicit and conscious a knowledge which was with us from the moment we got our first universal idea.

This is denied by all nominalists. For them we have first intellectual knowledge of single individual beings. When we have acquired sufficient knowledge of that kind, we set out upon the discovery of metaphysics. But this would be a perfectly hopeless undertaking. Kant has demonstrated that the knowledge of material and finite reality, as conceived by the nominalists, will never yield the knowl-

[1] More precisely: *affirmed* universal ideas.

[2] This will be demonstrated in the following paragraphs.

edge of immaterial beings and of the Infinite Being. What we must carefully defend against all onslaughts of nominalism, empiricism and agnosticism is the real value of our universal ideas.

We may show this in a slightly different way. Let us consider a certain number of universal ideas: house, man, dog, tree, bridge. If we try to discover what these concepts have in common, we discover that they all refer to *something* which affects our senses. That is precisely the material object of our Understanding. Notice how this object connects the multiplicity of the material world (which affects our senses) with the unity of being (something, a being). We might put it schematically as follows:

Something, a being	Object of the Intellect
which affects our senses	Object of the senses
Something which affects our senses	Object of the Understanding

Knowledge of the Universal and of the Singular

In our everyday knowledge, what we know first is a singular, individual, concrete object. But such an object is known by the whole man, intelligence and senses combined. Intelligence alone knows only the intelligible features of the object, its substantial form. The substantial form is the same in all individuals of the same species. Therefore to know only the substantial form of an object is to know only that which the object has in common with all other individuals of the same species. That which distinguishes one individual from another is its relation to quantified matter. But an immaterial faculty such as human intelligence cannot directly know quantified matter. Therefore it does not know that which distinguishes one individual from another. But in our ordinary knowledge we always use intelligence and senses together. Intelligence gives us the universal intelligible features of the object; the senses apply and restrict these features to a particular individual.

Does our intelligence, by means of its ideas, penetrate the essence of material objects? In a certain sense, yes. But not in the sense that it knows at once the constitutive law and the essential properties of that object. Such knowledge is acquired gradually, by everyday experience and scientific investigation. What our intelligence knows at once about the object is its quiddity. In knowing this quiddity our faculty proceeds from the most fundamental and general features to

the more specialized ones. Thus with regard to a new object we find out first that it is "something" (a being, a substance); next we may discover that it is living, sentient.

With regard to most objects our quidditative knowledge remains very vague and must be supplemented by data from the senses, which are not properly intelligible. Thus the common starling may be defined as "a bird with black plumage, in parts iridescent and in parts spotted with buff." Of this lengthy definition only the word *bird* is "intelligible" without direct reference to the senses, inasmuch as it means "a living, sentient substance." The remainder of the definition refers directly to sense knowledge.

Universal ideas are not reached by a process of comparison and elimination. Some people believe that, in order to reach the universal idea, say, of "starling," we must first know a few birds of that species. We should then compare them with each other, eliminate their individual features and keep only the common ones, and thus slowly arrive at the universal idea of starling.

That is the scientific procedure of the ornithologist; it is not the natural procedure of our intelligence. The first contact of our intelligence with any new object yields a universal idea. It may and will generally be a rather imperfect one, but it is a universal idea. Suppose I have never seen a starling. I notice one for the first time, dimly, in a fog, and I say, "something black." That is a universal idea. It is very imperfect, and it applies to many more things than starlings. Experience will help me refine it and complete it, but it was a universal idea from the very beginning. A child, having seen his first cow, may describe it as follows, "Something with horns and a long tail, and it gives milk." Here again we have all the essential features of a universal idea, because we have "something which affects our senses."

Analogical Knowledge of Immaterial Realities

We have referred several times to the connection of our intelligence with the supreme unity of Being. We said that the species is a dynamic relation connecting the multiplicity of the senses with the supreme unity of Being; we have affirmed that our universal ideas put us implicitly in contact with the Pure Act. This requires further explanation.

It is evident at once that in our ideas the multiplicity of the senses

is connected with the unity of being. Every universal idea refers to "something which affects our senses." That which affects our senses is thus connected with "something," that is with "a being."

But that being is always a quantitative being, and therefore the unity of being to which the multiplicity of our senses is referred seems to be unity of quantitative being. That is the position of Kant and of all Agnostics. They claim that the unity to which all our knowledge is referred is the unity of quantitative being and that our intelligence cannot reach above that unity, is therefore unable to reach immaterial realities, such as the soul or God. We admit that the highest unity of our Understanding, that is of our intelligence considered in its direct collaboration with the senses, is the unity of quantitative being.

But we maintain that the highest unity of our Intellect extends far above and beyond quantitative being, all the way to the supreme unity of Being, of God Himself. In other words, our human intelligence inasmuch as it is a spiritual faculty, refers every object it knows to God Himself.

In this connection St. Thomas makes an important distinction between that which our concepts *represent* and that which they *mean*, between their element of *representation* and their element of *signification*.[1] Our concepts can represent only material beings, but they can mean immaterial objects.

To represent signifies: to picture by means of intelligible notes. *To mean* signifies: to intend, to point towards, to affirm. When we distinguish between "that which is represented" and "that which is meant" we claim that the object which we intend, which we want to affirm, is not necessarily the same as the object we picture before our mind.

Thus when we say, "this is a tree," that which is represented is the abstract, universal nature of tree, while that which is meant is a singular, individual tree.

But it is especially in our concepts of immaterial objects that the difference between the element of representation and the element of signification is striking. Thus when we have the concept of soul, we observe in our consciousness a picture, a phantasm of a material reality. That which is represented in our concept refers to this picture. It may be a vague picture of some subtle fluid permeating our whole body, of some ethereal double of our body, but it is the

[1] Cfr. *S. Theol.*, I, 13, 2, c.

picture of a material reality. Yet, even while using it, we are aware that this material representation is not correct, that it does not exactly correspond to what the soul really is. We know that the soul is immaterial, even while we picture it before our mind by means of a material image. We mean, we intend something different from that which we represent, from that which we picture before our mind.

But if the representation is so inadequate, why do we use it at all? Because we are not pure spirits, because we need a phantasm and a representation for every one of our thoughts, and because this picture of the soul is partially correct. We pictured the soul as something which subtly permeates our whole body. In fact our soul does permeate our whole body, it "informs," it "animates" the body. The picture is partially true. But the soul does not permeate the body in the manner of a fluid, however subtle. The picture is partially false.

That is the meaning of analogical knowledge. In the analogical knowledge of an immaterial reality, we use a material representation. Our representation is partially true and partially false, and what we mean implies affirmation, negation and supereminence. We really mean that the soul permeates the whole body (affirmation), not, however, in the manner of a fluid (negation), but in a more perfect immaterial way (supereminence).

It is in the same way that we know God. God is known to us not directly but through His effects. Between God's effects and God Himself there is a relation. However, the concepts expressing these effects and God, their cause, cannot be univocal, they cannot apply to God and His creatures with the same meaning. These concepts are not equivocal either, their meaning is not entirely different. They are analogous, they apply to God and His creatures partly with the same meaning and partly with a different meaning.

Thus we can say of God that He is a being, that He is not a being, and that He is a super-being. In a certain sense these three statements are true, and they exemplify again the three steps in our knowledge of immaterial realities: affirmation, negation and supereminence. When we know God we have in our mind the representation of a being: God is a being. But that representation comes from a phantasm; it is the representation of a material being, and therefore it does not really apply to God: God is not a being. Yet we must use

a representation if we are to know God at all, but we must correct and transcend that representation: God is a super-being.

That which is represented in our concept of God is a material reality, that which is meant transcends all material reality. Our representation of God falls far short of the mark, but that which we mean is really the Infinite Being.

The proportionate object of our intelligence, the object of our Understanding, comprises that which we can represent and mean. The adequate object of our intelligence, the object of our Intellect, reaches farther and comprises also certain realities which we cannot represent but which we can mean.

Our *Intelligence* a *Dynamic Faculty*

We have seen that the analogical knowledge of God supposes in our mind a representation of God which we must correct. But how can we correct that representation unless we have some other representation of God which is correct? Any correction which we make in the representation by means of which we know God seems to presuppose an exact knowledge of God.

This is a serious difficulty against the theory of analogy, and one which cannot be solved if our intelligence is a static faculty, a window opened upon the world of intelligible reality, a camera passively undergoing the imprint of that reality.

But our intelligence is a dynamic faculty—that is, a faculty which strives actively towards its object, towards knowledge, truth, intelligibility. We are aware of that striving in every one of our intellectual operations. That striving is not an elicited but a natural appetite; that is, an appetite which is not preceded by knowledge.[1] Every act of knowledge is a passage from potency to act, a real move-

[1] A strong objection may be raised against the dynamic or striving nature of our intelligence. Striving, so goes the objection, belongs to the appetite, not to knowledge. This is quite true for all elicited appetite. But all objects in nature possess a natural appetite, and this applies also to our intelligence. To be more exact we should say that it is not the intelligence, but man himself who strives towards knowledge, with elicited appetite by means of his will, with natural appetite by means of his intelligence. Inasmuch as man is a being endowed with an immaterial intelligence, he strives naturally, unconsciously, towards the possession of all truth. "The true is something good, inasmuch as the intellect is a given reality, and truth is its end" (*S. Theol.*, I, 82, 3, ad 1).

ment. But every real movement has an end. What is the end of the movement of our intelligence?

Not the knowledge of this or that particular being, or any collection of particular beings. Such knowledge satisfies the craving of our intelligence for awhile, but very soon that faculty resumes its quest. These objects are an intermediate end, not the ultimate end of our intelligence. The striving of our intelligence goes beyond them both extensively and intensively. Extensively because we want to know many more beings. Intensively because we want to know in a more perfect manner the beings which we do know. These beings do not explain themselves, they are not perfectly intelligible of themselves, and our intelligence wants to explain them, wants to make them perfectly intelligible. No finite object, no accumulation, be it ever so comprehensive, of finite objects, satiates the appetite of our intelligence. In the presence of any kind or collection of finite objects our intelligence continues to search, to inquire, to ask questions and seek explanations. It follows that all these objects are only intermediate ends of our intelligence, and that, even while knowing them, that faculty strives beyond them towards some ultimate satiating end.

What is that ultimate end of our intellectual quest? If we examine this appetite of our intelligence, we shall note that any limited object does not satisfy it, *precisely because it is limited.* It is *limitation as such* which keeps our intelligence from ever finding perfect rest in any of its objects. But if limitation as such keeps our intelligence striving always further, only the Unlimited can perfectly satisfy it. The very fact that our intelligence, although it can represent only limited realities, is always conscious of their limitation, demonstrates that it is impelled by an urge going beyond these limits. For a limit can be known as limit only by one who actually or potentially, in fact or in aspiration, goes beyond that limit.

It follows that the deepest appetite of our intelligence carries it beyond any limit of space and time, beyond any finiteness whatsoever, towards the Infinite Being. And this is precisely the way in which we know God. Not by means of an ordinary concept (although such a concept is a prerequisite), but as the end towards which, in every single act of knowledge, our intelligence keeps striving.

We inquired above how it is possible for us, in our analogical knowledge of God, to correct the representation which we have of

Him, since such a correction seems to presuppose a correct knowledge of God.

> Here we touch with the finger the most delicate point in analogical knowledge. We can, in a very real sense, compare God with the creatures without knowing God directly in Himself. For let us suppose that a definite relationship connects the creatures to God, and that this relation as such is known to us in its lower term; then, knowing the lower term as *relative*, we should have by this very fact and to the same extent, some notion of the higher term, somewhat as, when we see an arrow leaving the bow, we have an indication of the position of the target in the very direction which the arrow takes. And this is in fact what happens to us: we know creatures as *relative* to an absolute Principle, as *contingent*, and in that way—and only in that way—do we know God.[1]

How do we know creatures as relative, as contingent? Not by means of concepts—relativity and contingency do not belong to the intelligible notes of any creature, they are not a part of their definition—but through the very striving of our intelligence. We want to know these objects; therefore they are an end of our intellectual activity. But once we know them, we are not satisfied, we want to go beyond them. Therefore they are not the ultimate, but only an intermediate, end of our intellectual striving. Therefore the very activity by which we know these objects implies that they are intermediate ends, hence relative and contingent. Every time we know an object, we affirm implicitly that it is for us a means of reaching God. But every means is referred by him who uses it to the end which he intends. Therefore, in every act of knowledge we implicitly refer the object of that act to the Infinite Being, to God.[2]

Thus we have demonstrated the statements made a few pages earlier: that the *species* is a dynamic relation connecting the multiplicity of the senses with the supreme unity of Being, that our universal ideas put us implicitly in contact with the Pure Act.

The demonstration of God's existence consists precisely in making explicit what we "exercise" implicitly in every act of knowledge; it expresses in concepts what we affirm through the very activity of our

[1] Maréchal, *Le Point de Départ de la Métaphysique*, V, p. 258. (Our translation.)

[2] "All knowing beings know God implicitly in every object they know. For as nothing is desirable but through some resemblance with the first goodness, so nothing is knowable but through some resemblance with the first truth" (Ver., 22, 2, ad 1).

mind. The hinge of every such demonstration is the principle of metaphysical causality, which states that every being which is not self-existent depends on the Self-Existent Being; or the principle of sufficient reason, which affirms that whatever is not intelligible in itself is intelligible only because of its relation to that which is intelligible in itself. Both these principles are "exercised" in every one of our judgments; we affirm them implicitly every time we think.

Knowledge of Metaphysical Principles

We can demonstrate the same thing in the following way. Whenever we know an object, we affirm, implicitly or explicitly, that "This object *is*." Such an affirmation is absolutely true only of God. Strictly speaking, only God *is*. In all other judgments of that kind the predicate is too wide for the subject. Our affirmation is true only if we add implicitly to the subject a "complement of being," which consists precisely in its total dependence on God. Our statement really means: This object, inasmuch as it depends on God, is. Therefore in every affirmation we affirm implicitly not only the existence of God but also the principle of metaphysical causality and the dependence of the object of our affirmation on the Infinite Being.

Such is precisely the way in which the *habitus primorum principiorum*, the habitual knowledge of the first principles, operates in us. We can briefly indicate how the other first principles are exercised in the same way. It is immediately evident that the first principle in its positive form, "Whatever is, is," and in its negative form, as principle of contradiction, "A being cannot exist and not exist at the same time," is implicitly affirmed in every judgment.

Furthermore, when we know an object intellectually, we affirm implicitly that it is *true*, since our intelligence uses it as a means towards its end, which is truth. We affirm implicitly the *goodness* of that object, since we strive towards it as an object of our intellect and a possible object of our will. We affirm that it is *composed of act and potency*, because it is an end of our intelligence, but not a satiating end.

If the object of our knowledge is a material object, we affirm implicitly that it is *composed of a substantial form and prime matter*, that is, of an intelligible and an unintelligible element. The concept of such a being involves a necessary and intrinsic relation to a

phantasm, that is, to sense knowledge, to something which is, from its very nature, impervious to the intellect. This implies that the essence of that being, as expressed in its concept, contains an unintelligible element. This element is prime matter. Prime matter is that component of a material being's essence which is and always will remain unintelligible for a human intelligence.

Therefore when our intelligence knows an object, it "exercises" the whole of metaphysics in that knowledge, it invests that object with all the metaphysical attributes. This conception of metaphysics undermines the whole negative, agnostic part of Kant's *Critique*. Kant believed that we reached metaphysical principles and concepts only after first acquiring ordinary concepts of material beings. For him these ordinary concepts, can be formed without any intervention of metaphysical principles. Once we have a certain number of such concepts, we use them as a starting point in our attempts to reach solid metaphysical knowledge. Kant has no trouble showing that such an attempt is futile, and that the knowledge of material beings as he conceives it can never yield any real knowledge of immaterial realities.

In line with the thought of St. Thomas, we claim that metaphysical principles and concepts are "exercised" in every one of our judgments. There can be no object in the intellect except one invested with the whole of metaphysics. The affirmation of metaphysics is a condition of the very possibility of any object in our mind.

Judgment and Affirmation

In the foregoing paragraphs we have constantly spoken of the species, the concept and the idea; we have not mentioned the judgment. We must now recall the statement made earlier in this book (p. 144), that every concept presupposes a judgment, since it originates in a judgment. Often what would seem to be a mere concept is actually a simple judgment. For example, while you are walking with your bird-fancier friend he points to a bird and says, "A bobolink." Never before having heard the name of such a creature, you have now acquired a new concept, the concept of "bobolink," which has come to you in the implicit judgment you have made: "This is a bobolink."

Wherever, therefore, in the foregoing paragraphs we have spoken

of a concept or an idea, we meant "a concept in a judgment" or "an affirmed idea." That the judgment is the central point of our intellectual life becomes evident as soon as we consider the dynamic nature of our intelligence. We have emphasized the dynamism, the movement, the activity, the striving of our intelligence. But a concept as such is a static representation. It is evident, then, that the concept cannot be the foundation of our intellectual life, that the foundation must consist in some activity. The judgment, the affirmation, is such an activity.

We should remember that there is no consciousness of the object in our intelligence until we have a *species expressa*, an "intellectual expression." When the agent intellect, having abstracted the "impression" from the phantasm, imprints it on the possible intellect, all the conditions are set for the act of knowledge, but there is still no real knowledge. The possible intellect must now express this impression, utter it to itself, produce a conscious intellectual picture of the object, affirm its "adequation" to exterior reality. That is the "expression," the *species expressa*, and it is always a judgment involving an affirmation. Of the object known in the "expression" our intelligence always affirms that it is, or at least that it is possible. Every object of knowledge, it should be remembered, is referred to the Absolute End of our intelligence, and such a reference involves an affirmation of reality, of actual or possible existence.[1]

Man is a spirit, albeit in matter. A spirit knows through intuition; that is, through direct contact with the object, without the mediation of mental pictures or representations. This intuition is absolutely perfect in God, the Infinite Spirit, who knows every reality by knowing Himself. It is less perfect in the angel, pure spirit but finite, who finds in his own intellect all that is needed for knowledge but must receive this infused knowledge from God.

In man, finite spirit in matter, intuition becomes so imperfect that it is no longer intuition in the strict sense of the term. Only the first principles of all knowledge are directly received by man from

[1] St. Thomas sometimes speaks as if the intellect could produce simple concepts without a previous judgment. When he speaks technically, however, he affirms that even the knowledge of simple concepts can be called true or false, that is, involves some judgment . . . "Although the non-complex itself, or even a definition, is not in itself true or false, nevertheless the intellect that apprehends 'what a thing is' is said to be always true in itself—although it may be accidentally false" (*S. c. G.*, I, 59).

God. But of themselves they yield no knowledge, since they are only potentially conscious and need the intervention of an object derived through the senses in order to become conscious.

Yet there is in the human intellect an element which corresponds, in its own way, at its own degree, to the intuition of the pure spirits. It is intuition in the wider sense of the word, intuition not of the object of knowledge but of *the very activity by which man affirms the object of his knowledge*. When he affirms an object, he is aware of the fact that he affirms it. That awareness requires no concept, no species whatsoever; it is direct and intuitive. And since the object of his knowledge is always the object of an affirmation, that object itself falls indirectly under this intuition. Therefore in man affirmation is the substitute for the intuition of pure spirits.[1]

We can show this in another way: "The human mind is a faculty in quest of its intuition; that is to say, of assimilation with Being."[2] The mind is in search of an object which will fill it to capacity. That capacity is infinite, and only the Infinite Being can fill it. The mind strives towards some reality which will entirely equate its formal object. Its formal object is truth or intelligibility as such, and only the perfect Truth will completely exhaust it. The mind is constantly impelled to seek an object which it can affirm without any restriction, about which it can say: "This being *is*." Only God can be affirmed in that way; concerning all other beings our intellect must say: "This being is *this* or *that*." Therefore our intelligence cannot reach the intuition which will fully satisfy it during this life; it constantly strives towards this goal by means of countless partial affirmations.[3]

By way of conclusion to this long chapter on human intelligence, we reprint a passage from Fr. Maréchal which summarizes what we have been explaining in the last few paragraphs:

> The human intelligence is not merely a mirror passively reflecting the objects which pass within its field, but an activity directed in its deepest manifestations towards a well-defined term, the only term

[1] J. Defever, S. J., *La Preuve Réelle de Dieu* (Brussels, L'Edition Universelle, 1953), pp. 20-25.

[2] Maréchal, *Studies in the Psychology of the Mystics*, p. 101.

[3] This does not imply that man has an appetite for the intuitive vision of God, but only that he is capable of being raised to the divine vision by the grace of God. Cp. J. Maréchal, S. J., "De Naturali Perfectae Beatitudinis Desiderio," in *Mélanges Joseph Maréchal*, I, pp. 323-337.

which can completely absorb it—Absolute Being, Absolute Truth and Goodness. The Absolute has set its mark on the basic tendency of our intelligence; moreover, this tendency constantly surpasses the particular acts of the intellect; the mind is driven by its internal dynamism from intellection to intellection, from object to object; but so long as it gravitates in the sphere of the finite, it attempts in vain to liken itself to its internal movement, to rest in the fullness of its act, to affirm *being*, by identity, purely and integrally. And this unevenness of levels of operation, this disproportion between the anticipatory tendency and the actual object, is the very condition of the *act of reasoning*, the stimulant of that ever-unsatisfied "curiosity" in which the old Scholastics saw the principle of all speculation. . . .

The affirmation of reality . . . is nothing else than the expression of the fundamental tendency of the mind to unification in and with the Absolute; this affirmation would only have its full objective value by becoming a direct intuition of the Absolute; it keeps, however, a diminished and analogous value in its application to every object which sets the activity of the mind going and allows itself to be co-ordinated with the totality of objects already affirmed; objects are real in the manner and to the extent to which they converge towards the total unity of the mind, or rather, objects are unreal only in the manner and to the extent to which they diverge from it.[1]

READINGS

St. Thomas Aquinas, *Summa Theologica*, I, Q. 79, a. 1, 2, 3, 4; Q. 84, a. 1, 2, 3, 6, 7, 8; Q. 85, a. 1, 2, 3, 5; Q. 86, a. 1. Maréchal, *Le Point de Départ de la Métaphysique*, Cahier V, pp. 185-233, 248-259, 296-355. Marc, *Psychologie Réflexive*, Vol. I, pp. 165-375. Klubertanz, *The Philosophy of Human Nature*, pp. 158-204. Renard, *The Philosophy of Man*, pp. 116-151. Brennan, *Thomistic Psychology*, pp. 169-209. Bittle, *The Whole Man*, pp. 273-351. Gilson, *The Philosophy of St. Thomas Aquinas*, pp. 233-259, and *The Spirit of Mediaeval Philosophy*, pp. 229-268. Rahner, *Geist in Welt*, pp. 35-296. Wild, *Introduction to Realistic Philosophy*, pp. 441-467.

[1] *Ibid.*, p. 100.

CHAPTER 16

The Human Will

THAT man possesses some tendencies is denied by nobody. The existence of sense appetite, of the many drives by which man strives towards pleasure and away from pain, is strongly emphasized by modern psychologists. But quite a number of them deny that man has a rational appetite, a *will*, essentially different from and superior to the sense drives. Others admit the existence of the will but deny its *freedom*. Therefore, in this chapter, we must first demonstrate the existence of the will, next the freedom of the will. Although we shall treat these two problems separately, it should be noted that the existence of the will is really demonstrated only when we have established that man's highest tendency is free.

EXISTENCE AND NATURE OF THE WILL

The existence of the will can be demonstrated philosophically and confirmed by data derived from everyday experience.

The philosophical demonstration is rather simple. It rests on the supposition that we have demonstrated the existence in man of some knowledge which is essentially different from and superior to sense knowledge, of a cognitive faculty which is immaterial and only extrinsically dependent on matter.

Now it is generally admitted, and it follows from the very nature of appetite as previously explained, that the nature of the appetitive faculties corresponds to the nature of the cognitive faculties. There-

fore, if man possesses an immaterial cognitive faculty, he must also possess an immaterial appetitive faculty.

The opponents of the concept of the will do not deny this general principle; they reject the existence of the intellect as we conceive it. But since we have demonstrated the existence of an immaterial intellect, we are justified in concluding that there is in man an immaterial tendency, not intrinsically dependent on matter, which we call the will.

An empirical confirmation of this philosophical argument is derived from everyday experience. Every act of real self-control is an implicit manifestation of the will. In such an act we are conscious of the fact that some tendency in us is held in check by a higher tendency. That higher tendency is the will.

Against this argument the following objection may be raised. Animals also exercise self-control. Thus a hungry but well-trained dog will not take the meat he sees on the table.

