

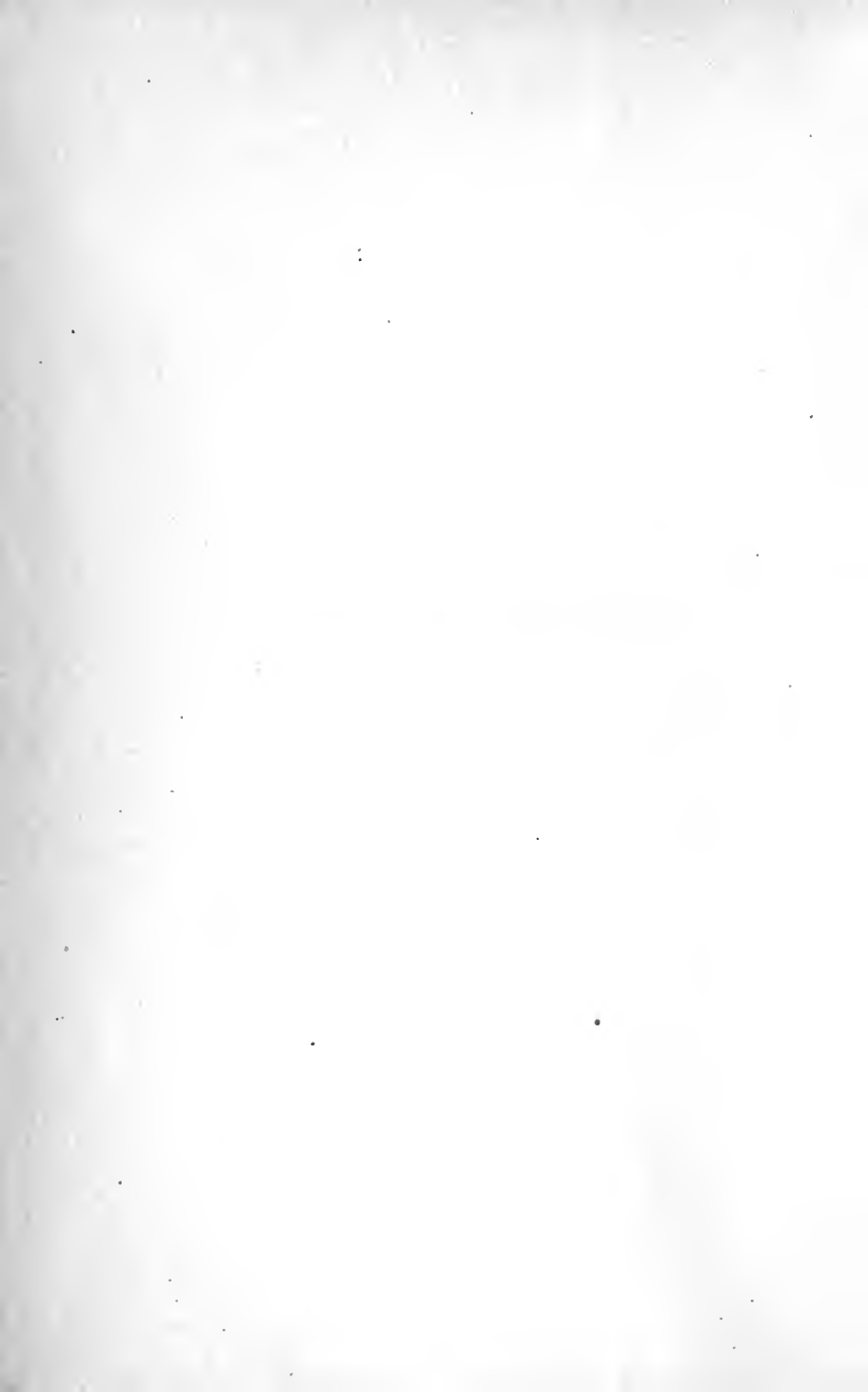
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A THEORY OF MIND

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A THEORY OF MIND

BY

JOHN LEWIS MARCH, A.M., PH.D.

NEW YORK

CHARLES SCRIBNER'S SONS

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PREFACE

THE theory presented to the public in the following pages is intended to meet a definite need in the present state of human knowledge. It has, namely, been the thought of many who have considered the progress of science, that the next great advance should take place in psychology, and that this advance should be the result of a clarification of that field, chiefly by the modern science of biology. Nevertheless, up to the present time, biology has had an extraordinarily slight influence in this direction, in spite of the ingenuity and talent of those who have labored for it. Biology and psychology still stand almost rigidly apart. But if it has become increasingly plain that the two sciences as they stand will not help each other much, it is scarcely less plain, upon consideration, that psychology is somehow at fault and must somehow be fundamentally broadened. The theory of the instincts here proposed is intended to meet this situation—to show what the fundamental misconception has been, and, in so doing, to break the deadlock and allow the sciences to come together. If it does this (and, if accepted, it seems clear that it does) it opens the way for solid and important advances and discoveries—which, I trust, we shall soon see.