This, however, is not real self-control. The sight of the meat has aroused in the dog two conflicting tendencies; hunger and fear. The fear is a product of his experience. On a previous occasion his grabbing the meat has been followed by some very disagreeable sensations. The memory of these painful sensations is now associated with the perception of "meat-on-the-table." If the fear is stronger than the hunger, the animal will not take the meat. If hunger exercises the stronger influence, he will take it, although the struggle between the two tendencies may be apparent in the furtive way in which he snatches his loot.

It must be granted that in some men apparent self-control can be explained in the same way. When a dishonest man keeps his hands off a well-filled wallet because he is afraid of the police, his behavior resembles that of the hungry dog. But there are plenty of cases in which man checks his lower tendencies for purely intellectual or moral reasons, not in order to avoid physical pain or to win some pleasure.

The Freudians have a deterministic explanation even for these cases. They say that man's Super-ego explains such instances of self-control. For them the Super-ego is a product of instinctive tendencies and social pressure and involves no will or real freedom of choice. We shall see that there are cases in which man's apparently moral conduct can be explained in terms of the Super-ego understood in

that sense. But the morality which rests on the Super-ego is a pseudo-morality, an instinctive morality differing essentially from rational morality. The Freudian interpretation may explain some, it does not explain all, instances of self-control. We shall come back to this problem in a later chapter.

Another empirical confirmation of the existence of the will derives from the fact that we sometimes will an object which is repugnant to our body and our sense tendencies; for instance, when we swallow a bitter medicine, or submit to a painful operation or perform a disagreeable duty. In all these cases we are not attracted by a material, sensible good but by some good presented by our intelligence.

We can also use the phenomenon of voluntary attention as a confirmation of the existence of a rational appetite in us. Voluntary attention is distinct from spontaneous attention. Spontaneous attention is present in animals; it is the concentration of the senses or of the mind on some object which appeals to one of the lower drives. In voluntary attention we concentrate our senses and our mind on some object which does not appeal to our sense tendencies. We concentrate because we want to concentrate, and we want to concentrate because our intelligence tells us that it is good for us to concentrate. Compare the attention you pay to an interesting moving-picture with that given to a dull but important textbook.

The object of the will is the same as that of the intellect, but considered from another point of view. This means that the material object of the will coincides with that of the intellect, but that their formal objects differ. The material object of the will is being, any being presented by the intellect. The formal object of the will is goodness in general, the good as such. Whatever the will wills is willed because it is good.

If the will were ever confronted with an object which embodied its formal object completely, with the "good as such," it would necessarily embrace that object. God is the good as such, and if the will should ever meet Him as He is, it would necessarily adhere to Him. But on this earth we have no adequate idea of God, and therefore this hypothetical circumstance is never realized.

Yet in its deepest nature, if we consider its "natural" striving as contrasted with its elicited volitions, the will unconsciously and

naturally strives towards the Infinite Good which is God. This general, unconscious, necessary striving towards God must be translated into specific, conscious, free volitions. These volitions may advance in the direction of God or they may deviate from that direction (sin). But even when deviating from the Supreme Good, they take their impetus from His attraction, while the specification of that impetus comes from a particular good presented by the intellect.

The possession by the will of the good as such constitutes happiness. Objectively, therefore, man's happiness consists in the possession of God, and he strives towards that possession in every one of his volitions. But man may freely decide that his happiness consists in the possession of some finite good, and in that circumstance, there will be a cleavage between the natural and the elicited striving of his will, between his fundamental general willing and his superficial specified volitions.

The will may strive towards a material or an immaterial good, a physical or a moral good, a real or apparent good. A physical good is an object which is good for man as a being in the material universe. A moral good is that which is good for man as a free being. When the will strives towards an apparent good, it strives towards something which is objectively evil but appears to be good. It is evil for man's spiritual nature, but it attracts one of his sensory drives and the will yields to that attraction. In such instances the will strives towards something which is evil, but not inasmuch as it is evil. Evil as such cannot be the object of the will because it is not a real being, but only the privation of some perfection which an object should possess.

The will strives towards some good which is presented by the intellect. The will itself does not know the good, it is not a cognitive faculty. Every one of its elicited acts must be preceded by an intellectual cognition. The relation of the will to the intellect is analogous to the relation between the engine and the steering wheel of a car. Movement in general comes from the engine, but the direction of the movement derives from the action of the wheel.

As the intellect knows not only itself but also all other faculties and their objects, so the will wills not only itself but also all other faculties and their objects. As the intellect knows that it knows, the rational appetite wills its own willing. It can move itself, it can command itself to will.

The will can also will that the other faculties perform their actions, it can command them to act. It commands the intellect to think, the memory to remember, the eye to see and the leg to move. The will can command the eye to see, but what the eye sees depends on the object presented to it. The exercise of vision depends on the will, but its *specification* comes from the object. Indirectly the will can also influence the specification of the other faculties.

We should always remember that it is not really the will which wills, but man, the person, who wills by means of his rational appetite.

FREEDOM OF THE WILL

In the paragraphs which follow we shall explain what we mean by the freedom of the will, consider the position of the determinists, and demonstrate the freedom of the will.

The Meaning of Freedom

Freedom in general means the absence of restraint. There are different kinds of restraint and of freedom. Physical freedom is the absence of physical restraint. When a prisoner is released from prison, he is physically free, since he is no longer restrained by the prison walls. Moral freedom is the absence of moral restraint, of an obligation, of a law. Thus in this country we are morally free to criticize the Government.

Psychological freedom is the absence of psychological restraint. Psychological restraint consists in drives which force a subject to perform certain actions or make it impossible for him to perform them. Thus a hungry, untrained animal is forced by its hunger to eat the food which is set before it, a scared rabbit cannot help running away. These animals are not forced into their actions by any external power or moral obligation; they are forced to act by the compelling influence of their own drives, they possess no psychological freedom. A hungry man, on the contrary, can refrain from taking food, and a soldier frightened by a heavy bombardment can stay at his post. Men possess psychological freedom.

Psychological freedom is also called freedom of choice, since it allows the free subject to choose between different courses of action.

It has been defined as that attribute of the will whereby it can act or not act (freedom of exercise), can act in this way or in that way (freedom of specification).

The Meaning and Kinds of Determinism

Many modern philosophers and psychologists deny the freedom of the will. They are called "determinists" and their system is known as "determinism." They claim that in spite of some contrary appearances, man is forced or "determined" in all his actions.

All materialists and sensists are necessarily determinists. For them man is a purely material being. But matter is perfectly determined and possesses no freedom. When we know a material system perfectly, we can foresee and predict all its future activities. Thus an astronomer predicts with great accuracy all future eclipses. The materialists claim that if we knew the material system called "man" perfectly, we should be able to predict all his future activities; we could write his biography on the day of his birth.

Determinism has taken different forms. Biological determinism maintains that physiological factors exert a compelling influence in man's life. We do what we do because of the kind of body we have inherited from our parents, because we are "born that way." The biological determinists emphasize especially the role of the endocrine glands and the genes in determining our conduct.

Psycho-social determinists emphasize a combination of psychological and social factors as explaining human conduct. On the psychological side they point to the different drives and tendencies which impel the individual; on the social side, the continual pressure of the environment—words, customs, fashions, propaganda, but most of all education, in particular education during the first few years of life.

The psychological determinists insist upon the compulsive influence of the motives presented to our minds, asserting that when two motives are opposed to each other, the stronger will necessarily prevail. In this view the will is like a scale; the balance is not undetermined but necessarily tips towards the heavier weight. Thus our will necessarily chooses the greater good and follows the stronger motive.

Theological determinism holds that our life is irresistibly directed by God. We may be under the impression that we are free, but that

impression is false, since our actions are determined by the Divine Will. This kind of determinism often takes the form of a vague fatalism—"It is so written." All pantheists are determinists, since they deny freedom in God Himself and claim that everything—in God, in the universe and in the individual—is but the blind necessary development of the one all-pervading divinity.

We shall see later that there is a grain of truth in some forms of determinism. But as they stand, these deterministic theories are false. We shall show this by demonstrating that the human will is free.

Demonstration of the Freedom of the Will

We shall consider five arguments, which may be called: (1) the argument from common consent, (2) the psychological argument, (3) the ethical argument, (4) the philosophical argument, and (5) the metaphysical argument.

1. *The Argument from Common Consent.* The great majority of men believe that their will is free. This conviction is of the utmost practical importance for the whole of human life. Therefore, if there is order in the world, the majority of mankind cannot be wrong in this belief. Hence the will is free.

The great majority of men believe that their will is free. The judgment of common sense is that there is freedom of the will. The man on the street is sure that he is free and that his neighbor is free. Only among the sophisticated does determinism find acceptance.

It must be admitted that the majority of mankind have in the past accepted certain things as facts which later investigation proved to be untrue. Thus for centuries it was universally believed that the sun revolved around the earth. But this kind of fact has no practical bearing on human life, and the universality of such a mistaken notion involved no disorder in human nature itself. However, the question whether or not we are free, masters of our own destiny and responsible for our actions, is of the greatest practical importance, and to suppose that the majority of mankind had for centuries erred in holding this belief would not be compatible with the concept of an ordered universe.

This argument has no value for those who deny order in the

universe. For them there is nothing absurd in the idea that most people should be convinced of something false, even if that erroneous opinion has an essential bearing on the conduct of their lives. But for all who admit that the world must make sense this argument is very strong.

It could be objected that in scientific and philosophical matters we should follow those who have studied the question, even if they constitute only a minority, rather than acquiesce blindly in the opinions of the ignorant majority. And the proponents of determinism are precisely those who have arrived at their deterministic conclusions after studying the question.

To this objection we give three answers: (1) If all those who studied the question theoretically arrived at deterministic conclusions, we should indeed have to follow them. But even among philosophers and scientists competent in the field there are a great number, probably a majority, who uphold the freedom of the will. (2) It can often be shown that the deterministic conclusions are a result of unconscious or vaguely conscious prejudices. Because the freedom of the will has such important consequences in practical life, many people do not approach it in an unprejudiced way, and that partly explains why there are so many determinists. They see the strength of the deterministic arguments because unconsciously they want to see it. However, it would be unfair to conclude that all or even most determinists are in bad faith. (3) As we shall show in the next argument, even those who are determinists in the theoretical sphere act in the practical sphere as if they admitted the freedom of the will, especially in others.

2. *The Psychological Argument.* This argument is intimately connected with the previous one. It explains why most people naturally admit that their will is free. It points to the fact that we are aware of making free decisions and performing free actions.

We do not claim, as do some authors, that we are conscious of our free acts as free acts at the moment of their execution. For while we are performing the act and after it has been performed, it could be asserted that it had to be performed, that no other choice was possible. And before the act occurred it existed only potentially, and we could not be aware of it.

It is indirectly that we are aware of the freedom of our actions.

We deliberate before taking a decision, we weigh the reasons for and against it, we regret some of our past decisions, and this implies that we should, and by inference could, have acted differently. We admire, praise and reward virtuous and heroic actions and manifest in our attitude the implicit belief that the person who performed these feats was not forced to do so. If the pilot who volunteered for a highly dangerous mission were no more free to accept or refuse that mission than his bombs were free to explode or not to explode when they struck the target, there would be no reason for admiring and praising him. We react with spontaneous indignation in face of certain crimes, a reaction quite distinct from the shock and horror we feel in face of some natural calamity, inasmuch as the indignation is charged with our instinctive conviction that the criminal was not forced to commit his crime and could have refrained from it.

In most countries the administration of justice is firmly based upon this belief in the freedom of human actions. Most courts try to find out the degree of deliberation and of freedom with which the crime was committed. The punishment is generally proportioned to the degree of freedom.

This psychological conviction of freedom is so strong that even theoretical determinists act on it if they do not watch themselves. Determinists deliberate, they praise virtue and heroism, they regret some of their past decisions, they take a moral view of the actions of others—e.g., they are morally indignant when they have been swindled.

However, if you point out these inconsistencies, they explain them away. "We admire and praise a hero just as we admire and praise a heavy-weight champion or a winning race horse. Our admiration for the horse does not imply that it is free. Why should our admiration for the hero imply that belief?" It is true that we admire and praise performances which involve no freedom—for instance, those of a race horse, or a great champion, or an opera star. But that kind of admiration differs from the admiration which we have for virtuous or heroic actions. Great performances in sport or in art involve the overcoming of physical difficulties. Great performances in the sphere of morality generally do not involve the overcoming of physical difficulties; from the physical point of view anyone would be able to perform them. The difficulties are psychological, internal to the

subject, and freely overcome by him. Here admiration implies a belief in freedom.

"We want a criminal to be punished, not because we believe that he could have refrained from committing his crime, but because the punishment will be a motive which will 'determine' other potential criminals not to commit similar crimes." That is not the first spontaneous reaction of the determinist when he has been insulted or cheated. Punishment may have that purpose but it involves more than that, a real belief in freedom.

"We have the impression of freedom because we are not aware of the motives which determine us. These motives are unconscious." This is the Freudian form of determinism. We shall take it up later in our study of the Unconscious; the following will suffice for our present purpose: Such a decision, which would force itself upon the mind without the mind being aware of the motives prompting it, is not a free choice but a "compulsion." When a person cannot help doing something and does not know why he wants to do it, he is not free, he is suffering from a compulsion; he is abnormal. But our ordinary decisions do not take that pathological form.

3. *The Ethical Argument.* If there is no freedom, there is no real responsibility, no virtue, no merit, no moral obligation, no duty, no morality. The necessary connection between freedom and these concepts is demonstrated in Ethics. This argument is very strong for all those who accept the existence of a moral order. But it has no value for those who reject the idea of real morality.

The strength of this argument is confirmed by the fact that Kant, who claimed that theoretical reason cannot demonstrate the existence of freedom, nevertheless was convinced that man is free, and derived his conviction from the existence of duty, which he considered to be immediately evident to the practical reason.

4. *The Philosophical Argument.* The two following arguments together constitute the strongest demonstration of the freedom of the will. Both of them, however, presuppose a certain knowledge of philosophical principles, and this narrows the audience to which they can be effectively presented.

We can present the philosophical argument schematically in the following way.

a. Man wills a thing necessarily, as soon as he has made the judgment, "This is good for me."

The will is a blind faculty, directed by the intellect. It strives towards the good, and anything which is presented as good attracts it necessarily. If there is an object about which man is forced to judge, "This is good for me," he loses his freedom in relation to that object. Are there any objects concerning which man is forced to say, "This is good for me"? When is man forced to make such a judgment?

b. Man decides necessarily that a thing is good for him when it conforms to his standard of goodness.

The person judges the goodness of things according to a certain standard, a norm, a rule. When an object fulfills perfectly all the requirements of that standard, it is necessarily called good. If man's standard of goodness were pleasure, everything pleasurable would have to be judged good for him and his will would necessarily embrace it. But pleasure is the standard of sense appetite, not of the human will.

c. Man's standard of goodness is "goodness as such."

This has been demonstrated above, where we showed that the formal object of the will is the good as such. We repeat the argument succinctly. The will is guided by the intellect. The intellect knows being as such, desires truth as such. The object of the will must have the same extension as that of the intellect which guides it. Therefore, the good as such must be the object of the will, and goodness as such must be the standard according to which man judges the objects of his will.

d. No object on earth attains to man's standard of goodness.

On earth we never meet the good as such. Many things are good, but all created things have their defects, their dark sides—at least, in the most perfect of them there is some limitation. Even God, as we know Him on earth, does not appear to us to be the good as such, since if we choose God, we must give up certain forbidden pleasures which satisfy some of our drives. Therefore on this earth no object attains to our standard of goodness.

e. Hence there is not a single object on earth with regard to which we are forced to decide, "This is good for me." Therefore there is not a single object in relation to which we are not free.

In other words: We are free to will or not to will, because we can always say: "This is good but not perfectly good."

We can say, "This is good but not perfectly good" because we can compare every good presented to us with the perfect good.

We can compare every good presented to us with the perfect good because our intellect provides us with the idea of the perfect good.

Our intellect provides us with the idea of the perfect good because it is immaterial.

It follows that our freedom is ultimately based on the immateriality of our will and our intellect. We are free because we are spirits.

5. *The Metaphysical Argument.* This argument is based on two metaphysical principles, which we shall not demonstrate here.

First, for each degree of knowledge there is a corresponding degree of appetite. Therefore in man, to sense knowledge corresponds sense appetite, and to intellectual knowledge corresponds intellectual appetite. Intellectual knowledge is immaterial and knows both immaterial and material objects. Therefore the intellectual appetite is immaterial, and it will strive towards immaterial and material objects as presented by the intellect.

Second, an immaterial appetite is necessarily free. Necessity, in the sense of compulsion and determinism, proceeds from materiality. Where matter is absent and the spirit prevails, there is no such necessity. It follows that our immaterial appetite, our will, is free.

MECHANISM OF A FREE DECISION

In every free decision we may distinguish several steps. Although actually the decision matures so quickly that we are hardly aware of these steps, they must be present if the decision is to be really free.

First Step. The first step consists in the attraction exercised by some good either on the will or on some other drive. Thus, while you are writing a term-paper, the idea comes up in your mind that it would be nice to see the picture at the neighborhood theater. You are immediately attracted by that pleasure.

Such an attraction is natural and unavoidable. Our sense appetite is necessarily attracted by any pleasure presented to it by the senses. Our will also is attracted, because, from the point of view of the

senses, this pleasure is a real good. No freedom is involved in this step, and therefore no responsibility, no possible guilt. A temptation is precisely such an attraction exerted on the will by some moral evil presented as a pleasure.

Second Step. The second step consists in considering and examining the attractive good. Besides its desirable aspect it shows other features which are not so desirable. It is agreeable to go to the movies, but it is disagreeable to go to class tomorrow without that term-paper and to receive a poor grade for the course.

Because there are good sides to the object, we are attracted. Because there are bad sides to the same object, we are not forced, we remain free. As we concentrate on the good sides, we feel more and more attracted. As we emphasize the bad sides, we feel more and more free to resist that attraction. If our mind were so entirely occupied by the goodness of the object that there was no room for any other considerations, we should not be free. In that case the object would appear to be simply good, perfectly good. Before the perfect good, which is its necessitating object, the will is not free. It is only by comparison with other goods, and ultimately with our standard of goodness, that the deficiencies of the object become apparent. Therefore this second step is essential in any free decision.

Sometimes such a comparison becomes impossible. Thus in hypnosis, in psychosis, in severe neurosis, when the mind does not function normally, a person may be unable to see the dark sides of the object: he is "fascinated" by it; there is no room in his mind for anything but its allurements.

This may also occur in more normal circumstances; for instance, when the sense appetite or the emotions are so strongly aroused that the object occupies the whole mind and excludes any other content. In such cases of extreme emotional disturbance the mind sees only the good sides of the object, it is unable to advert to its deficiencies. This may happen in intoxication, drug addiction, great sexual excitement, extreme fear or anger. In such cases freedom may be strongly curtailed, with a corresponding decrease of responsibility and of eventual guilt, or it may be entirely abolished.

Since these states are connected with strong physiological disturbances, there is some truth in the doctrine of biological determinism. Some bodily conditions interfere with the exercise of freedom. Some cases of unbalance of the endocrine glands, of pathological heredity,

result in frequent physiological upheavals which, if they do not entirely eliminate freedom, at least considerably decrease it. But these are pathological conditions. In the normal individual such extreme circumstances do not usually occur, and it is one of his duties to see to it that they do not occur. He is obliged to avoid the occasions which may put his body into such a state of turmoil that he can no longer exercise real freedom.

Third Step. The third step consists in deliberation, in which the reasons for and against a course of action are examined by the intellect. This step may take a long time or it may be instantaneous.

Movie or term paper? We weigh the pros and the cons. Our mind when thus engaged is like scales; the weights are the advantages of either course of action. The side on which the heaviest weights pile up will finally go down and stay down, and our will necessarily follows it.

But how do these diverse considerations arise in the mind? If they arise independently of the will, under the influence of circumstances, environment, the laws of association, without any possibility on our part of influencing them, then we are merely witnesses of the struggle between the motives, and whatever may be the outcome of that struggle, we must join the winning side. Such is the position of the psychological determinists, who claim that the will always accepts the objectively strongest motive.

But that position is untenable, as is evident from experience. We can influence that struggle which the motives wage in our mind; we can strengthen the force of some motives by concentrating our attention on them; we can weaken others by turning our attention away from them. Circumstances, environment, the laws of association, our present state of body and mind do influence the presentation of the motives. But we can always intervene and support one side against the other. The side to which we lend our support will finally prove the stronger and will determine the issue.

Here again, in the process of our deliberation, neurosis, strong emotions, a violent passion may have a disturbing influence. They render a cool, accurate appraisal very difficult, they make it hard for us to concentrate our attention. All these influences may decrease, or even in extreme cases abolish, human freedom.

Psychological determinism holds that the will always follows the strongest motive. This position can be maintained only if we add

that in normal circumstances that motive will be the strongest which we *make* the strongest. It is untenable if we interpret it as meaning that the strength of the motives is determined independently of our intervention.

Fourth Step. Sooner or later we decide, "This is good for me now." We overlook the bad features of the object, we concentrate our attention on its attractiveness. Once that decision has been reached, the will must follow it and embrace the object presented by the intellect.

This decision is not the result of a purely intellectual process nor of the objective state of affairs, nor of social pressure, nor of our past education. All these factors *influence* our decision, they do not *determine* it. It is the product of our own personal intervention, of a factor which comes from the very depths of our personality. It is a free decision.

Everything in this material universe is determined by and in its causes. The only exception to this rule is the freedom of the human will in its decisions. In and through them we share, in an analogous and very lowly way, something of God's own creative power.

CHAPTER 17

FURTHER ELUCIDATION OF MAN'S FREE DECISIONS

The Practical Syllogism of the Will

The mechanism of a free decision can be explained in another way, which will allow us to shed more light on this essential feature of man's nature. When a person makes a free decision, he uses what has been called "the practical syllogism of the will." It can be presented as follows:

That which is good must be willed.

But this action or object is good for me now.

Therefore this action or object must be willed.

This syllogism is not explicitly used by the subject, but it can be read into his deliberation. It contains not the usual three, but four terms, since the middle term is not the same in the major and in the minor premise. In the major "that which is good" refers to the good as such, to that which is absolutely good, for only the good as such must be absolutely willed by the rational appetite. The minor, on the other hand, refers to "that which is good for me now." Therefore the syllogism is incorrect, and it cannot force the assent of the intellect, unless "that which is good for me now" be in some way equated with "that which is good."

The intellect of itself cannot equate these two terms, but in a free choice the intellect under the influence of the will is capable of equating them. Voluntary attention, which is an activity of the intellect influenced by the will, overlooks the finite and defective aspects of the object, makes it appear to the intellect as good without

restriction. By a *fiat* of the will "that which is good for me now" has become just "that which is good." Now the practical syllogism is correct, the conclusion follows, the decision is reached.

Although man can freely decide that a finite object is perfectly good, he does not reach such a decision without reason. Free choice does not mean arbitrariness. The reasons which make him reach such a decision are summarized in the words, *for me now*, which point to the dispositions of the subject.

St. Thomas often emphasizes the principle, "As a person is, so things appear to him." Some of the dispositions which influence the subjective goodness of objects are stable or permanent (*for me*), others are of a more transitory nature (*now*).

The transitory dispositions are all those which temporarily affect the subject at the moment of his choice. Such are his state of health, his mood, the weather, the present environment. In some people these transitory dispositions have a greater impact upon their choices than the more permanent factors. They are fickle, their lives lack unity, the general direction of their choices changes from day to day.

The more permanent dispositions which influence a man's decisions are indicated by the words, *for me*. What a person is because of his inherited dispositions and has become as a result of his education, his environment, his own personal experiences and efforts, the influence of God's grace upon him, makes some things appear good and others not good for him. His whole past life has a share in his free decisions. A person who leads a moral life comes to decide with increasing ease and spontaneity that those objects or actions are good for him which happen also to be morally good in themselves, whereas an individual who yields again and again to his animal nature reaches a state in which he experiences a constantly increasing facility in considering as good for himself whatever suits his passions and his lower drives. This pressure of the past on a man's free decisions never amounts to compulsion, but it is very real and it increases as time goes on. "Man shapes his own being daily by the exercise of his freedom, but yesterday's freedom lies heavy on today's, and the latter already casts its shadow over tomorrow's."[1]

[1] J. Mouroux, *The Meaning of Man* (New York, Sheed & Ward, 1948), p. 157.

The Dominant Inclination

This influence of the past on free decisions has been called a "dominant inclination."[1] It is an inclination because it inclines or pushes the will towards certain kinds of objects. It is not a determining inclination because the will can always resist it,[2] but it is a dominant inclination because its influence tends to prevail more and more in the process of man's decisions. It is a habit of the will which impels some men to the moral good and makes it more difficult for them to fall away from their moral ideal. It impels other men towards moral evil and makes it more difficult for them to lead a virtuous life.

> Motor habits, spiritual habits, physical automatisms, feelings and inclinations, voluntary choices—all become organized little by little around the end pursued. This organization, which spreads and becomes stabilized, subjects the man in the end to a dominant inclination. Not to any necessity or any determinism in the strict sense of the term, because the adhesion to the end can always be reversed. It is none the less an habitual inclination which tends spontaneously to canalize our choices; for all that accords with the habitual end attracts attention, awakens desire, promises pleasure, seduces the will, and seems to call out to be chosen. . . . This inclination is strengthened by every convergent element, the torrent is swollen by every trickle that comes from the hill-side, and the man ends by entering into a state defined by his concrete dominant inclination.[3]

From all this it would seem to follow that both the man who lives a moral life and becomes increasingly subject to a dominant inclination towards virtue, and the man who follows the lead of his lower drives and becomes increasingly subject to a dominant inclination towards sin, see their freedom gradually decline as the pressure of the inclination which holds sway in their lives mounts. Only the man who wavers between good and evil, trying to lead a moral life but frequently straying from the right path through weakness, would keep the full unhampered use of his freedom.

[1] *Ibid.*, p. 156.

[2] "The infinite amplitude of the will can never be ontologically suppressed, the possibility of recovery is always real, and even if a man bears on him for the time being all the marks of enslavement, the only determinism that holds him is one that has been *willed and constructed*, and is therefore capable of being *refused and destroyed*." *Ibid.*, p. 157.

[3] *Ibid.*, p. 156.

This strange conclusion is true in a certain sense if we take freedom to mean only the power of choosing indifferently between moral good and evil. But this very conclusion makes it clear that such cannot be the real meaning of human freedom. Experience confirms this view. The main if not the only field in which human freedom is exercised is that of moral endeavor. Now we observe that individuals who have been supremely successful in that endeavor become in practice more and more unable to choose evil when good and evil alternatives are presented to them.[1] In the Saints such a choice is practically eliminated, yet the Saints are supremely free. Therefore real freedom cannot consist essentially in the power of choosing between good and evil.

Free-will and Liberty

> Freedom presents two problems which might be called, in Augustinian terms, the problem of free-will and the problem of liberty. The first is a problem of mechanism, and it concerns the power of choosing, essential to every spiritual creature, making him master of his own acts, of his own objects, of his own judgments. The second is a problem of meaning or purpose, and it concerns the power of self-realization which characterizes the person, and enables him to respond to his vocation and to achieve his destiny. The two problems are implied in each other as a partial problem and a total, as a problem of structure and a problem of dynamism, as a problem of the means and a problem of the end. For free-will is a means to liberty and the power of choosing is there to serve a power of self-achievement.[2]

According to this conception free-will, or the power of choosing between opposite values, is not an end in itself, it is only a means. The end is the acquisition of perfect liberty. That liberty consists essentially in this: that the elicited, conscious acts of our will shall coincide more and more with the natural, unconscious striving of the same faculty. The natural, unconscious striving of our will is necessarily directed toward the Absolute Good, which is God. Whenever we use our free-will in the right way, freely choosing that which is morally good and rejecting that which is morally evil, our elicited, conscious activity coincides with that fundamental craving of our will.

[1] We do not say they are completely unable to choose. As long as man lives, he is capable of falling away from the good unless, by a very special privilege, he has been "confirmed in grace" by God.

[2] Mouroux, *op. cit.*, p. 143.

The more often we repeat such actions, the greater will be the tendency for that which is morally good to appear also to be "good for me now." Our dominant inclination is leading us to the real good; what we want to do is exactly what we should do. Our liberty is growing, whereas our power of choosing, our free-will, is becoming gradually a factor of less importance. All normal human beings are free in the sense that they possess the power of choosing. All human beings must become free in the sense of acquiring perfect liberty. The main purpose of education, psychotherapy, ascetical effort—in fact, of all attempts at self-improvement—should be the acquisition of this perfect liberty by means of a prudent use of free-will.[1]

The Three Kinds of Free Acts

A dominant inclination is not determinant. Powerful as its influence may be upon all of a person's actions, it can never force him to follow its lead. Furthermore, the inclination itself, having been freely willed and constructed, can at any time be freely resisted and destroyed.

Therefore we may distinguish three kinds of free acts. The first is exercised in the direction of the dominant inclination, it carries into detail the plan of life which a man has slowly come to accept. As the inclination grows, such actions become gradually easier, so as to seem instinctive and automatic. They remain free actions nevertheless, for the inclination itself has been freely constructed and is freely maintained.

The second kind of free actions go counter to the dominant inclination. For instance, people who ordinarily follow the lead of their animal drives or their egoism occasionally perform acts of charity, kindliness or generosity, while others whose effort is ordinarily directed towards the good sometimes deviate from their ideal. Such deviations from the main trend of one's life indicate that the personality has not yet been perfectly unified around a dominant ideal.

The third kind of free actions are the most important. More than merely deviating from the dominant inclination, they break with it, they cut the personality free from it and give a new orientation to an individual's whole life.

[1] Read the remarkable description which Mouroux gives of the "captive liberty" of the sinner (p. 168) and of the spiritual liberty of the Christian (p. 186).

> . . . these are acts that put the end itself in question, which touch the roots of liberty, the whole trend of a life, the spiritual being of the person. These are acts of conversion, whether involving a total break —on the plane of willing—with the past, or a decisive deepening, a radical purification or perversion, carried out in accordance with the habitual inclination but through an option that puts a whole destiny in question. Such acts are creative. They constitute the most splendid proof of the abiding liberty of man; and from that standpoint the apostate is as good an example as the convert. Such acts are always possible since the essential core of the will remains inviolate, and its infinite capacity will never be satisfied with the finite. They are difficult, because they demand a total resumption of the self. . . . They are rare, because no one can repeatedly make a clean sweep of the whole orientation and mechanism of his life, the equilibrium and play of his powers . . . But such acts are the deepest expression of a personality, they are acts of the person as such, that is to say self-constructive. Whenever they appear, they initiate or resolve a crisis of growth or collapse in the history of the man, and mark him for time and eternity.[1]

The Concrete Condition of Human Freedom

The freedom we have studied thus far is the freedom of man considered theoretically, in the hypothetical state of "pure nature." But man as he is now, in the present world-order, does not live in the state of pure nature. Man is fallen and redeemed. Philosophy as such cannot establish the historical reality of this fact, but philosophers can and do observe that there is a disorder in man's nature.

The will, guided by the intellect, should lead all other drives, and this subordination of sense to reason should be easy and natural. But experience teaches us that the sense drives do not readily respond to the command of the will. They strive towards their pleasure without regard for due order; they continue their importunities even after the will has exercised its choice; they press their solicitations on the rational appetite and frequently subvert it to their own ends.

Therefore experience and philosophy combined teach us that there is some disorder in man. Theology explains this disorder as a result of Original Sin. Before the Fall each of man's drives strove towards satisfaction, but it would obey will and reason without the necessity for struggle. Before the Fall man possessed perfect liberty. The Fall

[1] Mouroux, *op. cit.*, pp. 158-159.

has weakened this liberty, and he must now strengthen and develop it by dint of personal effort.

It is a dogma of the Catholic Faith that it is impossible for any man to avoid serious moral disorder (mortal sin) for any length of time without special assistance from God (grace). Translated into psychological terms, this means that man cannot control his lower drives for any length of time without special help from God. Man is free, and in every individual "temptation" he is capable of rejecting or accepting the allurement offered by his drives. But in practice he will yield sooner or later to their importunities unless he receives special assistance from God. This special assistance is usually granted only in response to prayer. Hence practically, in order to be really free, man must pray. He cannot develop fully even on the natural level without supernatural assistance. There is no perfect liberty without prayer. Man owes it to himself to acquire that perfect liberty; therefore he owes it to himself to pray.

Interaction between Intellect and Will

The mechanism of a free decision as explained above in the practical syllogism of the will raises a serious difficulty. The minor premise of that syllogism becomes acceptable to our intelligence only through the influence of the will. An act of the will is required to make us admit that "this object or action is unreservedly good." But we know that the will is a blind faculty which acts only under the guidance of intelligence. The will cannot force our intelligence to admit the minor premise of the practical syllogism unless its movement is guided by some judgment such as, "It is good to force the intelligence to accept the minor premise." But this judgment is not self-evident, and therefore the intellect can pronounce it only under some influence from the will. And so on, indefinitely; we are obviously in a vicious circle.

The way out of this difficulty is to remember that our intelligence does not know, nor does the will, will; but we know and will through these faculties. The difficulty arises from an exaggerated objectification of the faculties. Intellect and will are not substances but accidents. It is not really the intelligence that leads the will and the will that influences the intelligence, but I myself, as knowing, lead myself as willing; and I, as willing, influence myself as knowing. In an

act of free choice it is the whole person, in his most intimate originality and spontaneity, who expresses himself. There is something deeply mysterious in every free decision. A finite spirit in matter is necessarily, in some respects, a mystery to itself.

There is another kind of influence of the will upon the intellect which has great practical consequences. Every intelligent student of the Scholastic system has wondered at some time why the main truths presented in that system are rejected by so many philosophers. These truths seem obvious to us, and they are supported by strong arguments. Yet many good minds are impervious to the arguments and reject the doctrines. They adhere to other philosophical systems which, to their minds, follow logically from self-evident principles. Thus philosophy presents the bewildering spectacle of many conflicting systems, each of which is defended as the only logical expression of the truth.

The ultimate reason for this state of affairs is the fact that in all matters which vitally involve man's major interests, his will, his tendencies, his habits and attitudes exert an influence on his intellect of which he is unconscious.

Consider a concrete situation. This man has been brought up in a materialistic environment and considers man to be a product of blind evolution, a complicated mechanical system differing from other material beings only in degree of complexity. His whole outlook on life—his way of regarding others, his habits and attitudes—is derived from this basic conception. If such a man were to be convinced of the truth of our system, he would have to revolutionize his whole way not only of thinking but also of living. Is it surprising, then, that our arguments meet greater resistance in his mind than would be met by a geometrical demonstration or a scientific theory?

Add to this the fact that philosophical truths are reached by a difficult process of reasoning. In philosophy the demonstrations proceed through a series of affirmations linked by reasoning. At every link difficulties may occur to the mind, and the affective resistance lurking in man will make the most of these difficulties in order to put him off the right path.

All this involves no bad faith. The factors making for bias have developed in the individual's mind without his knowledge or consent, under the impact of his education, environment, the spirit of the time.

In some other cases, however, bad faith is involved. The individual may use "rationalization"—that is, in a vaguely conscious way deceive himself as to the real foundation for his intellectual convictions. Consider a concrete example. A young man has been brought up as a Catholic and has received a thorough Catholic education, including a course in philosophy. He has a fair grasp of the Christian conception of man, finds it satisfactory and appreciates the strength of its arguments. After leaving college, however, he falls into serious moral disorder and begins to live habitually in mortal sin. His conscience bothers him, and he seeks a means of escaping its painful reproaches. Only two means are available: give up his sin or stifle his conscience. If he does not have the courage to follow the former course, he will be tempted more and more to adopt the latter. He will not clearly announce to himself that he is going to smother his conscience, but he will begin to see all kinds of intellectual difficulties against his Christian conception of man. Arguments which once seemed strong begin to lose their hold on his mind, and objections which he used to brush aside take on ominous proportions. He may struggle for a while, but finally he arrives at a stage where he gives up his former ideas and embraces one of the current philosophies which reject the very notion of moral responsibility and hence of sin. On the surface this young man may believe that he has arrived at his deterministic convictions through a purely intellectual process of reflection. Yet deep within himself he knows that he has adopted his new philosophy because he wanted to adopt it, and that he wanted to adopt it because it would provide him with a valid excuse for the kind of life he is living. This young man is in bad faith, and he is aware of it and responsible for it. The most frightening feature of this development is that this awareness of bad faith may slowly become unconscious and disappear; only the responsibility stays with him throughout life.

All this goes to show that our conception of man and of life is based on some fundamental option which depends primarily on our will.

> One will be a theist or a pantheist, a materialist or a spiritualist, because the will has imposed its choice; and the will imposes its choice because the doctrine in question is in accord with the kind of love it has already chosen. In reality we understand the things we love, and them only. The condition for arriving at the whole truth

consists not so much in the natural excellence of the apprehensive faculties as in the rectitude of the will, which decides to love according to that which is, and not to judge that which is according to a previous option dictated by love.[1]

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[1] P. Scheuer, S. J., Unpublished Notes. This should not be construed as a profession of irrationalism. Human intelligence is naturally capable of discovering the truth. But in this investigation of the truth it is frequently hampered by moral obstacles. Cp. what St. Thomas says about "knowledge by connaturality": v.g. *S. Theol.*, IIa IIae, Q. 45, a. 2.

CHAPTER 18

The Human Soul

The Soul Is the Substantial Form of Man

In the first part of this book, we established that every living being is constituted of prime matter and a vital principle. Man is a living being, and therefore he is constituted of prime matter and a vital principle.

Man's vital principle is his soul. Can we say that man's prime matter is his body? No, because that would imply that the body is a body independent from the vital principle, that the body is a complete substance in itself—in other words, that man is constituted of two complete substances, his body and his soul.

That is the error of exaggerated vitalism which we refuted earlier. It is an error which has been held, and is still held, by many philosophers and scientists under the name of psycho-physical parallelism.

According to this theory man is a dual being, a union rather than a unity. Since the body is extended in space and material, and the soul not extended in space and immaterial, there can be no interaction between the two. The apparent interaction is explained by the fact that to each event of the bodily series corresponds an event in the psychic series, and vice versa. The two series are parallel to each other without any real interaction.

We may distinguish two forms of psycho-physical parallelism, the empirical form and the metaphysical form. In the empirical form parallelism is admitted as a scientific hypothesis. All problems are studied and solved "as if" there were parallelism. The question of a possible causal relation between the two series is not considered

because it is not a scientific question. In this form psycho-physical parallelism is unobjectionable. It may be called psycho-physical parallelism as a method, as opposed to parallelism as a doctrine.

As a doctrine psycho-physical parallelism holds (1) that there is a perfect correspondence between the series of psychical and bodily events in man; and (2) that there is no causality nor any kind of interaction between body and soul.

This doctrine may be refuted in various ways:

1. All the difficulties raised in opposition to exaggerated vitalism can also be raised against metaphysical parallelism.

2. It is a theory which leads to impossible conclusions. Most difficulties of the Cartesian system, as evidenced in the works of Descartes' disciples and successors, stem from this hypothesis. (Cfr. what we have said above about Occasionalism, Pre-established Harmony and the Pantheism of Spinoza.)

3. If parallelism is true I cannot say, "I think," or "I fall." Thinking is a psychic event which must be attributed exclusively to the soul; falling is a physical event which must be attributed exclusively to the body. I should therefore say, "My soul thinks, my body falls." Parallelism cannot explain how these two events can be consciously experienced by the one Ego. As for other phenomena like feeling and digestion, in which form and matter co-operate most intimately, their interpretation presents even greater difficulties for psycho-physical parallelism.

It is evident from all this that the soul is the substantial form of man. Between body and soul there is a complementary causality such as exists between a material and a formal cause. Matter and form together constitute one being. In this way we can explain the perfect correspondence which exists between the bodily and the psychic series of events; we understand how the one Ego thinks, feels, digests and falls.

From this doctrine are derived several important conclusions:

1. Man has only one soul. A being cannot have more than one substantial form.

2. Man is a corporeal being like the mineral, a living being like the plant, a sentient being like the animal and a rational being through the union of one and the same soul with prime matter. Therefore we say that the human soul is specifically rational and virtually corporeal, vegetative and sentient. The characteristic which

distinguishes the human soul from all others (its specific feature) is its rationality, which is a consequence of its being a spirit in matter. But inasmuch as it is the form of a rational being it can produce, in co-operation with matter, the corporeal, vegetative and sentient activities of man.

3. Strictly speaking, man is not composed of body and soul but of prime matter and soul. Prime matter cannot be perceived by the senses, whereas the body is visible, tangible. The body is a body only because it is informed by the soul. Therefore, when the soul leaves the body, there is no longer a human body. Even everyday language marks the distinction between the presence and absence of life through the specific term "corpse"; for philosophy, a corpse is nothing but a collection of mineral substances.

4. For some operations the soul is intrinsically dependent on matter. This applies to all corporeal, vegetative and sentient operations, which are produced by matter and the soul working together as co-causes. For other operations the soul is only extrinsically dependent on matter. This applies to all intellectual and volitional activities, for which matter is only a necessary condition.

It follows that the corporeal, vegetative and sentient operations are operations of the whole man, and that the vegetative and sentient powers are powers of man as a whole, of the composite of body and soul. On the other hand, the intellectual and the volitional operations, although we must consider them as operations of man as a whole, are performed by the soul alone (with extrinsic dependence on matter). Therefore the intellect and will are faculties of the soul.

5. Soul and matter are not complete substances; they are not accidents; they are substantial principles. Matter cannot exist of itself. The human soul can exist of itself, in a sense which will be explained in one of the following paragraphs.

The Human Soul Is Spiritual

Spiritual means intrinsically independent of matter. A being is spiritual if it does not require matter as a co-cause of its existence or its operations.

But we have demonstrated that the intellectual activities, of which the soul is the fundamental principle, are not intrinsically dependent on matter.

But as a being is, so it acts. Therefore the soul is not intrinsically dependent on matter, it is spiritual.

Although the human soul is spiritual, it is not a pure spirit. A pure spirit (God and the Angels) is independent of matter not only intrinsically but extrinsically.

The Human Soul Is Simple

A being is simple when it has no really distinct parts. Parts may be either essential parts or integral parts. Therefore we distinguish essential simplicity and integral simplicity. The human soul possesses both kinds of simplicity.

Essential parts are parts of the essence, substantial form and prime matter. When we say that the soul possesses essential simplicity we mean that it is not composed of substantial form and prime matter. Any being which is composed of substantial form and prime matter is a strictly material being, but we have demonstrated that the soul is spiritual, that is, strictly immaterial. Therefore the soul is not composed of substantial form and prime matter; it is essentially simple.

Integral parts are extended or quantitative parts, such as the legs, the trunk, the head of our body. Such parts exist only in material beings, for prime matter is the principle of quantity. But we have demonstrated that the soul is not material. Therefore it has no quantitative or integral parts; it is integrally simple.

The Human Soul Is Immortal

Immortal means not subject to death or to destruction, destined to exist forever. We shall consider briefly two arguments, which have a certain value but are not cogent. Then we shall study more intensively an argument which strictly demonstrates our statement.

The *first argument* is taken from the common consent of mankind. Man by nature believes in immortality, as is evidenced by the spontaneous belief in immortality of all peoples, even the most primitive. But if there is order and purpose in the world, such a universal belief cannot be mistaken. (Cfr. what we have said about this kind of argument in the demonstration of the freedom of the will.)

The *second argument* is taken from Ethics. It starts from the

obvious fact that on this earth good people are often unhappy and poor in worldly goods, whereas many wicked people are happy and prosperous. In other words, it is evident that in this life virtue does not always receive its reward nor vice its punishment. But if there is order and purpose in the universe, there should be a perfect sanction for the moral law. This is possible only if there is another life after death, where reward and punishment are meted out to those who deserve them.

This argument will not, of course, convince those who claim that the world and man are products of blind chance. Furthermore, it demonstrates only survival after death, not immortality. The argument cannot demonstrate that the reward or the punishment must last forever.

The *third argument* is strictly philosophical. It demonstrates not only that the soul survives but that it survives forever, that it is really immortal. It considers all the ways in which a being can cease to exist, and it excludes the possibility of any of these ways affecting the human soul.

There are only three ways in which a being can cease to exist, can be destroyed: (1) by decomposition; (2) by loss of essential support; (3) by annihilation.

The human soul cannot be destroyed in either of the first two ways and will not be destroyed in the third way.

The human soul cannot be destroyed by *decomposition*. Decomposition means the resolving of a composite being into its constituent elements. Thus water is destroyed when it is decomposed into oxygen and hydrogen, and a table is destroyed when it is burnt and reduced to ashes and gases.

Only composite or material beings can be decomposed. Since the soul is simple and immaterial it cannot be destroyed by decomposition.

The human soul cannot be destroyed by *loss of essential support*. There is loss of essential support when a being which is intrinsically dependent on matter for its operations and its existence loses the support of that matter. For example, the soul of an animal is intrinsically dependent on matter, on its body. Therefore, although the soul of an animal cannot be decomposed, it can be destroyed when the body of the animal is considerably modified by a wound or a disease.

But we have demonstrated that our soul is not intrinsically depend-

ent on matter for its specific operations. Therefore it cannot be destroyed by loss of essential support.

The third way in which a being can be destroyed is by *annihilation.* Annihilation is the reduction of a being from existence to nonexistence. It is the opposite of creation and, like creation, it can be performed only by God. God could, strictly speaking, reduce our soul to the state of nonexistence by withdrawing His creative influence which holds it in being. But God will never annihilate the human soul.

We have demonstrated that the soul cannot be destroyed by decomposition or by loss of essential support. By its very nature the soul has no potency to non-being.[1] God creates it as a being destined to exist forever. But God's will is immutable. Therefore He does not annihilate a being which he creates as a being destined to exist forever.

In other words, in the divine simplicity creation and conservation are absolutely the same act. As God creates a being, so He keeps it in existence. If He creates a nature which is destined to exist forever, He conserves it as such. To say that God might perhaps annihilate it would mean that we have surreptitiously introduced a time element into the creative action.

Therefore, although the possibility of annihilation cannot be excluded with reference to a finite being as finite, the immortal soul, inasmuch as it is created as such, is not subject to annihilation.

We can also present man's craving for perfect happiness as a persuasive indication that God will not annihilate the human soul.

That craving is natural, inevitable, deeply rooted in man's very nature, implanted therefore by the Maker of that nature. But if this craving comes from God, its realization must be possible. We say possible; it will not necessarily be realized, for God has made man free, the master of his own destiny. It would be contrary to God's wisdom and goodness to put into man a craving whose realization would be impossible.

But man cannot be perfectly happy unless he is immortal. Man has an intellect which conceives the idea of an existence without end. Therefore, if man, whatever his state of felicity, knew that this

[1] To human souls "the necessity of existing belongs according to their very nature, and the possibility of not existing is removed from their nature" (*De Pot.*, Q. 5, a. 3, c).

felicity was to end, he could not be perfectly happy. Hence man's soul is immortal and God will not annihilate it.

How can the human soul continue to exist after death, since it can operate only with the help of the body? It is intrinsically dependent on the body for all vegetative and sense operations, and extrinsically dependent on the body for its intellectual and volitional activities.

It is true that the separated soul is unable to perform vegetative or sense operations. But intellectual and volitional activities remain possible. These activities are activities of the soul, not of the composite of body and soul. The necessity of an extrinsic co-operation with matter results from the soul's union with the body and ceases when this union comes to an end. Therefore the separated soul can perform some rational activities.

During this life the soul does not directly know its own essence, because it is united to a body. When it is separated from the body it knows its own essence, and through it, analogically but in a more perfect way than was possible on this earth, the other spirits—God, the angels and the separated souls. Furthermore it may be directly illuminated by these other spirits and in this way acquire new knowledge.

Even when the soul has been separated from the body, it keeps a transcendental relation to the body. A transcendental relation is one which is constitutive of a being's very nature. It belongs to the essence of the human soul to be a spirit in matter, a spiritual form informing matter. If that transcendental relation did not subsist, man would no longer be man, but a pure spirit.

Therefore the state of separation is not natural for the human soul, and although reason alone cannot give proof of the resurrection of the body, it can show the reasonable convenience of such a resurrection.

The Human Soul Is Directly Created by God

Creation is the production of something out of nothing. We demonstrate that the soul is created by God by excluding all other possibilities.

The soul is either produced from something pre-existing or is not

produced from anything pre-existing, and therefore created. But the soul is not produced from something pre-existing.

That something pre-existing would have to be either a material substance or an immaterial substance. It cannot be a material substance, since the soul is immaterial, and it is obviously impossible to make something immaterial out of a material substance.

Nor can it be an immaterial substance, such as the soul of the parents. An immaterial substance cannot be divided, because it is simple. It is impossible to take a part of it and make that part into a new soul.

Therefore the soul is not made out of something pre-existing. It is made out of nothing, it is created. But God alone can create. Therefore the human soul is directly created by God.

Although the parents do not produce the soul of their child, they produce more than just the body. They can really be said to beget the human being, since they produce a body which demands the infusion of a spiritual soul. Therefore the parents are not only the cause of the body, but also indirectly of the union of body and soul—that is, of the whole human being.

When is the soul created?