The preparation of the theory has been accomplished almost in solitude, and I have little to say in the way of

special acknowledgment. A number of friends have been sympathetic and at times directly helpful. I cannot, however, send the volume forth without mention, by name, of my brother, Moncure March, Esq., to whose year-long interest in the work, and judicious criticisms and suggestions while the book was in press, I feel much indebted.

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August 7, 1908.

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A THEORY OF MIND

INTRODUCTION

WHEN Galileo and others discovered the experimental method of inquiry into the facts and laws of physical nature, they began a movement which is no doubt destined to revolutionize the life of man from end to end. At the present moment, however, and for the time being, the resulting situation is curiously ill-proportioned as to the two great possible lines of our development. For while the experimental method in the course of its three centuries of working out has increased our physical knowledge almost to completion, it is conspicuously evident that it has so far been comparatively inefficient and unfruitful in the realm of mental phenomena. As a result we have on the physical side a solid phalanx of purposeful and adequate sciences which seem destined to endure for all time; while, on the psychological side, we have a number of scattered and unorganized departments without a complete theory of any sort. The great volume and overwhelming certitude of the physical sciences have brought it about, indeed, that our age seems most commonly to have forgotten that

the realm of mind is at least as large and probably quite as law-abiding as that of matter, and that of the great human questions by far the larger and most important part lie in this undeveloped and, scientifically, almost despised field. Yet it is so, and no more important task lies before us of the new age than the exploration of this side of our world and the restoration of its normal balance with the physical.

The nature of the mind has itself been the cause of this delay in the formation of an acceptable theory for it. There is but one method of direct observation of mental phenomena, viz., introspection. But this method turns out to be almost entirely fruitless. The mind is conscious of its own thoughts and of a considerable number of feelings, but of its workings—of its essence—it is quite unconscious. We fall into a void as soon as we attempt to observe exactly what is and what goes on in it. There is simply nothing to observe.

It is therefore necessary to proceed indirectly, and, after the collection of all the available evidence and the carrying out of many kinds of experiments, to invent, through the scientific imagination, a suitable, reasonable hypothesis as to the facts which are hidden from us. It is evident that such a task could be successfully accomplished only by the most careful and patient study of a thoroughly scientific age.

Mental theories, to be sure, have always been in existence since man began to think at all elaborately. In most ages the unknown factor has been called the

soul. Its nature, origin, and destiny have been part of the theme of most of the religions of the world. Psychology thus came into existence naturally as the child or hand-maiden of religion, and to some extent it is so still.

But modern experiment and research have materially changed the soul-theory. We have gradually learned some of the laws of memory and thought; we know something of the mind's use of the sense-organs, nerves, and brain; we have observed and speculated upon the relations of mind and matter; we have studied the minds of the insane, the criminal, the hysterical, the abnormal, and of children, women, and men; we have collected data and have observed the acts bearing upon the minds of animals and upon their relationship to the human mind. The theory of a soul had nothing to offer in aid of these and other similar inquiries, and the word soul itself has gradually slipped out of psychological terminology. It remains almost solely from the religious necessity.

The study of mind thus stands at the present day without an accepted theory, but with a large accumulation of data from which such a theory might be formed. Psychologists, psycho-physicists, biologists, sociologists, criminologists, educators, historians, critics, artists, theologians, and philanthropists, each in his own way, have contributed significant facts, and although the work has been without plan and without much cumulative effect, yet the facts are at hand. There was never so much psychological knowledge in the air as now; never such press-

ing need of a unifying and directing working-hypothesis; and never, also, so large a chance of success for the theorizer.

A proposal for such a theory is contained in the following chapters. It is, I believe, the first complete hypothesis that has been proposed; for, with all its faults, it is a complete hypothesis. By complete is meant that it covers all sorts of mental phenomena. It is also a working-hypothesis, for it opens immense fields in which it can be applied, and it is itself capable of substantiation, disproof, and improvement.

Its imperfections, and no doubt they are many, should fairly be viewed with a certain leniency. A theory of such scope cannot be made perfect by one man or in a few years. Its promise must be its recommendation. The magnitude of the field to be covered, the diversity of authorities and methods, the insufficiency of information on many points—the difficulties, in short, of adapting old facts and partial theories to the new point of view, have been a real factor in the condition of the theory as it stands. Much better evidence as to many details will some day be forthcoming, I trust, and, in a word, the theory should be criticised as a whole rather than too sharply in all its details.