We cannot answer that question with certitude. From the very nature of the soul it follows that it cannot be created before the body. For it is essential to the soul to have a transcendental relation to matter. We can understand that this relation may subsist after the soul's separation from the body, but we do not see how it could exist before the soul's union with the body. Therefore the soul is created when it is infused into the body.

When is the soul infused into the body? St. Thomas, after Aristotle, defined the soul as the first (or substantial) act of a physical, *organized* body which has the potency of life. Therefore he held that the human embryo must possess a certain degree of organization before it can become the seat of a rational soul. It should have at least the beginning of a human shape, and the essential organs must be present. St. Thomas admitted, however, that the embryo is alive from the very moment of conception. But this first life is vegetative life, and the first soul is a plant soul. When a certain degree of organization is reached, the vegetative soul is replaced by a sensitive

or animal soul. These two souls are not created but generated, called forth from the potency of matter. Finally, when the organization has progressed sufficiently, God creates and infuses a rational soul. St. Thomas' theory is known as the mediate animation theory.

Most present-day Scholastics reject this theory and hold that the rational soul is infused at the moment of conception. This "immediate animation theory" sprang up in the seventeenth century. The authors who first introduced it did not deny St. Thomas's contention that the embryo must have a certain degree of organization before it can become the seat of a rational soul; but on the basis of defective scientific observations they held that this organization was present from the very beginning of embryonic life. This "preformation" theory, according to which the later organism is already present on a microscopic scale in the earliest embryonic stages, was held for a long time by many scientists. Nowadays it is universally rejected.

Although the scientific reasons which prompted many Scholastics of the seventeenth and eighteenth centuries to reject the mediate animation theory of St. Thomas have lost their value, the great majority of present-day Scholastics continue to hold the immediate animation theory. They see no difficulty in admitting that a rational soul may inform an unorganized embryo, even when it consists of only a few cells.

A few recent Scholastic authors would like to return to the conceptions of St. Thomas. Prominent among them are Cardinal Mercier, one of the founders of Neo-Scholasticism, and Canon de Dorlodot. At the present stage of our knowledge, it seems impossible to decide which theory is true.[1]

[1] The legislation of the Catholic Church seems to favor the immediate animation theory. Canon 747 of the Church Law enjoins that all living embryos, of whatever age, must be baptized unconditionally. And most Catholic moralists consider abortion, at whatever stage of pregnancy it may occur, as the murder of an innocent human being. However, it does not seem to have been the intention of the Ecclesiastical legislator to decide which theory is true, and voluntary abortion remains sinful, although for different reasons, whether the embryo is already a human person or not. Cfr. Rev. E. C. Messenger, *Theology and Evolution*, pp. 259-332. See also M. M. Hudeszek, O. P., "De tempore animationis foetus humani secundum Embryologiam hodiernam," *Angelicum*, 29 (1952), pp. 162-181.

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PART FIVE

Man as a Person

In Section I of this Part human personality will be considered empirically and studied with scientific methods. Section II contains a philosophical study of human personality.

SECTION I

Empirical Study of Man's Personality

CHAPTER 19

Personality and Its Components

Definition and Components of Personality

Personality has been defined in countless ways. For empirical purposes we shall use the definition presented by G. W. Allport, "Personality is the dynamic organization, within the individual, of those psycho-physical systems which determine his unique adjustment to his environment."[1]

It is an *organization* of *systems*, not just a sum-total of traits. The many traits which we can distinguish in a personality are organized in systems, and these systems themselves present a definite organization. That organization is *dynamic*, it changes, it acts upon the environment and is influenced by it. The systems are *psycho-physical*, they have a bodily and a mental aspect. This dynamic organization of systems *determines the adjustment* of the individual to his environment. To survive and prosper everyone must adapt himself to his environment. The way in which he adapts himself is determined or explained[2] by his personality. Every individual adjusts himself in his own typical way, which differs from the adjustment of all other individuals. The subject's personality explains the unique features of this adjustment.

The psycho-physical systems whose dynamic organization constitutes personality are: physique, intelligence, temperament and character. Physique refers to the body, all its organs and functions, its

[1] G. W. Allport, *Personality, A Psychological Interpretation*, p. 48.

[2] Those who object to the word "determine" in Allport's definition may replace it by "explain." Allport is not a determinist.

state of health or sickness, its beauty or deformity. All these features have a great influence upon the way in which an individual adjusts himself to his environment. Intelligence is taken here in the wide sense of modern psychology, as the power of adapting oneself to new circumstances. It includes all the cognitive functions, not only intelligence proper, but also memory, imagination, the external senses. Temperament refers to the individual's "susceptibility to emotional stimulation, his customary strength and speed of response, the quality of his prevailing mood and the fluctuations and intensity of his moods."[1] It includes the kinetic and affective aspects of human personality.

Character can be taken in an ethical or in a psychological sense. Ethically considered, character may be defined as the power of self-control, or the capacity of regulating one's life according to principles. In that sense we speak of character education, we say that some person has a strong or a weak character. The power of self-control or of inhibition belongs properly to the will; character in the ethical sense is synonymous with will-power, as explained in a previous chapter.

In this section we shall consider character only in its psychological meaning.[2] Psychologically considered, character may be defined as the organized totality of the tendencies of an individual. Man possesses many tendencies, which are differently developed in different individuals. In some people the aggressive tendency is so powerful that all other drives are organized around it; these people have an aggressive character. In others two tendencies may compete for leadership, while some individuals show no predominant drive. The total pattern of individual tendencies differs from person to person and explains the kind of character each one possesses.

Man's most important tendency is the will. Sometimes the will is considered as an element of character, sometimes it is not. Therefore it is useful to distinguish two further meanings of character, which we can call primary and secondary character.

Primary character does not include the will. It is the organized totality of man's lower drives. It refers to the way in which these

[1] Allport, *op. cit.*, p. 54.

[2] Allport does not distinguish these two meanings of character. He understands character exclusively in the ethical sense. This explains why he does not mention character as one of the constituent systems of personality.

drives would behave if the person did not hold them in check. When a person is intoxicated, very tired, stirred by a powerful emotion, he may behave very differently from his usual ways. Primary character is man's spontaneous, uncontrolled character.

Secondary character is controlled character. It is the organized totality of all man's tendencies, including his will, and it explains the way in which the person behaves when he has normal control of himself.

In weak-willed people who lack self-control, the difference between these two aspects of character is negligible. On the other hand, in people who have learned to control themselves, there may be a considerable difference between what they would do if they "let themselves go" and what they will actually do. Perfect self-control, as we may find it in the Saints, makes it almost impossible to discern the primary character. In most individuals there are occasions where self-control falters and where the natural play of the spontaneous tendencies has a chance to show itself as it is.

The Four Factors Which Mold Personality

Most textbooks of psychology state that our personality is determined by two factors, heredity and environment, what we receive at birth and what education and other social influences do to us. But even when applied only to empirical personality that statement is false, because it is incomplete. Heredity and environment have a great share in molding personality, but there are two more factors which are equally, if not more, important: the will and God's grace. The way in which a person adapts himself to his environment depends to a great extent on his own free volition. He may consciously and voluntarily inhibit certain drives; he may, to a certain extent, hold in check his emotions, or at least their expression; he may even, within narrow limits, act upon his physique, for instance by dieting. Finally, he is capable of influencing his environment, either by modifying it or at least by moving out of it.

Divine grace also has a great influence upon man's life. That influence primarily affects his spiritual faculties, in the form of light for his intellect and strength for his will. But it extends also to his actions and attitudes, his emotions and drives, even to the unconscious stirrings of his mind.

The relation existing between the four constituent systems and the four molding factors of human personality is graphically represented in Fig. 12.

That diagram requires a certain amount of explanation. The lower part (below the horizontal line) represents the sensory functions; the upper part represents the spiritual functions. The intimate con-

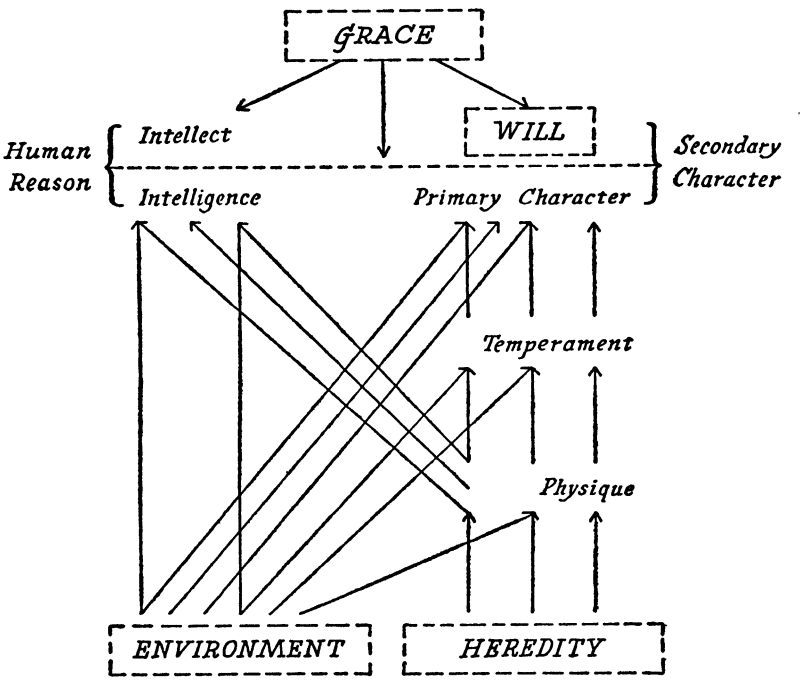


Fig. 12

nection existing between these two levels is manifested essentially in human reason and in secondary character. Human reason combines the intelligence which we share with animals with the Intellect which we share with angels. Secondary character is produced by the interaction of our free will with our primary character, with the organized totality of our lower drives.

Most experimental psychologists are interested only in the lower part of the diagram. Quite a number of them deny even the existence

of the spiritual functions. For them man is but a superior animal. The four constituent elements mentioned in the lower part of the diagram are present in animals, at least in the higher animals. Two dogs may differ from each other not only in physique and intelligence, but also in temperament (one is excitable, the other not) and in character (one is aggressive, the other is shy). In the case of animals such differences are due *entirely* to the influence of heredity and environment.

The constituent systems of personality are printed in small type, the factors which mold personality are printed in capitals and boxed. The influence of each system upon the others and of each factor upon the systems is indicated by the direction and number of the connecting arrows. One arrow means a slight influence, two arrows a considerable influence, three arrows a very great influence. Thus we see that physique depends primarily upon heredity, although the environment too has some influence upon it. A child born of healthy stock will not become physically strong unless he is provided with adequate food. Intelligence depends mainly upon physique and heredity. But here again the environment is important: a talented child will not reach full intellectual development without adequate schooling.

In the following pages we shall study the different psycho-physical systems which constitute empirical personality, with the exclusion of intelligence, which has been considered in a previous chapter.

Sheldon's Classification of Physiques

Sheldon based his study of human physiques on 4,000 photographs of young men of college age. These photographs were all taken from the same distance and the same angles: front, back and profile.

In this large collection of pictures Sheldon looked first for the extreme variants, for those types of body which depart most widely from the average male form. He found only three of them. Their departure from the average is very striking, "they seem to be made of different stuff." For Sheldon these extreme variants represent, in almost pure form, the three COMPONENTS which enter, in different proportions, into the making of every human body. These components are ENDOMORPHY, MESOMORPHY and ECTOMORPHY.

Endomorphy means relative predominance of soft roundness throughout the various regions of the body. When endomorphy is predominant, the digestive viscera are massive and tend relatively to dominate the bodily economy. The digestive viscera are derived principally from the *endodermal* embryonic layer.[1]

In more detail this component is described as follows:

. . . Central concentration of mass. Predominance of abdominal and thoracic volume over the extremities. Predominance of abdomen over thorax. Predominance of proximal segments of limbs over the distal segments[2] . . . High square shoulders with soft contours. Short neck. Head large and . . . almost spherical. Face wide. . . . No muscle relief throughout. . . . Short, tapering limbs . . . comparatively small hands and feet. . . . The skin is soft, smooth, and velvety, resembling the skin of an apple. . . . Massive chest hair is rare in endomorphy. A premature tendency toward baldness is often seen, even in youth. This is a round, even baldness, beginning at the top of the broadly domed head and spreading peripherally in an almost perfect circle, leaving a highly polished surface.[3]

Mesomorphy means relative predominance of muscle, bone and connective tissue. The mesomorphic physique is normally heavy, hard, and rectangular in outline. Bone and muscle are prominent and the skin is made thick by a heavy underlying connective tissue. The entire bodily economy is dominated, relatively, by tissues derived from the *mesodermal embryonic layer.*[4]

In more detail:

. . . Rugged, prominent, massive muscling. Large, prominent bones. . . . The most conspicuous characteristic of arms and legs is the relative prominence and massiveness of the distal segments. . . . The wrist is heavy and massive, as are the hand and fingers. . . . Thoracic volume predominates over abdominal volume . . . The shoulders are broad, . . . the pelvis is sturdy and powerful, with broad hips. . . . The head shows heavy supraorbital ridges, prominent and massive cheek bones, heavy, square jaw. . . . The head strongly suggests the cubical shape. The neck is usually fairly long. . . . The skin is thick and coarse with large conspicuous pores. . . . Because of its thickness and large pores, we have sometimes likened this skin to the skin of an orange. . . . The hair is generally coarse and may be either luxuriant or sparse. . . .

[1] W. H. Sheldon, *The Varieties of Human Physique* (New York, Harper, 1940), p. 5.

[2] The proximal and distal segments of the limbs are respectively those which are nearer or farther away from the trunk.

[3] *Ibid.*, pp. 37-38.

[4] *Ibid.*, p. 5.

Baldness is variable: when it appears, it usually appears first on the front of the head.[1]

Ectomorphy means relative predominance of linearity and fragility. In proportion to his mass, the ectomorph has the greatest surface area and hence relatively the greatest sensory exposure to the outside world. Relative to his mass he also has the largest brain and central nervous system. In a sense, therefore, his bodily economy is relatively dominated by tissues derived from the *ectodermal* embryonic layer.[2]

In more detail:

> Slight, "thready" muscles . . . The general suggestion of decentralization of structure is strong. . . . The thorax is relatively long as compared with the abdomen . . . The shoulders are narrow. . . . Both the arms and the legs tend to be relatively long in the distal segments. . . . Extremely weak thighs and upper arms are constant features of ectomorphy. . . . The neck is long and extremely slender. . . . The head as a whole is slight. The most constant feature of the head is the relatively small facial mass as compared with the cranial mass. The features of the face are uniformly small, sharp, and fragile. . . . The face presents a sharply triangular appearance. . . . Marked occipital projection is common and the result is often an exceptionally long head. . . . The skin is thin and dry. . . . We sometimes speak of ectomorphic skin as resembling the outer skin of an onion. The skin color is typically poor, that is to say, pale and ashy. . . . The hair is usually fine, often extremely fine, and it grows rapidly. . . . Baldness is rare.[3]

When the three fundamental components had been well established through a study of the extreme variants, Sheldon went over the 4,000 photographs again and arranged them in the order of increasing endomorphy. Physiques with the lowest endomorphy came first, next physiques with slight, with average, with great, with extreme endomorphy. Seven steps were used, 1 meaning the lowest observed amount of endomorphy, 4 average endomorphy, 7 extreme endomorphy. Each photograph received a mark designating its degree of endomorphy. The same procedure was used for mesomorphy and ectomorphy.

Each subject is now designated by three figures, one for his position on the scale of endomorphy, one for mesomorphy and one for ectomorphy. Thus an extreme endomorph received the three

[1] *Ibid.*, pp. 39-41.
[2] *Ibid.*, pp. 5-6.
[3] *Ibid.*, pp. 42-45.

marks 7 1 1,[1] an extreme mesomorph 1 7 1 and an extreme ectomorph 1 1 7. Other individuals would receive marks such as 5 3 2, 1 6 2, 4 4 4, etc. The patterning of the three components as expressed by these figures is called the *somatotype* of the individual. Theoretically 343 somatotypes are possible, in fact only 76 were discovered. The sum of the components is never lower than 9 (for instance 171) or higher than 12 (for instance 444).

The somatotype seems to remain constant throughout life. Nutritional conditions and general health may produce changes in the body, but generally they do not affect its fundamental structure. A 631 who puts on 40 pounds does not become a 731 but changes from a lean 631 to a fat 631.

Sheldon also studied some second-order variables of human physique. "*Dysplasia* is the aspect of disharmony between the different regions of the same physique."[2] He distinguished five regions in the body. An individual who has a somatotype of 442 for the head region, 452 for the thoracic trunk, 542 for the arms, 443 for the abdominal trunk and 342 for the legs, shows a considerable amount of dysplasia.

"*Gynandromorphy* refers to the bisexuality of a physique. Members of each sex exhibit more or less the secondary characteristics of the opposite sex,"[3] such as widening of the hips, development of the breast, distribution of the hair. A measurement of these secondary sex characteristics gives an index of gynandromorphy.

Texture refers to the fineness or coarseness of the body structure. It is a more qualitative feature, and cannot be directly measured. *Hirsutism* refers to the hairiness of the body.

Sheldon's initial work is based on photographs and measurements of the male physique. Some preliminary work on the female physique, later confirmed by independent investigators, made him conclude that the same 76 somatotypes occur among women. Their distribution is slightly different. Endomorphy and combinations of endomorphy with ectomorphy are more common among women, whereas among men we find more mesomorphy and combinations of mesomorphy with endomorphy.

[1] Read: seven-one-one.
[2] Sheldon, *The Varieties of Human Physique*, p. 7.
[3] *Ibid.*, p. 7.

Sheldon's Classification of Temperaments

Temperament, as shown in our diagram, is molded by two sets of influences, by physique and environment. That means that an individual will be more or less emotional, quick or slow in his motor reactions, usually cheerful or depressed, etc., because he inherited this particular kind of body from his parents and underwent a definite set of influences in his environment, especially during the first years of life.

The relation between physique and temperament has been studied in Sheldon's second volume. An extensive study of the temperament of 33 male graduate students, whose physiques were known, and another study of 100 male college students or graduates enabled him to establish the existence of three main components of temperament. These components occur in their purity only in a few extreme cases; generally they are blended in definite proportions. Here again numerals from 1 to 7 are used to indicate the intensity and the pattern of the three components in an individual temperament.

The three temperament components are: VISCEROTONIA, SOMATOTONIA and CEREBROTONIA.

> Viscerotonia, the first component, in its extreme manifestation is characterized by general relaxation, love of comfort, sociability, conviviality, gluttony for food, for people, and for affection. . . . The personality seems to center around the viscera. The digestive tract is king, and its welfare appears to define the primary purpose of life.
>
> Somatotonia, the second component, is roughly a predominance of muscular activity and of vigorous bodily assertiveness. The motivational organization seems dominated by the soma. These people have vigor and push. The executive department of their internal economy is strongly vested in their somatic muscular system. Action and power define life's primary purpose.
>
> Cerebrotonia, the third component, is roughly a predominance of the element of restraint, inhibition, and of the desire for concealment. Cerebrotonic people shrink away from sociality as from too strong a light. They "repress" somatic and visceral expression, are hyperattentional, and sedulously avoid attracting attention to themselves. Their behavior seems dominated by the inhibitory and attentional functions of the cerebrum, and their motivational hierarchy appears to define an antithesis to both of the other extremes.[1]

[1] Sheldon, *The Varieties of Temperament* (New York, Harper, 1942), pp 10-11.

Sheldon discovered 20 traits characterizing each of the three components. We give here the 10 most important traits of each component.

VISCEROTONIA: Relaxation in posture and movement, love of physical comfort, slow reaction, love of polite ceremony, sociophilia, evenness of emotional flow, tolerance, complacency, the untempered characteristic, smooth and easy communication of feeling, extraversion of viscerotonia.

SOMATOTONIA: Assertiveness of posture and movement, love of physical adventure, the energetic characteristic, need and enjoyment of exercise, love of risk and chance, bold directness of manner, physical courage for combat, competitive aggressiveness, the unrestrained voice, overmaturity of appearance.

CEREBROTONIA: Restraint in posture and movement, overly fast reactions, love of privacy, mental over-intensity and apprehensiveness, secretiveness of feeling and emotional restraint, self-conscious motility of the eyes and face, inhibited social address, vocal restraint and general restraint of noise, youthful intentness of manner and appearance.[1]

Within each of these three clusters the traits are positively correlated, that is, they have a tendency to increase and decrease together. Traits belonging to different clusters are negatively correlated.

Each of the clusters is positively and rather highly correlated with one of the three physical components. The correlation between endomorphy and viscerotonia is .79, between mesomorphy and somatotonia .82 and between ectomorphy and cerebrotonia .83.

More independent research is required before these correlations can be accepted as firmly established. Temperamental components cannot be exactly measured like bodily dimensions. Therefore a subjective factor may enter into their appraisal. Sheldon may unconsciously have overestimated facts which favored his system. His researches have established the influence of physique, and indirectly of heredity, upon human temperament, even if that influence is not as strong as the above-mentioned correlations would suggest.

Temperament depends not only on the individual's physique but also on his life history, especially on his affective experiences during the very first years of his life. This important fact has been especially emphasized by Freud and his followers. Therefore, before proceed-

[1] *Ibid.*, p. 26.

ing with our study of empirical personality, we must know something about Psychoanalysis and the main systems derived from it. There are other reasons for studying these systems. The psychoanalytic conception of man is increasingly adopted by many people who reject the Christian conception of man. Furthermore although these systems contain serious errors, they also offer some important new findings about human nature which we cannot afford to ignore.

READINGS

Allport, *Personality, A Psychological Interpretation*, pp. 3-54, 213-231. Allers, *The Psychology of Character*, pp. 4-61. Arnold and Gasson, *The Human Person*, pp. 101-313. Harmon, *Understanding Personality*, pp. 3-36, 113-140. Roback, *The Psychology of Character*, pp. 155-162; 447-566. Sheldon, *The Varieties of Temperament*. VanderVeldt and Odenwald, *Psychiatry and Catholicism*, pp. 1-14.

CHAPTER 20

Psychoanalysis and Systems Derived From It

THE FIRST part of this chapter will be devoted to a study of Freud's psychoanalysis, which is and will remain the foundation of all modern systems of depth-psychology.[1] In the second part we shall briefly consider the systems of Alfred Adler and C. G. Jung.

PSYCHOANALYSIS AND THE DOCTRINE OF FREUD

Freud writes, "The theory of repression is the pillar upon which the edifice of psychoanalysis rests. It is really the most essential part of it."[2] By repression he means the unconscious and automatic inhibition of a psychic content. The concept of inhibition, commonly used by psychologists, means that one psychic content interferes with the development of another content.

The most important cases of inhibition are those in which one drive is stopped by another drive. A hungry dog seeing a piece of meat on the table does not grab it. His fear inhibits his hunger. At a party we fall in with a bore, and we should like to tell him that his jokes are stale; but politeness or charity prevents us from giving in to that impulse. In this case there is voluntary and conscious inhibi-

[1] These systems are called depth-psychology because they probe the depths of the Unconscious.

[2] S. Freud, "History of the Psychoanalytic Movement" in *The Basic Writings of Freud* (New York, Modern Library, 1938), p. 939.

tion, that is "suppression." There are other cases, says Freud, where the inhibition happens unconsciously and automatically, and then we have a "repression."

What happens to the inhibited tendency? It does not just disappear, it continues to strive towards its goal, but now in an unconscious and roundabout way. It will eventually reappear in consciousness. If the repression does not succeed, the tendency may reappear as a slip of the tongue, as a case of misunderstanding, mislaying, forgetting, etc. Or it may come back in the shape of a dream image. Sometimes it comes back as a neurotic or a psychotic symptom. When repression is successful, the inhibited tendency is "sublimated" and leads to valuable achievement.

Psychopathology of Everyday Life

This is the title of one of Freud's works, devoted to the study of lapses, slips of the tongue, small mistakes, cases of forgetting, etc., which have been lumped together under the name of "parapraxias." Freud was the first author to claim that these mistakes, which seem to result from pure chance, have a meaning, that they are both the effect and the sign of hidden tendencies. He applies the principle of "psychic determinism," according to which psychic phenomena, as well as the physical phenomena of nature, have causes, are determined by these causes, follow necessarily from them and can lead us back to them. Why does this man write that his fiancée is an "angle" instead of an "angel"? Why does he dream of a black cat? Why does this patient claim that she is the daughter of the Emperor of Japan? Before Freud, only general answers could be given to these questions. The slip of the pen was attributed to fatigue, the dream image to the fact that the man was sleeping, the delusion to the circumstance that this patient was schizophrenic. Freud claimed that these general factors may explain why there was a slip of the pen, a dream image or a delusion. But they do not explain why we have this particular slip of the pen, this dream image, this delusion, instead of some other. Freud claims that all these psychic phenomena are determined by definite causes, and that the discovery of these causes may throw much light on important factors in mental life.

The principle of psychic determinism applies to all psychic phenomena with the exception of our free decisions. (Freud, being a

determinist, does not mention this exception.) Free decisions are not determined, they are spontaneous manifestations of our deepest personality. But all other phenomena—our moods, emotions, attitudes, associations, judgments, ideas, images, etc.—inasmuch as they are not under the direct influence of the will, are determined by certain causes. These causes cannot always be discovered, they are not necessarily deeply significant, but there must be causes, and from them these phenomena follow with absolute necessity. With the important exception mentioned above the principle of psychic determinism is perfectly acceptable.

In some cases of parapraxia one drive clashes with another drive and can be only partially discharged. You ask your friend, "Where is your brother? I have not seen him for quite a while." He replies, "Don't you know? He entered the cemetery . . . the seminary last fall." This is a typical slip of the tongue, which must have some cause. That cause may be superficial and without deeper meaning—the similarity of two words and the flagging of the speaker's attention through fatigue. But the cause may lie deeper and consist in the clash of two drives. Your friend has always been opposed to his brother's priestly vocation. "Why bury himself in that place?" Before strangers he suppresses his opposition. When he hears your question he wants to answer it. Here we have two drives: the desire to answer your question and the desire to criticize his brother's decision. The latter drive is suppressed, but it uses the similarity of two words (cemetery, seminary) to slip past your friend's attention and reveal his deepest feelings.

In other cases of parapraxia a drive may be completely inhibited by another drive; that is repression. Both the repressed and the repressing drive may be unconscious. Nothing seems to happen in the mind, although a lot is happening unconsciously. This is especially true in cases of forgetting. Freud claims that there are two kinds of forgetting. The usual instances of forgetting may be explained by the fact that the memory traces have been weakened by the lapse of time. Other instances of forgetting involve the clash of two drives: a forgotten element tries to emerge into consciousness; an unconscious force keeps it below the level of consciousness. The American psychoanalyst Frink[1] explains how, having forgotten the name of a drug-

[1] M. F. Frink, *Morbid Fears and Compulsions* (New York, Moffat, Yard, 1918), pp. 51-53.

store, he tried to find out whether this forgetting involved any deep-lying factors. The name of the drugstore owner was Pond. Now when Frink was a youngster he had, through some imprudence, caused the death of his own dog *at a pond* where they were playing together. This tragic event had upset him awfully; he had been inconsolable for many days. The accidental killing of his pet produced a "psychic trauma," that is, a deeply disturbing emotional shock. After some time, owing to a natural tendency to forget painful and humiliating experiences, everything connected with this trauma had been banished from his memory, had been repressed. It is quite possible that this is the reason he could not remember the word "pond" even in an entirely different setting.

This example may not be convincing for anyone not familiar with psychoanalytic interpretations. Yet it is a good illustration of how two tendencies unconsciously clashing in our mind may explain what seems to be a simple case of forgetting.

We have insisted upon these examples because they are typical of psychoanalysis and illustrate one of its main features: psychoanalysis emphasizes man's drives and the clashes occurring between them. That is the reason why this kind of psychology is often called "dynamic" psychology.

The Dream Theory

Freud claims that the interpretation of dreams is the royal road to a knowledge of the unconscious elements in our psychic life. Dreams had been studied long before Freud, but no complete theory had ever been presented. Freud used the data of his predecessors, enlarged them considerably, and was able to integrate them in one coherent system because he had discovered a method for interpreting dreams. This method is "free association."

Free association can be simply defined as "daydreaming aloud." When we daydream we allow our minds to wander, without any logical connections. The subject is supposed to do precisely that, and to tell the psychoanalyst everything which comes to his mind. A psychoanalyst who listens to these associations is sometimes able to discover in them the meaning of the dream image from which the associations have started.

From the use of this method Freud derived two important conclusions.

1. The dream has a meaning. This is true only if a distinction is made between the manifest and the latent content of the dream. The manifest content is that which we remember of the dream, the latent content consists of the hidden causes which produce the dream images. The latent content, says Freud, has a meaning. The manifest content is not an expression but a symptom of that meaning.

2. The dream is a wish-fulfillment. This is very clear in many children's dreams, and sometimes in the dreams of adults. But how can this be said of the many meaningless dreams which we remember? Freud explains this by means of his hypothesis of the "censor." Many wishes which crave fulfillment during the dream are of a low, antisocial—we should say immoral—nature. But even during sleep the higher moral tendencies continue to oppose the fulfillment of these wishes. Freud calls the "censor" the sum of the drives which prevail in the consciousness of an individual and prevent the lower drives from becoming conscious in the dream. The forbidden wishes try to circumvent the censor by taking on a disguise; they appear in consciousness in a distorted, unrecognizable form. This explains why most dreams are so difficult to interpret. For Freud most dreams are the disguised fulfillment of a repressed wish.

The wish is the efficient cause of the dream; its material cause consists of sensations experienced during sleep and past memories. Many authors have noticed that dreams weave some of these sensations, which we may experience vaguely during sleep, into their own framework. Thus we may dream that we are drinking a long draught of ice-cold water, and a little later wake up with a strong sensation of thirst.[1] Some of the peculiarities of dream memory also had been observed before Freud. The dream often reproduces events of the previous day; it selects preferably unimportant events; it often revives memories and impressions going back to the first years of life.

Freud has thoroughly studied what he calls the dream mechanisms, that is, the ways in which the dream arranges and elaborates the materials on which it is constructed. These mechanisms are one more

[1] This simple example illustrates several peculiarities of the dream; how it uses vaguely conscious thirst sensations; how it fulfills a wish; how it protects the sleep by satisfying a wish which tends to wake us up.

reason why dreams are often so difficult to interpret. The most important mechanisms are:

Condensation. The manifest content of the dream is often an abbreviation of the latent content. In other words, the images of the manifest content are often overdetermined, they have more than one cause in the latent content. This is sometimes very clear in "collective persons" as they may appear in our dreams. We may dream of a person we do not recognize, who combines the features of several individuals and stands for all these individuals.

Displacement. The affective charge of the dream is often detached from its proper object and attached to an accessory object. For instance a woman who hates her sister-in-law dreams that she strangles a small white dog. Analysis shows that the hatred is directed against the sister-in-law, although in the dream it is directed against the dog. The hatred has been displaced from its real object onto an object which is accidentally associated with it.

Dramatization. The content of the dream is not expressed by means of ideas or judgments, but by means of images, generally visual images. The dream is acted out, not expressed in words. The dream regresses from the abstract to the concrete, from ideas to images.

Symbolization. One concrete object in the dream may stand for another concrete object of which it is the symbol.

Much of what Freud says about the dream is true. Unfortunately, as is usual with Freud, he generalizes too easily; when he claims, for instance, that *all* dreams have a meaning, that *all* dreams are wish-fulfillments (except the few cases which might be attributed to repetition compulsion). Furthermore he attaches too much importance to the sexual element in dreams, although he admits explicitly that not all dreams have a sexual meaning.

Dalbiez summarizes the main idea of Freud's interpretation of dreams very well when he states that the dream is a kind of *psychic* expression, and that it is a *natural and individual psychic language.*

The dream is a kind of psychic expression. That means that the dream is a sign, not a physical or organic sign but a psychic sign. The signs which we use in our knowledge of men may be divided into four groups: (1) The sign and the thing signified are both organic. Such signs are used especially in medicine. Fever, for instance, is an organic sign of some organic disorder. (2) The sign is organic and

the thing signified is psychic; for instance, blushing, grinding one's teeth. (3) The sign is psychic, the thing signified is organic, v.g., a toothache. (4) Both the sign and the thing signified are psychic. This kind of sign was almost entirely neglected before Freud. The dream is such a sign; it could be called a psychic symptom of a psychic disturbance. It is a psychic symptom because it is expressed in images which should not be taken at their face value but interpreted according to certain rules. It is the symptom of a psychic disturbance, namely of some thwarted tendency or drive.

The dream is a natural and individual language. It is a language because it expresses something; a psychic language because it consists not of words but of images; an individual language because it means something different for every individual; a natural language because it is neither intended nor even understood by the individual who uses it.[1]

Affective Development

If we were to cling to a strictly Freudian terminology, we should have to entitle this chapter, "Freud's Conception of Psycho-sexual Development." For him every affection or love is based upon the sex drive, and the development of that drive measures the affective development of the person.

We shall not follow Freud into that extreme position, but by transposing some of the things he said and correcting them in the light of a more comprehensive view of man we can gather important and generally accepted conclusions about affective development, about the development of temperament under the influence of the environment.

Under the influence of Freud a great transformation has taken place in our conception of the needs of the human baby. A few decades ago pediatricians insisted above all upon hygiene for the baby. Nowadays an equal emphasis is placed on the baby's need for love and affection. As one psychologist says tersely, "Babies who are not loved die." Extensive research has demonstrated that, even if they do not die, such babies, although they may be reared according to the

[1] R. Dalbiez, *Psychoanalytical Method and the Doctrine of Freud* (New York, Longmans, 1941), Vol. I, pp. 122-125.

rules of the strictest hygiene, do not develop as well as other babies surrounded by less hygiene and more affection.[1]

Even if the physical health is perfect, it will be evident later that something is lacking in their psychic makeup. Their capacity for loving others, for easy, trustful, friendly relations with their fellow men remains stunted. Later they may be able to love others with their mind and will but not with their emotions, and this cerebral kind of love will leave an aching void in their life.

It is, of course, especially from the mother that the baby first expects a warm and continual love. If the mother herself is stunted in her affective life, she will be unable to satisfy the baby's need for affection, and she may unwillingly be the cause of a serious deficiency in her child's development.

It is one of Freud's most valuable contributions that he emphasized —although in terms we cannot accept—the supreme importance of the very first months and years of the child's life for the building of what we shall call a harmonious affective basis for all future development. In the light of this doctrine some apparently unimportant activities of the mother in relation to her child have assumed great psychological importance.

First the activities by which the mother feeds her child. No feeding equals breast feeding, because none comes up to it as a manifestation of real maternal love or offers so great an opportunity for manifesting such love. The way in which the mother feeds her baby is very important, not only for his physical, but also for his psychic development. If she performs that duty patiently, willingly, cheerfully, her happy dispositions will, in a sense, be imbibed with her milk by the infant. Tenseness, nervousness, impatience, dislike for this task of love are felt by the baby and affect his psychic development in an unfavorable manner. Even some of the physical features of the nursing process may have important psychic repercussions. If the mother's milk flows freely and abundantly, so that the baby gets its food without effort, he will slowly develop a disposition of confidence and trustfulness and lay the foundation for a cheerful and optimistic temperament. If the baby has to make undue effort to get his food, or if the milk does not flow in sufficient abundance, he may

[1] The common sense of mothers has always felt that babies needed to be loved and fondled. Science spurned this intuition for awhile in favor of more hygiene, but it has now discovered that the mothers were right.

feel frustrated, and the chances are that he will acquire traits of distrust and greediness which will cling to him for the remainder of his life.

The way in which the child is weaned has also assumed great psychological importance. Gradual, patient, cheerful weaning will have no harmful repercussions. Abrupt, impatient weaning may leave the child with far-reaching psychic scars.

The mother gives her child his first social training; she teaches him to make his first personal sacrifices in behalf of those with whom he lives. Because this represents the first step of the child in the field of social relationships, it has a great impact upon his sensitive mind. This first social training is a very simple one; it consists in training the child for cleanliness. Great stress is now laid on the way in which the mother performs this homely duty. Here again impatience, abruptness and nervousness may evoke in the child an incipient rebellion and foster traits of stubbornness or stinginess which will be woven into the very fabric of his budding personality. If, on the other hand, the mother is patient and kind and succeeds in coaxing the child to do what he is supposed to do out of love for her, a great step has been taken in the right direction and a basis has been laid for the development of a generous and charitable character.

As the child becomes more and more aware of the other members of the family—father, brothers and sisters—social relations assume an increasing importance. If these relations are easy and smooth, the child is well on his way towards easy and harmonious relations with other people in his later life. If, on the other hand, there are strains and stresses in the family, if the parents do not get along with each other or quarrel frequently, even if they try to hide their mutual dislike from the children, there is something in the family atmosphere which will affect the child unfavorably and make his own later social life more difficult. If his father is too stern and authoritarian, the child will always fear him, and he may develop a basic strain of timidity which will make him feel ill-at-ease before people in authority. If the behavior of his mother is unpredictable, so that he never knows whether to expect affection or rebuke from her, he may become unable to love anybody trustfully and it may be difficult for him later in life to enter into a happy marriage.

Freud attaches great importance to the Oedipus complex, which makes its appearance around the age of three. The intense love which

the little boy has for his mother leads him to crave her undivided attention and love. He notices that the mother is also very much interested in the father and resents it; he becomes jealous of his father, wishes him to go and stay away, to die, to be dead. These feelings of hatred towards the father may be combined with sincere love for him. Unconscious affective life is not ruled by logic.[1]

The Oedipus complex is slightly different in the little girl. She also starts life with a great attachment to the mother. But later on she transfers this attachment to her father and develops jealousy, hatred and unconscious death-wishes in relation to her mother.

Freud claims that the attachment of the child for the parent of the opposite sex is a sexual attachment. In a few pathological cases this may be true. In most cases there is no reason for calling this attachment sexual. It is an affective attachment without spiritual elements, based on instinct, and may therefore be called "sensual." But usually there are no sexual elements in it, if the word sexual is taken in its ordinary meaning.

With these restrictions we have no difficulty in admitting that the Oedipus complex occurs frequently in children. It consists then in a tendency for the little boy to prefer his mother and for the little girl to prefer her father. The relation with the other parent, in either case, is a mixture of affection and jealous or rebellious aversion. This complex must not be attributed to incestuous leanings; it may often be explained by the fact that a parent has a tendency to favor a child of the opposite sex; also, the training and disciplining of a child is generally the task of the parent of the same sex, and this relation may give rise to a certain parent-child tension.

According to Freud the Oedipus complex disappears around the age of five or six. Or rather, it is repressed; it becomes unconscious and may continue to exert some effects out of the depths of the unconscious. On the conscious level it is normally replaced by an identification of the child with the parent of the same sex. The boy takes his father as a model and an ideal, and the girl tries to shape her behavior after that of her mother.

For Freud the age of five marks the beginning of the latency period. According to him the sex drive has been very active during the first five years of the child's life. Around the age of five to six, the

[1] Such a mixture of contradictory feelings for the same person or objects is called "ambivalence."

inhibitory tendencies, such as shame, modesty and sympathy, make their first appearance. Under their influence, helped by pressures in the environment, the sex drive is repressed and goes underground.

Transposing this in terms of a more comprehensive view of the human person, we shall say: Around the age of five to six, the rational faculties of the child enter into action. During the first few years the child was predominantly a creature of instincts,[1] led by his senses, egoistically looking for pleasure and avoiding pain, capable of receiving a certain amount of training, of very much the kind that an animal can be given. With the emergence of the rational faculties, real moral training can start.

Yet even before that time, the child has undergone a welter of influences which will leave indelible imprints on the affective and instinctive foundations of his personality, on what we call his temperament and his primary character.

It is not necessary to admit with the psychoanalysts that these infantile experiences will *determine* the whole future development of the personality. But there is no reason for denying that they will greatly *influence* it. A child who has lived in a favorable environment has laid foundations on which a harmonious and well-adapted personality can easily be built up. A child who has undergone noxious, and especially traumatic, experiences may be handicapped in his later development; he may have to struggle against serious internal difficulties throughout his life. Yet, by dint of personal effort and with the help of prayer, the latter may succeed, despite his handicaps, in developing a strong moral personality, whereas the former may go seriously astray if his happy beginnings are not taken up and reinforced by conscious voluntary effort.

Freud's Conception of the Human Personality

According to Freud the human person comprises three levels, which he calls the Id, the Ego and the Super-ego. The Id is the sum-total of the sensory drives; it is unconscious, it strives only after pleasure and takes no account of reality. The Id corresponds to what we call "sense appetite."

[1] There is no sufficient evidence on which to accept Freud's theory that most of these instincts are of a sexual nature.

The Ego is derived from the Id. It comprises the perceptual functions by means of which we enter into contact with reality and the executive functions which help us influence the outside world. Freud's Ego does not correspond to what we call the Ego or the Conscious Personality. He considers the Ego as passive and determined by three sets of influences: the Id, the Super-ego and the outside world. In this view, we do not direct our life, but whatever we do is a resultant of the interaction of these three groups of forces. In other words, Freud is a determinist who denies human freedom. Although we readily admit that our Ego is *influenced* by sense appetite and the outside world, we deny that it is *determined* by these influences.

The Super-ego derives from the Ego. When the child becomes aware of his environment, he notices that, in order to receive approval and affection from his parents and to escape rebuke and punishment, he is supposed to do certain things and to omit others. The child "behaves" at first for these extrinsic reasons. He does what he is told to do and abstains from that which is forbidden by his parents. Gradually, however, the need for direct parental orders or prohibitions becomes smaller; he begins to "tell himself" what to do and what to avoid. There is now in his own mind a substitute for the parents which directs his conduct in their name. The child has "introjected" the parents, he has "identified" himself with them. This substitute for the parents is Freud's Super-ego. Its influence is strongly supported by the inhibitory tendencies which we have mentioned above and which, in Freud's conception, are but transformations and sublimations of the sex drive.

From all this it is evident that Freud's Super-ego does not coincide with what we call "conscience," despite the contrary claims of many psychologists. The Super-ego is passively received from without, whereas conscience develops actively within. The Super-ego is a social and instinctive agency, conscience is a moral and rational power. The Super-ego "would produce a personality completely caked with custom and shackled by tribal mores,"[1] it produces conventionality and a pseudo-morality such as was found in the Pharisees and in many Puritans of the Victorian age. Conscience is man's intelligence inasmuch as it judges his actions in the light of reason

[1] G. W. Allport, *Personality*, p. 218.

and, for the Christian, the light of Revelation; it is the basis of the mature moral personality.[1]

When Johnny, aged five, says his prayers before going to bed, he does so because he has been bidden by his mother, he is led by his Super-ego. If John continues at the age of twenty-five to say his prayers *only* for that reason, he has not reached real morality, he is still guided by his Super-ego. It is more probable, however, that he says his prayers because he realizes that he needs prayer or that he owes worship to his Creator. In that case he is led by his conscience. The same action which was initiated under direct pressure from the environment and carried on for awhile under the influence of the Super-ego has now been freely assumed by his moral conscience.

The Super-ego is not conscience. But it exists and operates in most individuals. In young children, before the age of reason, the action of the Super-ego is obvious. They "behave" just because they have been told to by their parents. Gradually, as the higher functions develop, conscience takes over the function of the Super-ego. But rare are the individuals, even among adults, in whom this substitution is ever complete. In most people there is a fringe of Super-ego around the core of conscience. In some that fringe is very wide, because a great part of their actions is a mere routine carrying on of customs and habits acquired during childhood, without any personal assimilation of the motives for such conduct. Such people remain morally infantile in most of their actions, their morality is mainly convention. However, in all normal individuals, there is at least a core of real conscience. They admit at least that "good should be done and evil avoided," not just because of what they have been told by their parents but because their intelligence grasps the truth of this statement.

Moral development consists precisely in widening the domain of conscience at the expense of the Super-ego, and in morally developed persons only unimportant actions may continue to stand under the guidance of the Super-ego.

Furthermore, even in those who have developed their moral personality, there may be remnants of Super-ego influence in the

[1] For a profound study of the differences between real morality and the pseudo-morality inspired by the Super-ego, cfr. the remarkable book of Dr. Ch. Odier, *Les deux Sources, Consciente et Inconsciente, de la Vie Morale* (Neuchâtel, La Baconnière, 1947).

manner in which they conceive or execute their duties. Such traits as moral rigidity or formalism may be explained in this way.

It is especially in the pathology of moral life that the Super-ego is a useful concept. Morbid scrupulosity is a neurosis which must be attributed to the action of the Super-ego. The individual, in spite of his own better judgment, is unable to rid himself of the impression that some unimportant or innocuous action constitutes a serious sin. Freud claims that the Super-ego is often irrational, tyrannical, compulsive. A morbidly scrupulous person suffers from the insidious action of such a Super-ego.

Some Other Important Freudian Concepts

The concepts which we shall consider here are those of the Unconscious, repression and sublimation.

The Unconscious. Freud makes a distinction between conscious, preconscious and unconscious phenomena. Preconscious phenomena are those of which we are not actually aware, but of which we can easily become aware. All our habitual stock of knowledge consists of such preconscious contents.

A phenomenon is unconscious when we are not aware of it and cannot become aware of it by the ordinary methods. It takes hypnosis or free association to bring such contents back to the level of consciousness. The psychoanalysts claim that there are such unconscious contents in our mind, because without them it is impossible to explain certain facts. In post-hypnotic suggestion, the subject executes during the waking state an order which he received during hypnotic sleep and of which he is totally unaware. There are many mental phenomena, such as sudden likes and dislikes, hunches, prejudices, attitudes, feelings, strange dreams, the vast domain of neurotic and psychotic symptoms, for which we can find no cause in our conscious mind and which nonetheless must have a psychic cause.

It is now generally admitted by psychologists that there are unconscious psychic processes, especially that there are unconscious factors which explain the presence in us of certain states of consciousness. This is especially observable in the domain of feelings, emotions, attitudes, prejudices, etc. Thus at my first meeting with a person, I may at once experience an intense dislike for him. There must be

a cause for that feeling, yet I am not aware of it and cannot account for my reaction, try as I may. Later on I may realize that this person resembles an uncle whom I feared and disliked when I was a child. The unconsciously perceived resemblance explains my dislike.

In this case, the feeling of dislike is conscious, its cause is unconscious. In other cases all the symptoms of a certain trait, of a habit, may be clearly conscious; taken all together they give a precise indication of their common root. The subject nevertheless is unaware that he possesses such a trait because he has never connected all its single manifestations (of which he is aware) with any common cause. If these manifestations were put down on paper for him to read and ponder, he would at once recognize the common root from which they spring. Yet it may take him years before he realizes the presence in himself of a deep-lying trait which he would have no trouble recognizing at once in another person. This character trait is unconscious for the person who possesses it, although his relatives and friends are clearly aware of it.

The psychoanalysts place much emphasis on unconscious motivation, and some of them try to eliminate human freedom by attributing all man's choices to the influence of unconscious motives. It is quite possible that while we deliberate about a certain course of action we may be influenced by factors of whose origin we are not aware. But as long as we are conscious of the factor itself, even if we do not know its origin, our freedom is not essentially impaired. For instance, while we are trying to make up our mind whether we shall accept a job offered by a certain employer, we are influenced by an unexplainable feeling of dislike for the personality of the employer. Such an influence may restrict our freedom; it does not eliminate it. We are quite aware of that dislike, and we can take it into consideration during our deliberation.

But unconscious motivation is generally understood in a different sense. We are unconsciously motivated when we make a decision for reasons which we do not know. We believe that we make it for this or that conscious reason; in fact we make it under the determining influence of unconscious motives. The conscious motives are only a "blind," an instance of "rationalization."

This kind of unconscious motivation does not occur in normal people, at least not when important decisions are involved. A decision

made under such motivation would not be felt as a free choice but as a pathological compulsion. The subject would not feel free, he would be aware of a blind necessity for adopting this course of action. Unconscious motivation in this sense is incompatible with freedom. Many psychoanalysts emphasize it because of their a priori denial of human freedom.

Let us take the example of a young man who, having completed his studies, deliberates about the choice of a career. He hesitates between becoming a sailor or a salesman. He has the motives for and against the choice of each career clearly in his mind. Finally he decides in favor of a sailor's life, and he can tell you all the motives which have prompted his choice. This is a conscious and free deliberation leading to a conscious and free decision.

Not at all, says a psychoanalyst. The conscious motives are only rationalizations. The decision is not only prompted but is really determined by an unconscious motive: the young man's unconscious hatred for his father, which produces the desire to get away from him.

We must consider this case in more detail if we want to evaluate it.

1. The young man may be aware of his dislike for his father and of the fact that his preference for the sea arises partly from his wish to get away from home. But there are other motives for his choice, and he can sincerely state that he chooses the sea not because of his aversion for the parental home (although this helps him to choose as he does), but for these other motives. He can say that, even if he did not dislike his father, he would still become a sailor. His choice is not determined by an unconscious motive, his decision is perfectly free.

2. He chooses the sea apparently for the motives which he alleges; in fact because of his aversion for his father. He is dimly aware of this, but he does not want to admit it to himself. He tries to deceive himself, he lacks sincerity with himself. Such cases, which are rather frequent, do not involve unconscious motivation and do not exclude freedom.