In order that the reader may be prepared for the discussion which is to follow, I will here run over its main points, beginning with the most obvious matters and then working back, very much in the order in which the successive stages originated. In the discussion itself the opposite order is pursued, the first

chapters being a consideration of the most elemental questions and the statement of certain principles and axioms; the later ones containing a development of these principles and axioms in many simple and common phenomena.

We take our departure from the proposition that both the thoughts and the actions of a man are determined by his character. What a man does shows what he is, and what he thinks shows it no less. The amount of his success in thought and in action, depends, to be sure, in part upon what we may call the comparative mechanical excellence of his body and brain. Sensations also are in part beyond his control. Nevertheless, it remains true that *if* he acts and *if* he combines memories into thoughts, these things take place according to his character.

Our next step is to ask what character is. The answer is this, that character is the sum of the likes, dislikes, desires, inclinations, interests, etc., of the man. In order to action or thought some one or more of these must be aroused, and direct the action or thought.

But further: How many desires, inclinations, and interests are there? Is it possible to classify them? And, if so, how? These problems are of great practical importance, and I hope they may be found satisfactorily met in the body of the book. The classification is there made in detail and with the intention of omitting no desire, inclination, interest, or any feeling of the sort. The lines of the classification chosen correspond, in a general way, to the or-

dinary ones. They are, namely, along the lines of the desires for food, sex, and society.

But, further: What is a desire? The theory hardly attempts a definition but it states two important facts. In the first place, there can be no definite desire in advance of some experience of the thing desired. If I have tasted sugar I can afterward desire it; but I cannot desire it if I have never seen or tasted it. Similarly I can have no interest in a thing of which I have never even heard, although, having heard, that very thing might interest me greatly. So, I can neither like nor dislike, say venison, until I have tasted or smelled or seen it. But does not a taste for sugar exist before our experience of sugar? This theory holds that it does; that a man may, indeed, have desires that are never identified because the object of them never comes into the man's experience; that the child is full of desires although he may not have the least thought of what he desires. It holds, in short, that all desires are inborn, that they are originally quite vacant of thought, and that they become definite only through experience. This original thought-free desire will be called an impulse, a broadening of the use of that word; — an impulse together with the thought of its object will be called a desire, inclination, interest, or the like.

In the second place, impulses and desires regularly and instinctively produce actions tending to their satisfaction. This also takes place without thought, or in advance of thought. Thus, the child will use its hand to put things into its mouth before it knows

that it has a hand or a mouth. All elementary actions are in this way direct, or if we choose, reflex. It is the inhibition of acts after experience, and through the working of several impulses or modes of impulse at once, that brings about what is called control of the body. Any impulse together with its reflex acts and its influence will be called an instinct.

In addition to their control of the body in its relations to external objects of sensation, the impulses also control the body within itself, notably in the arrangement and ordering of memories. This form of action is called thought, reasoning, and the like. Thus all thoughts as well as all other bodily activities must be ascribed to definite impulses, and this is attempted also in detail in the chapters upon the instincts.

Having reached this point, it is evident that the barriers between the mind in man and that in the lower animals fall quite away. The theory passes easily from the elemental instincts of man, with their absence of thought and their instinctive acts tending to their satisfaction, to the similar instincts in the lower animals. It appears that the same primal impulses are found in them and in us; and that in them as in us instinctive actions tend to the satisfaction of the impulses.

Not less important is the development of the theory when pushed still further. For it is quite possible and quite within the limits of the evidence to suppose instincts in the molecules and atoms; and it will some day be possible and reasonable to find them in those

still mysterious entities of which atoms may be composed. Here, too, we may suppose impulses made definite by influences from other units, and resulting in inevitable instinctive actions tending to the satisfaction of the impulse. But if this is done, the theory broadens and may be made to account for many phenomena—for the senses in the higher forms of organisms, for memory, for the shaping powers underlying morphology, etc. These matters also will be discussed in their place.

Finally, as the most elemental supposition of all, the theory supposes the identity of mind with matter. This position is well known to all readers of Haeckel and others, under the name of Monism.

The discussion of the theory accordingly begins with a chapter on Monism, followed by one upon the nature of the fusion of units of lower grades into those of higher grades. Then, beginning with the atom, all the simple phenomena of mind are explained and classified. The book concludes with a chapter upon variations and upon some of the practical applications of the theory as a working-hypothesis.