Professor Nuttin considers them as instances of what he calls "psychic intimacy":

> It is a fact that in our culture, at least, one can divide the psychic contents into several layers, belonging either to the "intimate" or to the "public" part of personality. As lived at the most intimate level of personal consciousness, personality is not absolutely identical with

the personality which lives and unfolds in the realm of public and social life.[1]

These intimate contents are "those psychic contents which do not fit in with the explicit constructive image which the person is tending to realize within himself."[2] Not only does the person not want to show these intimate layers to others, he is generally disinclined to look at them himself, he turns his inner eye away from them, he tries to act as if they did not exist. Yet these contents are not unconscious and the subject remains always vaguely aware of them and recognizes his obligation to check their influence upon his activities.

3. He is certain that he chooses the life of a sailor because of the motives which are consciously before his mind. In fact, his choice is *determined* by his unconscious hatred for his father. In such a case freedom would be excluded. But we repeat that this does not occur in normal people, when an important decision is at stake. An individual who would be thus blindly led by unconscious forces does not have the feeling that he can choose either this or that course of action. He is aware that one course is totally excluded for him and that he has to adopt the other. This is a compulsion, as it occurs in mentally sick patients; it differs fundamentally from a free decision.

We can transpose this whole discussion into other terms. Most of our choices are influenced simultaneously by drives and by motives. Drives have a physiological basis, they push us blindly towards some pleasure or away from some pain. Motives, on the other hand, are based on higher values; they are consciously and freely accepted by the Ego. In the example we have been discussing the drive would be the hatred for the father, the motives are the various conscious reasons which impel our young man to choose a career as a sailor.[3]

Sometimes the drive and the motive push in the same direction; for instance, in real love, the sex drive and the spiritual love for another person. Sometimes there is a conflict between drive and motive; for instance, when the sex instinct pushes us towards a forbidden act, there is a conflict between that drive and the motives which come naturally to a Christian mind (chastity, keeping God's love, etc.).

[1] J. Nuttin, *Psychoanalysis and Personality* (New York, Sheed & Ward, 1953), p. 192.

[2] *Ibid.*, p. 196.

[3] A motive may be based upon a drive, when the object of that drive is consciously accepted as a good. We speak of a drive when there is no conscious acceptance.

It may be that a person yields to the drive and he is unwilling to admit it. He tries to convince himself that he acts for a motive. Thus a student of English reads a pornographic novel, allegedly for its style, in fact because of its salacious content. He is rationalizing; or, in terms of Christian asceticism, his intention is not pure.

The main question we are debating can now be put in the following terms: Is it possible that, in an important decision, our choice is determined by an unconscious drive, while we are convinced that we make it freely for some conscious motive? We answer that, in normal people, this does not occur. Such a decision would not be felt as a free choice, but as a blind compulsion. In such a case the individual cannot really say: "I can take it or leave it." He must take it.

There can be no doubt, however, that in many of our decisions, drives which may be more or less conscious have some influence. We may try to convince ourselves that we adopt a certain course of action only for this or that conscious motive. It may be true that if this motive were not present in our mind, we should not make that decision. Nevertheless we are dimly aware that we are also prompted by a drive, and we consent to be prompted by it. Our decision is free but it is not explained entirely by the motive by which we would like to explain it. There is a certain amount of self-deception, a lack of perfect sincerity. It is no easy task to be perfectly sincere with one's self.

Where a decision is made apparently for a motive but in reality with great help from a drive, there may be difficulties ahead. The force of the drive may wane or the drive may reverse itself, and unless by then the motive has taken deeper root it may be insufficient to sustain our resolve. That is the reason why marriages based predominantly on sex attraction are often doomed to failure, why a religious vocation embraced in great part out of a desire for security will not stand the test of the unavoidable difficulties.

It is important to notice, however, that some courses of action may begin under the predominant influence of a drive and be continued under the influence of motives. That may happen in a marriage entered predominantly under the influence of sex attraction, when the partners later discover in each other moral and spiritual qualities which will constitute a strong bond when the sex attraction has waned. Or a student may have started the study of chemistry out of a fear

of failing in his major subject, but gradually he becomes so much interested in this field that he enters it as a career.

Repression and Suppression. Freud says that repression is the most important concept in psychoanalysis. Repression is the unconscious and automatic inhibition of a drive; it differs from suppression, where the inhibition is conscious and voluntary.

Suppression is a very old idea. The concept of repression is new and was first introduced by Freud. Let us show, by means of an example, how Freud explains the origin of a repression. A little boy three years of age acquires a baby brother. He notices that the attention of his parents, which had been concentrated upon him, is now to a great extent diverted to the newcomer. As a result he starts to dislike, then proceeds to hate, his baby brother. When he expresses these feelings his parents are shocked and tell him that he must love and protect the baby. The child tries to get rid of his forbidden feelings. At first he does it consciously, after awhile it is done unconsciously. Suppression has been followed by repression. The hatred for his brother seems no longer to exist. In fact, says Freud, that hatred persists unconsciously in the boy's mind. It may flare up again in certain circumstances, or it may reappear in parapraxias, in the dream, or under the form of neurotic symptoms.

It is probable that there are indeed repressions of that kind in most normal people. But they are not always totally unconscious. The individual may be dimly aware of some tendencies of which he does not approve; he may try to keep them as much as possible out of the focus of consciousness. They belong to his "psychic intimacy," they hover on the fringe of consciousness.

Freudians seem to postulate that every drive which ever stirred in an individual continues to exist in him in a repressed state when it is no longer consciously felt. This too is an exaggeration. After a good dinner, my hunger drive is not repressed, it is satisfied and quiet for awhile. The same is true for other drives.

In individuals who live chaste lives the sex drive, although never receiving any satisfaction, may be inactive, quiescent, without any real repression. It may be stirred up occasionally either by some organic condition or some stimulus coming from outside. In that case it will be suppressed, without any harm, for the sake of a higher good. People who live chaste lives do not repress their sex drive, they sup-

press the occasions which would stir up that drive, and if it is aroused, they suppress the drive itself.

Some people entertain the false notion that suppression or repression is always dangerous for mental health and must be avoided. Even Freud does not accept this. He knows that man must suppress or repress some of his drives if he does not want to wreck his own life.

Suppression is not dangerous, especially if we avoid two mistakes: (1) We should not multiply needlessly the occasions of suppression. It is not wise to allow a lower drive to be continually aroused and be continually obliged to suppress it. Translated into Christian language this means: Avoid the occasions of sin. (2) Suppression should not be conceived as something purely negative. When we deny a lower drive its forbidden object, we should not concentrate on that negative aspect. We deny that object *in order* to obtain something higher. The negative attitude is not the ultimate end but a means for something positive. It is healthier to concentrate on that positive aspect of suppression.

Sublimation. Freud's concept of sublimation represents a clever attempt at explaining away all higher functions in man. By sublimation Freud means the redirecting of the sex drive from its ordinary goal (sexual activity) to some higher goal (artistic, scientific, moral or religious activity). For him the writing of a symphony, the pursuit of scientific discovery and the heroic virtues of a Saint are all alike to be explained in terms of a redirected, canalized sex drive.

Understood in that sense the notion of sublimation corresponds to nothing real. Man's spiritual activities cannot be explained as derivations of his sex drive, they must be attributed to his spiritual faculties, whose existence Freud denied.

But sublimation is sometimes understood in other senses which may be acceptable.

1. It is possible to overcome a lower drive (sex, anger) by directing one's attention to some other object, by distracting the drive. In this case there is no real sublimation but rather a substitution.

2. When a lower drive is stirred up, it generally induces a state of restlessness. This restlessness may sometimes be overcome by keeping busy, by fatiguing the body. A certain amount of athletic activity helps some individuals to control their sex drive. Here again there is no real sublimation of that drive.

3. A person may inhibit his sex drive for the sake of a higher purpose. He prefers the satisfaction of a higher drive to that of his sex drive. As Professor G. W. Allport puts it: "An individual may without serious conflict forego some specific gratification, provided that he finds other sources of equal satisfaction. . . . In such instances, the individual simply disregards his unfulfilled desires, letting them atrophy, or repressing them without disaster, in the interest of an alternative plan of life that satisfies not these desires, but satisfies *him* as a whole man."[1]

Thus a young woman who has been jilted by her fiancé may presently enter a convent and consecrate her life to God. Freud would consider this an example of sublimation, and so could we. But we should use the same term with an utterly different meaning. For Freud it is the self-same sex drive that first urged this girl towards marriage which now presses her to enter the religious life. We say that she foregoes the satisfaction of her sex drive, that she suppresses that drive, and that she can do it without harm because she find happiness in satisfying a higher drive, her love for God.[2]

4. In the human person the biological sex drive is usually accompanied by complex feelings and sentiments. These may be diverted from the sex drive and attached to a higher drive. Thus, to come back to our example, the young woman may direct towards God some of the feelings and sentiments which, in wedlock, she would have experienced towards her husband. Her biological sex drive is not sublimated, it is suppressed. Her spiritual love is directed towards God and this spiritual love may now be clothed in feelings and sentiments which might, in other circumstances, have accompanied her love for her husband. In this case the affective processes have been sublimated, not the sex drive itself.

Therefore we reject the possibility of a real sublimation of the biological sex drive. That drive cannot be sublimated any more than hunger and thirst can. Other drives may be sublimated in the Freudian sense. Thus football, boxing, political campaigning may sometimes be considered sublimations of the aggressive or fighting instinct.

[1] G. W. Allport, *Personality*, p. 185.

[2] Such a vocation should, however, be tested rather strictly. It may be prompted, in part, in an unconscious or vaguely conscious way, not by the sex drive, but by discouragement or resentment.

General Evaluation of Freud's System

We have two major objections to Freud's system, one philosophical and the other scientific.

Philosophically we reject Freud's materialism, which makes him reduce all the higher functions of man to the level of the animal. He admits no basic distinction between animal and man; man is only a more evolved animal. That which distinguishes him from animals, his scientific, artistic, moral and religious ideas and activities are only transformations of the sex drive. Great parts of Freud's system have been vitiated by this materialistic prejudice, which Freud seems to have unconsciously imbibed from his materialistic environment.

Scientifically speaking, Freud's great weakness is that he is prone to unwarranted generalizations. He had a very keen psychological insight, which enabled him to unravel problems the solutions of which had eluded all former investigators. But he also had the unfortunate tendency to generalize from one or a few cases. He discovered some peculiarities in the neurotic patients whom he studied and concluded at once that the complexes and aberrations which he found in them were present in every individual. Such unwarranted generalizations are alien to a really scientific mind. The great emphasis which modern science puts on statistical methods has among its main purposes that of helping the scientist avoid unwarranted generalizations.

Freud's materialism and his tendency to rash generalizations are most apparent in his pansexualism. The fact that he explains almost everything in man as a derivation from the sex drive is a result of his inability to see the spiritual aspects of man and his tendency to ascribe to all individuals the abnormalities which he had discovered in some of his neurotic patients.[1]

It is rather difficult to separate the valuable elements in Freud's system from those which are worthless. We do not deny that there are many valuable elements in his system, and we have tried to point out

[1]"A remarkably illogical procedure seems to be responsible for overemphasis on sex by psychoanalysts (by Freudians especially). Whatever form of behavior or thought is ever found in any life, to be associated with sex, they seem to assume to be always connected with sex in every life" (G. W. Allport, *Personality*, p. 188).

some of them. These elements can easily be integrated within our Christian conception of man.

SYSTEMS DERIVED FROM PSYCHOANALYSIS

Adler and Jung were at first faithful disciples of Freud and borrowed many elements of their systems from Freud's pioneering work. Both of them gave up "orthodox" psychoanalysis because they came to realize that Freud exaggerated the importance of the sex drive.

The System of Alfred Adler

The main differences between Freud and Adler can be summarized as follows: (1) For Freud the main drive in man is sex, for Adler it is the will to power, the drive towards superiority and self-assertion. Sex is only a manifestation of that fundamental drive. (2) Adler gives much greater weight than Freud to the social factors influencing man's life. (3) Adler's approach is finalistic, Freud's approach is genetic. Adler tries to explain such psychic phenomena as dreams, neurotic symptoms, etc., by discovering their unconscious purpose, whereas Freud explains them by discovering their origin or genesis.

According to Adler man's life gravitates between two poles: the drive for power and the social drive. The purpose of education and therapy is to harmonize these two fundamental tendencies. They can be seen at work very early in the life of the child. They determine what Adler calls the "plan of life." Under the influence of the environment and of his own make-up, the child unconsciously builds up a conception of life, of society, of his own purpose in life and society, of what he expects from them, etc., which will unconsciously direct all his later activities. A fundamental unconscious law of behavior from which all the conscious principles directing his life will derive is thus written in his mind.[1] For instance a child with a weak physical constitution, living in a "soft" environment, with parents who spoil him, will quite naturally expect that, because of his weakness and helplessness, everybody will always be at his service. He develops what has been called the "Clinging Vine" plan of life.

[1] Because this plan of life is characteristic for each individual, Adler has called his system "Individual Psychology."

In order to understand an individual it is indispensable to discover his plan of life. Adler claims that it is manifested in every single action of the individual. There are, however, some typical experiences which reveal that plan of life more clearly than any others. They are especially the earliest memories, the favorite story or hero of one's childhood, the dreams.

The plan of life is built mainly under the influence of organic factors and of the environment.

Organic Factors Affecting the Plan of Life

Adler insists especially on the importance of the factor of organic inferiority, whether general or specific. General organic inferiority has existed at some time in every individual. Every child feels small, weak and ignorant as compared with the big, strong and omniscient adults. This produces normally a strong feeling of inferiority, which evokes, by reaction, a powerful striving towards superiority.

The effects of specific organic inferiority are more important. Such inferiority may consist in a real bodily defect, especially when it is visible to others (lame arm, hunchback, squint, harelip), or in some non-pathological peculiarity which attracts unfavorable comments (big nose, long ears, being too short or too tall). These defects or peculiarities attract scorn, mockery, pity, compassion, so that the individual develops not only a normal feeling of inferiority but frequently a pathological *inferiority complex.*[1] The complex itself automatically arouses a strong reaction in the form of an urgent drive towards superiority. This reaction may take one of several forms.

It may take the form of *compensation:* the individual works so hard to overcome his inferiority that he becomes as able as those who do not suffer such a handicap. Sometimes there is *overcompensation:* the effort to overcome the handicap has been so strong that the individual surpasses those who have no inferiority. Compensation and overcompensation may exert their effects in the very field where the inferiority is experienced (Demosthenes, the stutterer, becoming a great orator), or in a different field (Napoleon, a short man, becoming a great leader).

When, owing to lack of talent or energy, compensation is not

[1] A complex is a deeply buried, partly unconscious feeling or group of feelings, which affects the psychic life in a morbid way.

possible, there will generally be what Adler calls *compromise* or *arrangement*, mechanisms whose purpose is again to overcome the unbearable feeling of inferiority. Compromise happens in several ways. It may be a purely negative attitude by which the individual withdraws, as it were, from life and society, becoming a mere spectator, a critic, a scoffer, who rejoices in the failures of others, belittles their efforts, professes a cynical and blasé attitude towards everything. It may be a positively anti-social attitude, when the person who has been unable to assert himself through positive achievement attracts attention by means of anti-social or criminal conduct.

Finally, it may be escape into illness, into dullness or neurosis. Certain forms of illness, called "functional illness," are very much under the influence of psychic factors. They are sometimes used unconsciously as ways of getting out of a situation where the person feels hopelessly inadequate. A businessman facing bankruptcy comes down with an acute case of hypertension which requires immediate medical attention. He may now with a good conscience give up the hopeless battle for financial survival. His failure does not affect his feeling of self-importance, because he can convince himself that it is due not to mismanagement but to illness, to something which is quite independent of his own volition. Other people may find an escape into neurosis, and among young children the same mechanism may even assume the form of a flight into dullness.

Environmental Factors Affecting the Plan of Life

Social or environmental factors may produce a feeling or a complex of inferiority, with all the effects mentioned above—for instance, belonging to a linguistic, religious or racial minority. The more that minority is discriminated against, especially when its members are intellectually developed, the more the effects of the inferiority complex will show themselves. Many traits of Jewish psychology can be explained in that way. As the American Negroes develop culturally, the same reactions will become more frequent among them.

The fact of being a woman may be the cause of a feeling or complex of inferiority. That applies especially to milieus in which women have a lower social position than men—for instance, in China and Japan before the recent emancipation.

Adler lays great stress on the "family constellation" or the posi-

tion of each child in the series of his siblings. It makes quite a difference whether a child is the oldest, or the youngest, or a middle child; whether he is an only child or one among many. At the most exposed positions, psychologically speaking, he specifies that of the only child, of the oldest and of the youngest child.

The only child is most likely to be spoiled and pampered. He is therefore not well prepared for social life and will often keep a fundamental egoism in his later social relations.

The oldest child has been an only child for some time. When a younger brother or sister arrives, the transition from the center of the family to a more secondary role may produce a psychological crisis. When more brothers and sisters arrive, the oldest child may be given a certain amount of authority over them, which makes him side with the parents, aligns the others against him, renders him old before his age. Or the parents expect him to be a model for the other children, which may produce discouragement and a feeling of inadequacy.

When there are only two children in the family, they are sometimes very different in spite of their similar heredity and environment. In fact neither heredity nor environment is quite the same for both of these children. Brothers and sisters, except for identical twins, have different genes. When there are only two children, the elder child will always be bigger, stronger, more experienced. The younger one feels that it is hopeless to compete with his brother in the fields where the latter is proficient. He will naturally turn his efforts towards other domains. That explains why, when the elder brother is a good student, often the younger one will not succeed so well in the classroom, but will become outstanding on the ballfield or in social relations.

The youngest child feels his inferiority more than any of the others. He may be spoiled, because all the others take care of him. He may feel inferior, because all the others are so much ahead of him. If he has an energetic nature, he may strike out in a new direction, not tried by anybody else in the family, and show great inventiveness and enterprise.

Adler's system is more optimistic than Freud's. All the deviations mentioned above may be avoided if the parents are aware of the factors which lead to them. His system contains many useful notations, especially for child and adolescent psychology. Like Freud, however, he has a tendency to overlook the higher aspects of man

and to stress one drive too exclusively. Furthermore, his exaggerated emphasis on society, which he considers the ultimate end of man, is opposed to the Christian conception of man as an end in himself, although subordinate to God.

The System of Carl Gustav Jung

Jung's system, which is called Analytical Psychology or Complex Psychology, is difficult to explain clearly in a few pages, because it is rich and sprawling, in a state of continual flux and growth, and because it has never been summarized by its author in one comprehensive work. It is too important, however, to be passed over in silence. Therefore we shall attempt to give, in the following paragraphs, a short and necessarily oversimplified summary of it.

1. Jung admits, besides the personal Unconscious mentioned by Freud, a collective Unconscious, which is shared by all the members of the human race, and which "consists of the inheritance of the psychic experiences of mankind. . . . Jung was obliged to postulate this 'collective Unconscious,' in addition to the 'personal Unconscious,' owing to the fact that certain symbols—or, more precisely, dispositions to form certain symbols—are found uniformly all over the world, and that similar symbols emerge in dreams, in day-dreams, in the phenomena of 'second sight,' in religious and magical figures and emblems, in myths and fairy stories, in gnostic visions, in alchemy, and in automatic and 'inspired' designs and utterances."[1]

2. Transcending the unilateral conceptions of Freud and Adler, who attributed the whole of mental development to the influence of one specific drive, whether the sexual instinct or the will to power, he considers the "libido" to be the driving force which explains man's mental life. This libido is not the sex drive or a derivation of it. It is the name Jung gives to the totality of undifferentiated psychic energy, not only feeding the sex drive and the drive towards self-assertion, but also giving rise to higher tendencies, such as the religious drive.

3. For Jung the psyche is a self-regulating system, that is a system which tends unconsciously to counteract any one-sided development which circumstances may have forced upon the individual. Thus a

[1] G. Frei, in *God and the Unconscious*, by V. White, O.P. (Chicago, Regnery, 1953), p. 238.

scientist may easily develop his brain at the expense of his emotions. His Unconscious compensates automatically and develops in the direction of great emotionality. Sooner or later this man will be faced with a sudden eruption of this unconscious, and therefore infantile, archaic emotionality; he will go through a psychic crisis which, if skillfully handled, may give him the opportunity of consciously assimilating the long-neglected affective sphere of his personality and building his psychic life again on a wider base. Jung calls the unconscious, undeveloped sides of our personality the "Shadow" and opposes them to the "Persona" which consists of those traits which we have consciously developed and which we show to our environment.

4. It is evident from (3) that Jung looks on a psychic crisis—a complex, a neurosis—not merely as a breakdown of the mind, but also as an opportunity for mental growth and development if it is well treated. It is not only the outcome of some previous mistake, it should also be the starting point of new mental gains. Likewise for him the dream is not entirely explained by the past experiences of the dreamer. It possesses also a "prospective" aspect, through which the person may become aware of aspirations and possibilities which have been neglected or repressed and which crave satisfaction. Among these aspirations Jung emphasizes the need for contact with the Absolute, the religious tendency of man. Very famous are the following words of Jung written in 1932, "During the past thirty years people from all the civilized countries of the earth have consulted me. . . . Among all my patients in the second half of life—that is to say, over thirty-five—there has not been one whose problem in the last resort was not that of finding a religious outlook on life. It is safe to say that every one of them fell ill because he had lost that which the living religions of every age have given to their followers, and none of them has been really healed who did not regain this religious outlook."[1]

5. Jung discovers these yearnings of man especially in what he calls the "archetypes," a product of the collective Unconscious which emerges often in dreams. Archetypes are inherited collective ways of conceiving, or rather of imagining reality, "in situations of general human character, e.g. such situations as those of fear, danger, struggle

[1] C. G. Jung, *Modern Man in Search of a Soul* (New York, Harcourt, 1936), p. 264.

against superior force, the relations of the sexes, of children to parents, . . . of reaction to hate and love, to birth and death. . . ."[1] Men have met such situations over countless generations and they have reacted to them in their own typical way. The innumerable repetitions of these reactions have left an imprint in the mind of the human race, which explains why, even before the individual meets these situations, he possesses the ability to symbolize them and his reactions to them. Jung has studied these archetypes and their symbols in a great number of cultures, both ancient and modern. Many of these symbols refer to religious realities, and by studying them Jung has been able to demonstrate the existence in the collective Unconscious of many vague aspirations which correspond to some of the dogmas of revealed religion.

This mixture of psychology and theology in Jung's works has given rise to many misunderstandings. Quite a number of authors accuse Jung of being an atheist, or a pantheist, or a modernist who reduces supernatural realities to mere psychological symbols. Although his way of speaking may sometimes seem to justify these accusations, Jung does not deserve them. He has made it increasingly clear, especially during later years, that his intention is not to evaluate the reality of supernatural facts (that is the work of the theologian), but only to show as a psychologist that, deep in his Unconscious, every human being shows a yearning towards them and a readiness to accept them.

6. The most recent school of depth-psychology, Existential Analysis, now flourishing in Austria and Germany, has developed some of Jung's ideas. The existential analysts claim that the religious need is one of the strongest needs of man, that it is present in every individual but is often repressed. This repression may be very harmful to psychic health, and psychotherapy must counteract it. An atheist is a person who represses his religious drive, and he may suffer ill effects from that repression. "Nobody will convince us that man is a sublimated animal—since we can demonstrate that he carries within himself a repressed Angel."[2]

7. There are undoubtedly many valuable elements in the system of

[1] J. Jacobi, *The Psychology of C. G. Jung* (New Haven, Yale University Press, 1951), p. 12.

[2] V. E. Frankl, *Der Unbewusste Gott* (Wien, Amandus-Edition, 1948), p. 88. (Our translation.)

Jung and of the Existential Analysts. They deserve credit especially for rediscovering and emphasizing man's higher aspirations. We have already demonstrated that man's intellect and will alike strive continuously towards the Absolute. This philosophical demonstration finds unexpected confirmation in the most modern systems of psychotherapy. It seems undeniable that some individuals work themselves gradually into neurosis or psychosis because they repress some of their most fundamental cravings, especially their craving for the Absolute. It would be an exaggeration, however, to attribute all or even most cases of mental disturbance to such causes and to ignore the possible influences of other drives.

The Existential Analysts are not the only psychotherapists who show a tendency to come back to the traditional conception of man. Under the influence of Otto Rank, Karen Horney and Carl Rogers, many psychotherapists are again stressing the spontaneity, the initiative, the "will" of their patients. They no longer consider them as helpless victims of their disordered drives, but as individuals who must be helped in their personal efforts to recover the direction of their life. The "Will" which Rank rediscovered may not be the will of Scholastic philosophy; it is nevertheless a factor which brings the conception of man in some of the most recent trends in psychotherapy considerably nearer to the traditional doctrine.

Conclusion: Influence of the Environment upon Temperament

Temperament is molded both by physique and by the influence of the environment, especially the early environment. The system of Sheldon has shown us the relations existing between physique and temperament. The data collected in this chapter give us an idea of the influence of the environment upon human temperament.

It seems probable that if the environment, especially the early environment, were absolutely the same for all individuals, each would develop a temperament corresponding perfectly to his physique. But the environment is far from identical for all men, and temperament does not correspond perfectly to physique.

Concerning this influence of the early environment on human temperament, and indirectly on human personality, we can learn much from Freud and the other depth-psychologists. They have

demonstrated the great importance of the first childhood impressions upon the affective foundations of personality. Factors which would hardly affect an adult may have a deep influence on the receptive mind of the child. They may establish ways of feeling and reacting which will affect all his later development.

Above and beyond biological needs, the young child has psychological needs, especially the need for affection, for feeling important and for security.

Freud has emphasized the sexual needs of the child. If we drop the manifest exaggerations of some of his statements, we see that what he often means is the need for affection. The way in which this need is satisfied, first by the mother, later by the other members of the family, has a far-reaching influence upon the temperament of the child.

Adler has insisted on the need of a feeling of strength and importance, which the child develops as soon as he becomes aware of himself and his environment. If that need is not satisfied, he may develop a feeling or a complex of inferiority which may mark him for life. When parents know the factors which may produce these unhealthy reactions they can easily avoid or counteract them.

Horney, another disciple of Freud, has emphasized the need for security which is very strong in young children. That need may be considered as a combination of the two previously mentioned needs: being loved and feeling strong produces a feeling of security.

It should be noted that harm may be done to the child not only when these needs are not satisfied, but also when they are too well satisfied. Too much affection or security, allowing the child to feel too strong or too important, may interfere with right development as seriously as neglecting his psychological needs. Such treatment may pamper and spoil the child and make him overdependent, overconfident, conceited and anti-social.

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CHAPTER 21

Characterology and Experimental Study of Character

We have made a distinction between temperament, primary character and secondary character. Temperament refers to the totality of the affective functions, primary character to the totality of the uninhibited drives, and secondary character to the totality of the drives as directed and controlled by the will. In fact, this distinction is difficult to make in practice. The relation between emotions and drives is so intimate that it is difficult to distinguish between temperament and primary character. The diagram on p. 280 shows that, like temperament, primary character is a product of heredity and environment. Even a differentiation between primary and secondary character, although real and founded on the distinction between the will and the drives, is difficult to make in practice because of the subtle interaction between the lower tendencies and the human will.

Sheldon's work has provided us with a valuable classification of physiques and temperaments. Do we have anything comparable in the domain of character?

EUROPEAN SYSTEMS OF CHARACTEROLOGY

Many classifications of character have been presented since the earliest attempts of Theophrastes and Galen. All these classifications suffer from the same defect: they are not based upon a solid foundation of scientific facts. Their authors rely on their own experience and on second-hand information and build their systems on

this rather flimsy foundation. Even where some experimental data are available, they are not sufficient to bear the ambitious systems based upon them. These constructions frequently demonstrate great psychological insight and a solid knowledge of human nature; but such ingredients are not sufficient for scientific work.

Despite these weaknesses the empirical study of character has been carried on with great vigor by many European psychologists and has given rise to a special science known as "characterology." While American and British psychologists have given up these attempts and concentrated on a more experimental approach, some Continental authors have developed classifications which have become famous enough to deserve brief notice.

One of the most famous of these systems is that of E. Kretschmer.[1] We shall not set it forth here, because the valuable elements of his work have been taken over by W. Sheldon in the classifications we studied in a previous chapter.

The characterology of E. Jaensch is based upon the idea of "integration." In some people the various psychological functions have a tendency to work in close collaboration, whereas in others each works on its own account. The former are called "integrated," the latter "disintegrated." In the integrated individual thinking is continually influenced by feelings, emotions and imagination; some physiological functions are saturated with meaning, as is evidenced by the brightness of these individuals' eyes and the spontaneity of their gestures. In the disintegrated individual, the functions maintain their mutual distinctions. When he thinks no feelings are allowed to interfere, the imagination is excluded. His eyes are dull and his gestures meaningless and almost mechanical.

The integrated type is further subdivided according to the degree of integration. The exaggerated integrated type is called the Basedowoid type (B-type), because it presents all the symptoms of Basedow's disease.[2] Among normally integrated individuals, we find first those in whom integration is especially strong between the perceiving and the other mental functions. As a result of this integration, this type is in close contact with exterior reality. Jaensch calls it the

[1] E. Kretschmer, *Physique and Character*, trans. by W. J. H. Sprott (New York, Harcourt, 1925).

[2] A disease resulting from the hypertrophy of the thyroid gland, and characterized by protruding eyes and general excitability.

"generally and outwardly integrated type" (I_1-type). When the integration is weaker, the individual is still in contact with the exterior world, but only by means of some solid inner complexes which react upon corresponding outer stimulations. Such individuals are interested in things only when they correspond to their ideals, interests or hobbies. This is the "conditionally and temporarily integrated type" (I_2-type). In a third group the integration exists only within the person himself and there is no close contact with exterior reality. This is the "inwardly integrated type" (I_3-type).

Another basis for subdivision is found by Jaensch in the relation prevailing between the individual and the outside world, between subject and object. In the I_1-type, where this relation is very strong, the object dominates, the subject is receptive. In the "synesthetic type"[1] the subject dominates; he projects his interior life onto exterior reality, he materializes his feelings in the object in nature, he constructs logical frameworks wherein all the phenomena must fit.

The synesthetic or S-type is further subdivided into the S_1-type and the S_2-type. The first one is the pure synesthetic type, entirely subjective in his relations towards reality, whose interior life is dominated by fancy, dream and magic. The S_2-type corrects this too subjective outlook on life by means of ideas, maxims and rules. These constitute what Jaensch calls a rational superstructure, a kind of secondary and somewhat artificial character, which allows the subject to avoid the extreme deviations of his natural character.

Jaensch has not studied the disintegrated type as thoroughly as the integrated type, and we find no further subdivisions of that type in his scientific works.[2]

Eduard Spranger classifies individuals according to the values which are foremost in their life. He distinguishes six major domains of values: the theoretical, aesthetic, economic, religious, political and social values, and an equal number of types. In the pure types of his system one of these values commands the entire life of the individual. Consequently we have the following six types: (1) the theoretical type, who is in contact with reality and with other people only through his intelligence; the influence of his affective and

[1] From synesthesia (cfr. p. 104), which occurs frequently in these individuals.

[2] E. Jaensch, *Grundformen Menschlichen Seins* (Berlin, Elsner, 1929). Under the Nazi regime Jaensch put his great psychological talent at the service of Nazi ideology and propaganda, thus losing all standing in the scientific world.

volitional life is reduced to a minimum and disinterested knowledge is his main pursuit; (2) the economic type, who looks at everything from the point of view of its usefulness; (3) the aesthetic type, who is always looking for artistic beauty and expression; (4) the social type, who puts the stress on understanding and helping his fellow men; (5) the political type, who strives towards the full development of his personality by subordinating all other people to his own ends; and (6) the religious type, who refers whatever he knows or does to the totality of being and of reality.

Spranger emphasizes that his types are ideal types, seldom occurring in reality. In most people two or more values compete for the direction of life.[1]

C. G. Jung classifies all people in two categories, the introverts and the extraverts (or extroverts). The extravert is interested in objective reality and in practical affairs; he is a realist, who pays little attention to his own mental life. He is tough-minded and pragmatic. The introvert is more interested in the interior world of his own feelings, attitudes and dreams; he has a rich affective life and he is impractical in daily life.

Both extraverts and introverts are further subdivided according to the mental function which is predominant in their lives. Jung distinguishes four functions: thought, feeling, sensation and intuition. Thought approaches reality by means of concepts and deductions; feeling evaluates it according to its pleasantness or unpleasantness; sensation observes it in a conscious and systematic way; intuition takes it in by noticing and interpreting in a vaguely conscious or unconscious way the many small cues which lead to a deeper understanding.

According to Jung most individuals possess one "superior" and one "auxiliary" function. One of the four functions is clearly predominant in an individual's life, while another function, although not as well developed as the superior function, plays a certain part in his conduct. The two other functions are undeveloped and unconscious. Thus an extravert whose superior function is thought and whose auxiliary function is intuition can be classified as an intuitively speculative extravert.

We must remember here what we have said previously about Jung's

[1] E. Spranger, *Types of Men*, trans. by P. J. W. Pigors (Halle, Niemeyer, 1928).

conception of the psyche as a self-regulating system. He claims that the Unconscious of an individual always develops the attitudes and functions which that individual neglects in his conscious life. Thus the Unconscious of the intuitively speculative extravert will be introverted; its superior function will be feeling (as opposed to thought) and its auxiliary function will be sensation (as opposed to intuition).[1]

HEYMANS' CLASSIFICATION OF CHARACTERS

The system of characterology which, in our opinion, works best for *practical* purposes is that of Gerard Heymans. That system has recently been presented again with great skill by a famous French philosopher, René Le Senne.[2] Le Senne did not obviate the scientific weaknesses which modern psychologists attribute to Heymans' system. Notwithstanding his deep psychological intuitions, the classification remains pre-scientific.

Heymans' classification is based on a considerable number of facts, collected by means of a questionnaire and a biographical survey. The questionnaire consisted of 90 questions, referring to a great number of character traits. Heymans (in collaboration with Wiersma) sent this questionnaire to all the physicians of the Netherlands, asking them to answer it with regard to a few persons with whom they were well acquainted. Answers were received from 458 doctors, containing detailed accounts of the characters of 2,523 individuals. The biographical survey consisted in a thorough study of 110 biographies, giving plentiful information about the character of a certain number of artists, scientists, statesmen, generals, etc.

Among the many traits thus collected Heymans discovered three traits whose influence is predominant in the individual's character. He called these three traits the fundamental traits. They are emotionality, activity and secondary function.

An individual is classified as emotional or not-emotional according to the frequency and the intensity of his emotional reactions as com-

[1] C. G. Jung, *Psychological Types*, trans. by H. G. Baynes (New York, Harcourt, 1926).

[2] G. Heymans, Einführung in die Spezielle Psychologie (Leipzig, Barth, 1932). R. Le Senne, *Traité de Caractérologie* (Paris, Presses Universitaires de France, 1946).

pared with their causes. He is considered active or not-active according to the frequency and the intensity of his activity as compared with its motives.

The notion of secondary function requires more explanation. We shall make use of another term, retentivity, and we shall speak of retentive and not-retentive individuals. Every person's behavior is, at each moment, influenced partly by the present situation, partly by his past experience. There are great individual differences in the relative strength of these two influences. Retentive individuals are those who are more influenced by their past experiences than by the present situation. Even when they are no longer aware of these past experiences, they continue to be guided or directed by them. On the other hand, not-retentive individuals are more influenced by what they see, hear, feel or experience here and now. When a psychic content has slipped out of their consciousness, it loses most of its influence upon their conduct.

Take two boys, Paul and John, who have both lost their mothers a few days ago. After the funeral they come back to school. Paul is not changed, he is the same cheerful, lively boy as before. When he thinks of his mother, he feels a surge of sadness in his heart; when he does not think of her, his loss does not seem to affect him. Paul is not-retentive. John, on the other hand, has changed. He has become more serious and more withdrawn. Even when he does not think of the death of his mother, that sad experience continues to weigh upon him and to affect his whole conduct. John is retentive.

This is an important distinction. It is immediately evident that retentive individuals have more unity and consistency in their lives, since the continual changes in their environment do not influence them too much. But they have some trouble in adapting themselves easily to new circumstances. Not-retentive individuals, on the other hand, show little unity in their lives, precisely because they adapt themselves so readily to every new situation. Retentivity is to character what a fly-wheel is to an engine; it makes movement smooth and even but renders sudden changes in speed rather difficult.

Theoretically these three fundamental traits can occur in eight different combinations. In fact, Heymans claims that the data of his questionnaire and survey show that these eight combinations really occur. He has given each of these combinations a name taken from everyday language, as shown in the following table:

not-emotional	not-active	not-retentive	AMORPHOUS
		retentive	APATHETIC
	active	not-retentive	SANGUINE
		retentive	PHLEGMATIC
emotional	not-active	not-retentive	NERVOUS
		retentive	SENTIMENTAL
	active	not-retentive	CHOLERIC
		retentive	PASSIONATE

The three fundamental traits and their eight combinations can be represented by a cube (Fig. 13). Every dimension of the cube represents a fundamental trait, and each corner stands for a character.

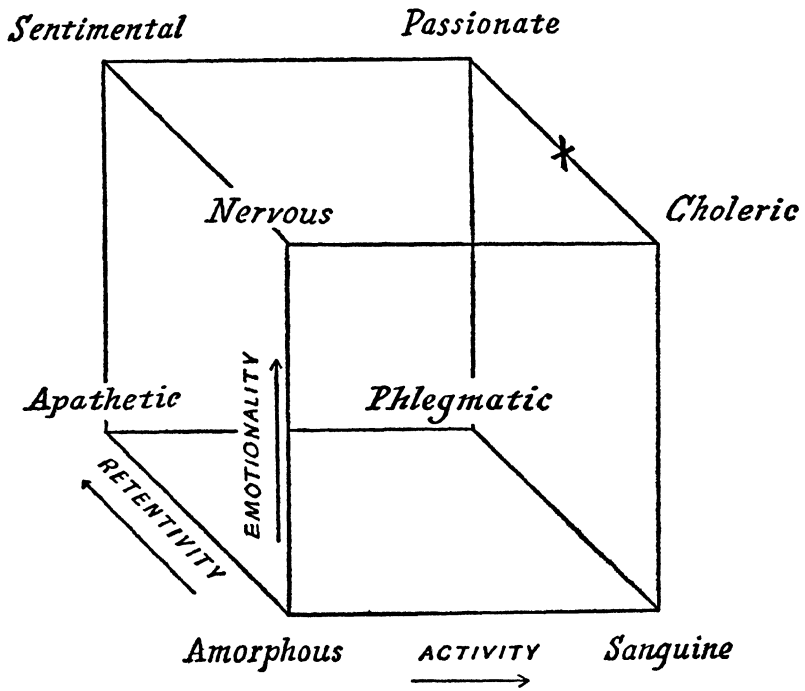


Fig. 13

This diagram makes it clear that the pure types are exceptional, that most real characters are, in various degrees, combinations of these pure types. Every point in the cube represents a possible character. Thus X represents a character which combines emotionality and

activity but which is intermediate in retentivity. It is a blend of the choleric and the passionate types.

Heymans tried to show that these eight types are not mere "arm-chair constructions," but occur in reality. He considers a certain number of traits and finds, from his questionnaire and survey, how often such a trait occurred, say, in the nervous type, as compared with the average for the seven others. He claims that he can demonstrate in that way that there are real differences between his eight characters.

The main objection of present-day psychologists to Heymans' system is its statistical weakness. The statistical procedures with which he worked during these early years of experimental psychology are rather crude, and they did not enable him to demonstrate that the differences between his eight types are scientifically reliable. In other words: if Heymans had sent out the same questionnaire once more and obtained the same number of replies, what are the chances that the results would have been approximately the same? Because of the primitive nature of his statistical methods, he would have been unable to answer that crucial question.

Yet a sufficient number of these differences seem to be reliable, and for lack of any better system of characterology, we might use this classification, as many scientists used empirical classifications of plants and animals before their scientific classification had been established by Linnaeus.

I. The Emotional Inactive Types

The nervous and the sentimental have two striking features in common: a subjective outlook on life and irregular bursts of activity. Subjective outlook on life: Both types are emotional, so that feelings, emotions and sentiments are uppermost in their life. Furthermore, they are inactive, so that they cannot "unload" these emotions into activity, they cannot work them off. Hence, they are continually brooding over them, they "feel" their way through life, they rarely take an objective stand towards reality.

Irregular outbursts of activity: these individuals are active only under the influence of a strong emotion. Then they may show a feverish activity which they carry on for quite a time. But when the emotion fades away, the activity disappears with it. Real activity feeds on ordinary stimuli and is always present.

(1) The Nervous Type (emotional, not-active, not-retentive):

In his biographical survey Heymans discovered the following outstanding representatives of the nervous type: Lord Byron, Dostoievski, de Musset, Edgar Allan Poe, Lawrence Sterne and Richard Steele.

Moral effort is not easy for them, theirs is a difficult character. Because they are emotional, they are carried away by every strong stimulus. The lack of activity leaves them open to many temptations. The lack of retentivity deprives them of the steadying influence of the past. Sometimes the nervous individual seems to be retentive, because he may brood for a long time over some emotion; he feeds it, he keeps it alive in his mind. But when it finally disappears it exerts no further influence on his life.

Nervous people often show strong contrasts or even contradictions in their lives. Their conduct may be entirely different from one day to the next, so that different people will make different judgments about them.

Nervous individuals are often distracted. They are rarely profound, often shrewd and keen of mind. Their judgment is absolute, but changes quickly. They are very sensitive to all bodily stimulations or stimulants, to cold and to heat, to a small quantity of coffee or alcohol. They easily worry about their health. They prefer to work during the evening or at night, rather than in the morning.

The great resources of the nervous type lie in the domain of social talents and artistic endowment. Nervous people are generally witty, they easily discover the funny aspects of a situation, they are good narrators and good actors. They can be most brilliant in society, But they will display their talents only when they are in "good form," when they are stimulated by the right environment. Otherwise they can be very dull. In his biographical survey, among the twenty individuals whom he considered as nervous, Heymans discovered thirteen artists, not a single philosopher or scientist. Nervous people lack the qualities which are required for philosophical and scientific work: exactness, power of observation, perseverance.

(2) The Sentimental Type (emotional, not-active, retentive):

Biographical survey: Charlotte Brontë, Amiel, Kierkegaard, Maine de Biran, Malebranche, Thackeray.

A sentimental individual can be singled out early in life. Sentimental children do not like to play with others, they prefer to dream, to read books, to listen to adult conversation. They come up with strange questions about profound problems.

The sentimental differs from the nervous only by the presence of a strong retentivity. That is enough, however, to hold in check the inferior tendencies, to correct the inconstancy and fickleness of the nervous type.

The judgment of the sentimental person is often biased by his emotions. He frequently shows great aptitudes for mathematics and

languages. Theoretical speculation appeals to him only when it can help him feed his sentiments. Heymans found in this group several philosophers with strong religious tendencies, v.g. Kierkegaard and Malebranche.

Like the nervous, the sentimental is impulsive and irritable. More often than any other type he is gloomy, downhearted, shy and bashful. His affective life is deep, he is very serious. Moral and religious ideas have a great influence in his life; he is often fond of bold theories; he likes extreme positions, conservative or radical, strongly religious or cynical. He has a strong tendency to analyze and criticize himself. He generally prefers a simple life in the country to the busy social life of the city.

He is not used to tackling his work and carrying it out without delay. He is not clever in practical life. He has trouble making up his mind; when he has succeeded, execution remains difficult. He is honest, trustworthy, thrifty, disinterested, compassionate and ready to help others.

II. The Not-Emotional, Not-Active Types

The two negative features of these individuals have a tendency to strengthen each other. Because they are not-emotional, they do not even have the passing fits of activity which we have observed in the two previous types; because they are not-active, the few emotions they have are but weakly expressed.

Their attention, both voluntary and spontaneous, is weak and rigid; their associations are slow; they have a poorly developed intellectual life. But they adapt themselves easily to their environment, especially the amorphous type, for the simple reason that their lack of psychological backbone makes them fit every framework.

No individuals belonging to these types were discovered in the biographical survey.

(3) The Amorphous Type (not-emotional, not-active, not-retentive):

All their fundamental dispositions are negative; they are passive and impersonal. They go where they are pushed, they are driven and directed by the circumstances or by the people with whom they live. They borrow their ideas from their last conversation, from the last book they have read, or from the newspapers. One could almost say that they have no character.

Their interior life is poor and empty, which explains why they suffer from chronic boredom. To rid themselves of that oppressive feeling, they are liable to reach for every available pleasure, even when it is immoral.

Very few things interest them. They are not ambitious, nor concerned with political or moral questions. They do not like social intercourse, and when they have to join it, they are dull-witted and reserved.

Even in danger or an emergency they stay undisturbed, and in such cases they may be more helpful than more brilliant types. Their affective life is quiet and even, often cheerful. They are tolerant and unable to get angry.

Amorphous people are often good actors. Heymans explains this as follows: having no character of their own, amorphous individuals have no trouble donning the character of somebody else.[1]

(4) The Apathetic Type (not-emotional, not-active, retentive):

Owing to their retentivity they are not as impersonal as the amorphous, and they oppose some resistance to exterior influences. But the lack of emotionality and of activity explains why their retentivity manifests itself above all in the formation of habits and routines. They are, to a great extent, the slaves of their own past. They think, feel and speak as they have always thought, felt and spoken. They may produce the impression of having a strong character, but that strength is purely negative and consists in psychic inertia.

They have few personal ideas, but they cling to these with great energy. They lack imagination, and their minds are slow-working. They are often distracted and narrow-minded; they are neither clever nor witty. Their mood is often sad and depressed. They rarely laugh. But they are quiet, not impulsive nor irritable.

They have trouble making up their minds; they hold grudges; they are taciturn, and inclined to grumbling and to miserliness.

With old age many people develop the traits of the apathetic character.

III. The Not-Emotional Active Types

Feeling and emotions do not dominate their whole lives, as with the nervous and the sentimental types. Hence they possess a more balanced character. Everything which favors activity is stressed in their thought. Their activity is not the feverish one of the nervous type in his moments of exaltation, it is steady and adaptable.

(5) The Sanguine Type (not-emotional, active, not-retentive)

Biographical survey; Francis Bacon, Lessing, Montesquieu, and Mme de Sévigné.

It may seem strange that the sanguine type is tagged as unemotional. We are accustomed to think of sanguine people as people who react strongly upon every impression and who display their emotions without much restriction. It is true that the sanguine type expresses his emotions very freely, but it does not follow that he experiences many and strong emotions. In him expression often exceeds impression.

The activity of the sanguine differs from that of the phlegmatic type because it is less steady and systematic. His lack of retentivity does not

[1] It does not follow, of course, that all good actors are amorphous!

favor perseverance, and he will easily be discouraged in meeting obstacles. Not for a long time, however; soon his activity will prompt him to resume his efforts, to try other ways of reaching his end. The phlegmatic type may wear down the obstacle, the sanguine type takes a roundabout way.

The sanguine has a happy and genial character. There is something in him which reminds one of the cheerfulness and spontaneity of a child. His lack of retentivity makes him very adaptable and capable of getting along with all kinds of people. He takes life as it comes and enjoys the small pleasures it brings. No type is fonder than the sanguine of all kinds of athletic activities.

His mind is quick and alert but rather superficial. He is the man who always remembers a good joke or a fitting quotation, who is ready to make a speech or to tell a story. Owing to his activity, his practical judgment is often sound.

All these elements taken together: balanced character, easy social contacts, adaptability to new circumstances, a certain perseverance, quick and right judgment, explain why the sanguine is often a good leader, especially in circumstances where many quick decisions must be made. For long-range planning and leading the phlegmatic type is superior.

(6) The Phlegmatic Type (not-emotional, active, retentive):

Biographical survey: Buffon, Benjamin Franklin, Gibbon, Hume, Locke, John Stuart Mill, St. Thomas More.

Their most striking feature is, as their designation implies, their phlegm, their coldness. This is the result of their lack of emotionality combined with retentivity. But their activity too is quite remarkable. It is a calm, steady, regular activity. They rarely become discouraged, even before the strongest obstacles, and they cling to their purpose with unshakable tenacity. With low intellectual development this steady activity may turn into a simple routine and a worshipping of "red tape." With higher intellectual development one finds phlegmatics who devote their whole life to the pursuit of some goal—politicians, generals, businessmen who foresee to the last detail every move they will make and follow persistently the course they have mapped out.

As a rule the phlegmatic is intelligent, broadminded, personal in his judgment. He is rarely distracted; he reads much and remembers well what he has read. He is not brilliant or witty. But he is systematic, methodical, patient. He is generally better endowed for scientific than for artistic work. Among the twenty-four phlegmatics whom Heymans studied in his biographical survey, he found only four artists as against fourteen men of science.

The phlegmatic character differs from the nervous character through all its fundamental traits. Moral self-control is very difficult for the nervous, it is rather easy for the phlegmatic. However, his altruistic tendencies are poorly developed.

IV. The Emotional-Active Types

Their emotionality differs much from that of the nervous and the sentimental type. Owing to their activity, they do not brood over their emotions but convert them into activity. Their life is not dominated by their feelings but by practical considerations. Passive emotions, such as fear and sorrow, are replaced by active emotions, such as anger and love.

The activity of this group differs from that of the preceding group because it is fuller, richer, enlisting the whole personality. This is an effect of their emotionality.

(7) The Choleric Type (emotional, active, not-retentive):

Biographical survey: Danton, Dickens, Goethe, Mirabeau, Walter Scott.

Despite their lack of retentivity the cholerics do not lack perseverance. But their perseverance resembles that of the sanguine more than that of the phlegmatic type. They cling to their purpose because they like activity. This is especially true when they meet obstacles. The choleric enjoys a struggle and even a fight. Every occupation which opposes some kind of resistance stirs up his activity, because he considers it a challenge.

His emotionality has an active aspect. As a rule his emotions result from his activity and lead back to it. He does not pity those who are unhappy, he helps them, and if he cannot help them, he forgets them. The intelligence is easily biased by their emotions and they are better at executing orders than at issuing them.

They dislike pure science, being more interested in its practical applications. In the religious domain their faith is active, in politics they are opportunists.

They do not like to weigh the pros and the cons, but they trust their intuitive judgment, which is often right, at least in practical matters. Their tendencies show something rough and primitive. Above all they like liberty and loathe any kind of compulsion, so much so that even the social conventions may be felt as a burden. Yet frequently they do not grant to others the liberty which they claim for themselves. They like to meddle in everything and to dominate everybody. Despite its roughness this is generally a lovable type, in whom one finds many traits of a rough but unspoiled boy.

(8) The Passionate Type (emotional, active, retentive):

Biographical survey: Carlyle, Flaubert, Luther, Marat, Michelangelo, Napoleon, Pascal, Swift.

They differ from the cholerics by more unity in their lives, owing to their retentivity, and from the phlegmatics through more warmth and intensity, owing to their emotionality. Their name derives from the fact that their life is often dominated by a passion, that is by an intense and lasting tendency which commands all their activities.

Their emotionality does not show as much as that of the nervous or of the choleric, because their retentivity puts brakes on any kind of expression. Sometimes, however, they are carried away by a sudden and violent outburst of bad temper, especially when they are thwarted in their activity or when they meet petty opposition.

Their emotionality, abetted by a strong retentivity, has often an unfavorable influence upon their mind. Passionate individuals are often biased in their judgment; they have settled ideas about everything, they are clever in defending their ideas, but they seem blind to every point of view which is opposed to their own.

In the passionate type all the fundamental dispositions are positive, which explains the richness of their character. Cleverly used, this psychic wealth can produce great results. But it also frequently becomes a cause of friction between the individual and his environment. The passionate individual has trouble adjusting himself to others, and he readily clashes with his superiors or his equals, especially when he meets other strong personalities. With his subordinates and with people who oppose no resistance he is often kind and gentle. In general, however, he is admired and feared more than he is loved.

The passionate has a strong tendency to self-analysis and introspection. His mood is often gloomy; he is aloof, impatient, inclined to criticize more than to idealize. More often than any other type, he is ambitious.

Passionate individuals work regularly and easily become absorbed in their work. They are persevering, not easily discouraged by men or circumstances. The passions which dominate their life are more often egoistic or idealistic (ambition, religious proselytism, science) than altruistic passions. They do not care much for sport, pleasure, comfort, social life. They sometimes feel a vague longing to get away from civilization into a more simple kind of life.

EXPERIMENTAL STUDY OF CHARACTER

When we said that no scientific classification of character is yet available, we did not mean to imply that experimental psychology has made no progress in this line. During the last quarter century psychologists have made great strides in the study of human character and personality.[1] The following pages present a non-technical summary of this promising group of investigations.

[1] In this country the word personality is often used to designate what we have defined as "character." Therefore the title of this chapter could also be "Experimental study of personality."

Methods

Experimental psychology uses four main methods in the study of personality.

1. The Clinical Method. This method is used in psychiatry, abnormal psychology and clinical psychology. It starts with the study of abnormal behavior. When an individual is mentally abnormal, whether mildly (neurotics) or severely (psychotics), he presents a certain number of symptoms. Each mental illness has its own rather well-defined pattern of symptoms, which is called a syndrome. Examples of such syndromes are: mania, paranoia, hysteria. Many psychiatrists and psychologists hold the view that these syndromes are but exaggerations of normal trait patterns. This view is confirmed by the fact that it is possible to line up individuals who present such a pattern in various degrees of intensity, from a clearly normal to an evidently abnormal stage. Thus a transition can be shown between the manic patient and the normal "cyclothyme," over various forms of hypomanic or cycloid personalities. All these individuals possess the following common features: liveliness in movement and expression, need of social contact, euphoria and cheerfulness, with occasional let-downs into depression. In the normal person these traits do not assume extreme forms. In the psychotic they are clearly abnormal, whereas the intermediate stages show a gradual deterioration from normal to borderline to abnormal. Psychology cannot use the microscope, which is so useful an instrument in most other sciences. But nature itself has provided cases where the workings of the mind are enlarged and available for closer study. These cases are the various neuroses and psychoses. True, many authors have serious objections to this view, which seems to regard the normal as a weaker form of the abnormal. We cannot enter into a discussion of this point here. It is enough to say that many psychologists hold that conception and that, whatever may be its theoretical value, it has in practice shed much light on some types of personality.

2. Behavior Ratings. This method is continually used in everyday life. From the words and actions of an individual we conclude that he possesses certain traits of character. Simple as this method seems to be, it is exposed to many errors. Therefore the psychologists have tried to refine it and to find the conditions required in order

to make it as reliable as possible. Professor Allport mentions, among others, the following conditions: (1) The traits on which the subject is to be rated must be clearly defined. (2) The judges, those who rate the subject, must be trained in rating. (3) The judges should be invited to tell how certain they are that their rating is correct (as their certainty increases, the reliability of the ratings becomes greater). (4) The judges should be, as much as possible, of the same sex, the same nationality, the same social group, etc., as those who are to be rated (in general, the more the judges have in common with the subjects, the better they understand them). (5) Care should be taken to avoid the "halo effect," which results from a tendency to rate the subject on a certain trait, not according to his real standing in this trait, but according to the general impression he makes, an impression which frequently derives from a single outstanding feature of the subject.[1]

3. Self-Inventories. This method generally takes the form of a written character or personality test, in which the subject is supposed to answer a considerable number of questions referring to personality traits or to behavior connected with such traits. This method is rather easy and has been used extensively. Yet it has serious weaknesses. The subjects may not know themselves well enough to give reliable information about their own characters. They have no sufficient basis of comparison with others because of their insufficient knowledge of these others. A person cannot tell whether he worries more than the average person unless he first knows how much the average person does worry. The subject may easily cheat in such tests and try to make a good impression on the experimenter. If information is requested not about traits, but about activities which are supposed to demonstrate the existence of traits, there remains the danger that the same activity may be caused by different traits. Thus, as Allport remarks, a person may always seek a front seat at public meetings either because he is aggressive or because he is hard of hearing.

Several methods are used to eliminate these shortcomings. Purely subjective, introspective questions are avoided. Special questions are introduced which may trip a subject who tries to fake his answers. In this way the self-inventory method, if carefully used, may yield valuable information, especially in the domain of general behavior (including neurotic behavior), interests and attitudes.

[1] G. W. Allport, *op. cit.*, pp. 436-447.

4. Objective Test Measurements. In this method the subject is examined in situations which resemble those of real life (miniature life situations). His behavior is observed, and if possible measured, by others, and conclusions are drawn about the traits underlying his reactions. The most famous of these experiments are those of Hartshorne and May, in which thousands of children were examined on honesty, persistence, co-operativeness, etc. Example: in an examination the children were given an opportunity to improve their marks by cheating, apparently without risk of detection, but actually with full knowledge of the experimenter.[1]

In this group we must also mention the projective techniques, as exemplified in the ink blot test of Rorschach, the Thematic Apperception Test of Murray, and many others (cfr. p. 108). Used by expert investigators they may yield valuable information.

Results

There are two ways in which the character of an individual may be described: we may classify him under a certain *type*, or we may enumerate the *traits* which we have discovered in him.

A type is an ideal model abstracted from a large group of individuals or personified in one single individual. Most types are continuous, that is, they possess two poles between which all the individuals of a group can be classified. Jung's famous dichotomy of Introverts-Extroverts defines a type. Some people belong clearly to one pole, they are introverts; others are extroverts (extraverts) and they belong to the other pole. But quite a number of people belong to neither extreme but occupy positions which are intermediate between the two poles.

A few types are discontinuous, they have no clearly defined opposite. They are often exemplified in a single individual. Only a few people can be subsumed under them. When we say that somebody is an "eager beaver" or a "Beau Brummell," we put him under a discontinuous type.

Traits are characteristic dispositions of an individual which make him behave in a more or less predictable way in a given situation.[2]

[1] H. Hartshorne and M. A. May, *Studies in Deceit* (New York, Macmillan, 1930).

[2] For the distinction between trait, habit, attitude, etc., cfr. G. W. Allport, *op. cit.*, pp. 290 ff.

When we know that a person is stingy, we can more or less foresee how he will react when money is involved.

Traits may be individual or common. They are individual when we consider them in the total context of a person's personality, as they are affected by all his other traits. Since each personality is unique, every trait, considered in that way, is strictly individual. They are common when we abstract them from their personal framework and compare them with similar traits discovered in other people.

Traits may be considered genotypically or phenotypically. A trait is considered genotypically when it is considered in relation to its origin, to its underlying causes in the person's life experience. A trait is considered phenotypically when it is considered only in its external manifestations. The first way yields individual traits, the latter common traits. Two individuals may be equally aggressive. The first one is aggressive because he is unconsciously compensating for a feeling of inferiority; the other one because he has a strong somatotonic component. The aggressivity is phenotypically the same in each case but genotypically quite different.

For scientific purposes the most important distinction is that which exists between surface traits and source traits. A clear comprehension of these terms would require considerable knowledge of statistics. We shall try to explain them without introducing statistical terms. A surface trait involves a group of traits which tend to appear together and to vary together in the behavior of many individuals. It corresponds, in the normal personality, to what a syndrome is in an abnormal personality. An example of such a surface trait, as given by Professor R. B. Cattell, is Integrity-Altruism, which contains the following trait-elements: honesty, self-control, self-denial, loyalty, fairmindedness and reliability.[1]

A source trait is the underlying factor which explains the presence of such a surface trait and the degree to which it is realized in an individual. We say "factor" rather than "cause," because experimental psychologists are not ready as yet to affirm that the source trait is a real cause. They have statistically demonstrated that source trait and surface trait vary together, but more evidence is required before a real causality can be affirmed.

One surface trait generally derives from several source traits. On the other hand, the same source trait makes its influence felt upon

[1] R. B. Cattell, *Personality*, p. 37.

more than one surface trait. The number of surface traits is considerably greater than that of the source traits, and seems capable of indefinite extension. The psychologists hope to be able, sooner or later, to explain the presence and the intensity of these countless surface traits by means of a relatively small number of source traits and their mutual interaction. The following example, taken from Prof. Cattell, illustrates the relation between surface traits and source traits.

> Consider, for example, one of the surface traits or types[1] already mentioned—that revealed by the three positive correlations that exist among the three measures: (a) size of vocabulary, (b) arithmetical ability, (c) tactfulness in social situations. If we ask how this surface trait might have come into existence, attention turns first to the influence of innate mental capacity. Other things being equal the individual of greater general mental capacity will achieve a greater size of vocabulary, will handle arithmetical problems more capably, and will also be more clever and tactful in social situations. Some of the observed positive correlations among the three variables in the surface trait will therefore have their source in the fact that the performances all spring in part from a single root, namely, general mental capacity. But it also happens that these three performances are about equally the objects of educational attention, so that the individual who has longer or better schooling will tend to do better at all three of them. Consequently another part (perhaps the remaining part) of the positive intercorrelation seen in the surface trait goes back to this second source—length of education. *General mental capacity* and *amount of education experienced* may therefore be considered two *source traits* accounting for the observed *surface trait*.[2]

The same author explains that two individuals may have vocabularies of the same size, the same arithmetical ability and the same amount of social tactfulness—in brief, the same surface trait—although the influence of the two source traits is quite different in them. The first individual has a great mental capacity but received little formal education; the other has a lower mental capacity but had the advantage of long years of education.

Elsewhere Professor Cattell enumerates and describes the "twelve

[1] Notice how the author equates trait and type, although he maintains the theoretical distinction between the two terms. In practice, especially when we speak of common traits or surface traits, the difference seems to be mainly one of point of view.

[2] R. B. Cattell, *Personality*, p. 22.

primary source traits manifested in all data."[1] These data are the results obtained by applying the four methods mentioned above. This enumeration is only tentative; much more work is required before a complete and final list of the source traits can be presented.

READINGS

The books mentioned in the footnotes:

Allport, *Personality*, pp. 3-23, 55-97, 286-560. Cattell, *An Introduction to Personality Study*. Harmon, *Understanding Personality*, pp. 37-77. Roback, *The Psychology of Character*, pp. 3-446.

For further reading in the field of Personality, the following books are suggested. (The books marked with an asterisk are of a more specialized and/or technical nature.)[2]

Arnold and Gasson, *The Human Person*. *Eysenck, *The Scientific Study of Personality*. Harsh and Schrickel, *Personality: Development and Assessment*. McClelland, *Personality*. *Mowrer, *Learning Theory and Personality Dynamics*. *Murphy, *Personality: A Bio-Social Approach to Origins and Structure*.

For readings in the field of Social Psychology:

Bonner, *Social Psychology*. Britt, *Social Psychology of Modern Life*. E. and R. Hartley, *Fundamentals of Social Psychology*. Herr, *How We Influence One Another*. Newcomb, *Social Psychology*. Sargent, *Social Psychology*.

For readings in the field of Abnormal Psychology:

Cavanagh and McGoldrick, *Fundamental Psychiatry*. Conklin, *Principles of Abnormal Psychology*. Dorcus and Shaffer, *Textbook of Abnormal Psychology*. Landis and Bolles. *Textbook of Abnormal Psychology*. VanderVeldt and Odenwald, *Psychiatry and Catholicism*. White, *The Abnormal Personality*.

[1] R. B. Cattell, *Description and Measurement of Personality* (World Book Company, 1946), pp. 475-497.

[2] This bibliography was compiled with the competent help of Father J. G. Keegan, S. J., to whom we express our sincere gratitude.

SECTION II

Philosophical Study of Man as a Person

MAN AS A PERSON

PHILOSOPHICALLY speaking, a person is an individual subsisting[1] in a spiritual nature. This definition contains a generic element (individual being) and a specific difference (subsisting in a spiritual nature), which we must now examine more closely.

Man As an Individual

A person is an individual being. An individual being is a being which is one in itself and distinct from all other beings. All real beings are individual; general entities exist only in the mind. But all real beings are not individualized in the same way. In general we may say that purely spiritual beings are individualized through their form, and purely material beings through the relation of their form to quantified matter.

God is one in Himself and distinct from all other beings through the very fullness and infinity of His being. Pure spirits or angels are individualized through their essence or form, which represents a unique intensive degree of being. The difference between two angels is not like that between two men, not even like that which exists between two different sorts of animals, but rather like that between an animal and a man. It is an intelligible difference, that is, a difference which can be known by the human intellect without direct recourse to the senses.

Purely material beings, on the other hand, are individualized, are distinct from the other representatives of their species, not through their form alone (which is the same in each one of them), but through the relation of this form to quantified matter. Two oaks possess the same form, but they differ in size, shape, color, in their relation to space and time, and ultimately because they cannot occupy the same part of space at the same moment of time. Such a difference is not intelligible for the human intellect and can be known only through a direct recourse to the senses.

Since man is both a material and a spiritual being, he must share, to a certain extent, the two manners of individualization. Inasmuch

[1] "Subsisting" means "existing as a supposit, as an individual."

as he is a material being, he differs from all other men through the relation of his form to quantified matter. But there must also be formal individualizing features in man. It is hard to admit that I, as a unique incommunicable person, would differ from other persons only through the relation of my soul to matter, that my soul, considered in itself, would be interchangeable with any other human soul.

In fact, only those beings whose form is totally immersed in matter differ from each other only through the relation of their form to matter. As soon as the form emerges from matter, and becomes capable of immanent operations, as soon as we find in a being,

> *an internal and autonomous law of assimilation,* from then on arises *even in a material being, an individual feature of the formal order,* intelligible by right, even if not in fact, . . . constituting an object of science—even if that object, as individual, remains always for our science an inaccessible limit. As one rises in the hierarchy of living beings, from plant to man, the importance of this formal element in individuation, always combined, of course, with the material element, increases, and the intimate "history" written in each living being by its accumulated immanent actions will become more thoroughly original.[1]

Let us consider here only the case of man. We suppose that the only difference between individual men, when they begin their existence, is the relation of their form to matter. But as these men go through life, they accumulate all kinds of experiences (perceptions, emotions, especially ideas and free decisions), which leave something behind in the individual. In a conscious, and especially in a self-conscious being like man, the past is not just something which has happened and is gone forever. Something of it remains with him, grows with him, modifies him, makes him different from all other men. Not substantially, of course, but in some of his accidents. And some of these accidents are not, like those deriving from the relation to matter, perceptible by the senses, they are really intelligible, although not always for our human intelligence. Therefore we may conclude that man is individualized, basically through the relation of his soul to quantified matter, secondarily through his own personal

[1] J. Maréchal, *Le Point de Départ de la Métaphysique*, V, pp. 245-246. (Our translation.)

history, as written in him by his immanent actions, especially his free decisions.[1]

Man as Subsisting in a Spiritual Nature

A person is an individual being, subsisting in a spiritual nature. We must now say a few words about that spiritual nature.

A spirit, as explained previously, is an immaterial substance, whether completely immaterial, without even extrinsic dependence on matter, or incompletely immaterial, with some extrinsic dependence on matter. A spirit exists not only in itself (it is a substance), and for itself (it is self-conscious), but also, with due dependence on God in finite spirits, by itself (it posits itself). Spirit is essentially self-knowledge, self-volition, self-consciousness, an Ego or I. Spirit is destined to exist forever. Logically speaking, we may say that a spirit can never be the predicate of a judgment, but only its subject. Everything may be predicated of it, it can never be predicated of anything else. Ontologically speaking, a spirit is a being which can never be transformed into something else. A tree can be made into a canoe, a plant and an animal can be assimilated by a living being which eats them. Even the human body can thus become something else. But not a spirit: it is itself and it can never be anything but itself. How could self-knowledge and self-possession ever become something else?

Man, however, is not a pure spirit, but a spirit in matter. Therefore, his self-consciousness is never complete and involves always the consciousness of something different from himself. His intellect is not self-luminous unless it first gets some help from the senses. A man deprived of all senses or unable to know any material object would never be aware that he existed.

The Paradoxes of the Human Person

Man is a spirit in matter, he is spirit and body. This strange combination produces tensions in man and explains what Mouroux calls the paradoxes of the human person.

[1] ". . . . matter renders possible the multiplicity of certain forms, but it exists only in view of these forms. Matter is indeed the passive principle of individuation, but the form is the active principle of individuality" (E. Gilson, *The Philosophy of St. Thomas Aquinas*, [Herder, 1929], p. 219).

1. As a body man is subject to all the laws of matter, he is in space and time, he is divided from all other beings, and although he is a unified totality, his unity is not perfect but comprises many elements which are often at war with each other. As a spirit man is above space and time, perfectly present to himself, capable of assimilating the rest of the universe and making it one with himself.

> And yet this spirit and this body are one being. That is the first paradox of the human person: he is the unity of this spirit and this body. . . . And therefore, with and in the body, [the spirit] enters into space and time, it becomes subject to all the variations of the appetitive feelings, it acquires a whole biological, psychological and social individuality—things which for a pure spirit would have no meaning. But it becomes the act of a body in the only way in which a spirit can do so—that is to say while still remaining spirit, and so knowing, surpassing, and infinitely transcending its body. At his pure point the person surpasses and escapes all definite proportion with the body, so dominating it as to remain in himself immaterial, intemporal, breathing his own native air, and, so to speak, infinite with respect to it. The person is thus a spirit at once immersed and emergent, immanent in the body and yet transcendent.[1]

2. The human person is at once subsistent and open. Subsistent, that is, existing in himself and for himself, closed upon himself, being himself and nothing but himself, unable to become anything else. The person is a little self-contained island in the universality of being, an autonomous realm ruling itself, into which no created being can ever penetrate. Every human being is an inviolable mystery, for his essential core, his self-consciousness, can never be shared by anybody.

Yet the same human person is open in two directions, vertically and horizontally. Vertically he is open to God, from whom he has received his being, from whom he continues to receive it at every moment, for the person is forever the term of a creative activity of the First Cause. He is open horizontally to other men, because he is an individual in a species, sharing the same human nature with all the others in his species. When God creates a material species, what He intends is the species, not the individuals. The individuals are there for the species, they are means subordinated to the end, which is the species. Inasmuch as man is a material being, an animal, the

[1] J. Mouroux, *The Meaning of Man*, pp. 116-117.

same applies to him. He is there for the human species, a link in it, a moment of it, an aspect of its indefinite variety.

But man is not a purely material being, he is a spirit. And as a spirit he cannot be a means but only an end, he cannot be a link but only a totality, a center on which everything converges.

> This brings us to the essential paradox of the person considered in relation to humanity at large. In so far as he is a spirit informing a body, he is drawn towards the conditions of material substance; he is a member of the species and exists for the sake of the species. In so far as he is a spirit, transcending the body, he shares the condition of the spiritual creature; he is marked by direct relation to God, and surpasses a species made for his sake. He is defined on the one side by his multiple ties with, and integration in, the species; and on the other, by his simplicity and capacity for interiorization. He is at once a member and a whole, an eccentric point and a centre. He is a living tension between himself and the whole, and neither can come to fulfilment save *in* the other and *by* the other.[1]

3. The person is existent and yet to be achieved. The person is existent, he is a substance existing in and for and by himself, a permanent principle of bodily, sensory and rational activities. But the person is not existent as something immutable, something which is complete from the very beginning.

We do not speak here of the bodily and psychological growth of the person. These are not specifically characteristic of the person, since we find them also in animals. And since that kind of development is not free, we can say that it is given from the beginning, at least virtually, in the environment and the circumstances in which the individual develops. We mean the free moral development, by means of which the person decides for himself and by himself what he shall be, how he shall act, in what direction he shall develop. We mean the free decisions and free actions which nobody can force upon the person and whose sovereign independence God Himself respects. God calls the person, He draws his intellect and his will to Him, but He does not force anybody to accept the call and to yield to the attraction. Yet the way in which the person responds to this attraction decides the meaning of his life, his real value, his eternal destiny.

In that sense the person, although existent, must achieve himself

[1] *Ibid.*, pp. 129-130.

He has no more important task on this earth than this free activity by which, in a certain sense, he makes himself.

> Thus man is always a call and a response intermingled, or better, the embrace of call and response. He cannot choose but respond, but he chooses his response. Sometimes he welcomes the call, cleaves to it with all his might, and so closely that he seems to make it one with himself: a pure and joyous response coinciding with an ever more and more potent and triumphant call. Sometimes he rejects the call, shuts his ears to it deliberately, and this refusal invests the call itself with a destructive power, a force of negation that obstructs his deepest impulse, divides, disaggregates, and prepares to torture. Sometimes a man offers himself and turns away, gives and takes back. . . . The inexorable embrace of this call and this response constitutes the whole drama of human vocation, and indeed of the person himself: an unending drama which has always a meaning—however mysterious—at any given moment, but is always ready to take on another. It is indeed a terrible choice whereby a man is to invest himself with his own meaning, his own validity, and if not exactly his own being pure and simple, at least, with his moral and spiritual being, his destiny to election or damnation. A terrible wrestle between divine love and human liberty, in which God Himself is not assured of victory.[1]

CONCLUSION

Real democracy is based on the inalienable rights of man. These rights are not conferred upon man by the State, and they cannot be withdrawn by the State. They are not based upon some covenant by which men would pledge themselves to respect each other's rights. They are not even bestowed by God upon man above and beyond man's nature. They are given by God to man in and with his nature, they are inseparable from this nature.

Man has inalienable rights, because he is a sovereign being, an end in himself, never merely a means; because he is a spirit, albeit in matter, because the core of his being is self-consciousness, self-possession and self-position.

True, man is subordinated to God, but not merely as a means. God's purpose in creating man is fully achieved when man perfectly fulfills his own destiny and obtains perfect happiness. God's design concerning man coincides with man's own real end. God's glory,

[1] *Ibid.*, pp. 131-132.

which is the end of His creative activity, is perfectly realized when the person reaches his own supreme destiny which, in the present supernaturalized order of creation, consists in the beatifying intuition of the Divine Essence.

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