Completeness in the list of the human phenomena discussed was undoubtedly of the utmost importance, but there was no chance that it should be absolutely attained. There seems to be no rational method of filling out the range of the mind, and for lack of a better method I was forced to fall back upon the somewhat crude and yet not unfruitful idea of searching a dictionary for words expressing qualities and interests. This gave some two thousand, all of

which were found to be embraced in the scheme, and were thus a substantial and reassuring proof of its comprehensiveness. That the theory can be fairly extended to cover any omissions, I have no doubt.

The words here referred to are many of them used as illustrative in the course of the book. It may be well to state here, once for all, that in most cases but one meaning of a word is considered, and that many of them have other meanings that would bring them into quite other positions than those in which they will be found. No claim is made that the word always or even most commonly has the meaning picked as illustrative.

But although the theory attempts completeness, this is only in elementary and simple matters. Many complex questions and fine distinctions that are commonly discussed at length in psychologies, will thus be found barely mentioned or even entirely omitted. This will be noticed in almost every chapter.

Another omission that may be noted here, though it comes up for discussion at various points, is the question of origins. The phenomena are accepted as existent and explicable as they are. The method pursued is in general analytic and no recourse is had to the laws of natural selection and of the survival of the fittest to explain them. This, I am convinced, is the only proper method of attacking the greatest problems of psychology, or, for that matter, of biology either. The Darwinian laws have been grossly mis-used during the last generation, and have thus done

science an appreciable harm. The law of the survival of the fittest is at best a law of survival, not a law of creation; and science must attack the problems of the creation of the animal as well as the problems of its survival. The assumption that natural variation takes place unlimitedly in every direction, and its corollary that every detail of an animal has at some time been selected, and therefore has some use, are as unwarranted as they have often been in their results ridiculous. There are possibilities and impossibilities in growth; there are fundamental laws of growth and of correlation; and animals survive not because they are specially fit, but because they are on the whole not unfit—which is quite a different matter. The strictness and value of reasoning in this field largely depart with the entrance of the ideas of unlimited variation and useful selection with their easy, universal, and unverifiable solutions.

The theory, then, will treat of the nature of mind in itself; of the materials from which it must be built and how they are combined in various instances; of the axiomatic laws by which it is governed; of the limitations beyond which, apparently, it cannot pass. The economic and historic sides, important though they are, it will leave entirely—or nearly so—to some complementary science such as psychological œcology.

CHAPTER I

MIND AND MATTER

THE problem of the relationship of mind and matter is one which must be met and at least partially solved by any thorough-going system of psychology. Only confusion can result from the neglect of so fundamental a question. The chief considerations are as follows:

1. *Both mind and matter are found in units that are similarly limited in space and (in their complex forms) in time.* The human mind, for instance, is found only within the limits of the body; and, like the body, it varies from moment to moment.

2. *The simpler units of mind are found in connection with the simpler units of matter; the complex units of mind, in connection with the more complex units of matter.*

3. *Mind is not known to exist apart from matter.* Any other position rests at the present time on faith, rather than on knowledge. It is, at least, much safer to avoid for the present the assumptions of spiritualism and to rest on ordinary well-proved phenomena.

4. *The phenomena of matter can be fully and satisfactorily explained without reference to mind.*

This has been pretty thoroughly shown by modern science. Physics, chemistry, astronomy, geology, biology, etc., all deal adequately with the phenomena of matter without reference to mind. / It is true that certain questions of elementary physics involving the properties of the ether and the relations of matter and force have not been settled; but if they are ever settled, it must be by physics, not by psychology. /

It is to be especially noted that living matter does not escape physical explanation. Living matter obeys the laws of physics and chemistry as implicitly as the inorganic world does; and where it acts in ways characteristic of it alone, it is still according to laws of matter, from the division and multiplication of cells, through the processes of digestion, oxydization, assimilation, secretion, regeneration, and what not, even to such acts as the movement of an arm or a leg. It is true that the physical and chemical phenomena of the body are still largely unexplained in their details. There is, however, nothing in them to suggest that they are not taking place according to regular laws, and we may believe that the solution of many of these problems will turn out to be far simpler than could have been hoped fifty years ago, or even twenty. In any case they cannot be solved by psychology, for if the mind came in, it would come into the realm of physics, and would be either a force or a material—and there would be no more of what we understand as mind.

5. *The mind cannot be investigated directly by physical methods.*

No amount of investigation has been able to discover the seat of the mind as such, or to find any material or force of which it might be said that it was mind. Nor is such a thing thinkable; no combination of physical or chemical ideas can form the idea we connect with mind. It belongs to a distinct category. A thought and an atom or a force are absolutely different, and it is impossible for our minds to find anything fundamental that they have in common.

6. *The mind knows nothing of matter except through experience.*

It learns of the arms and legs it uses, just as it learns of tables and chairs. If an arm be seized, it says, "That is *I*"; or, after it has learned to identify certain feelings with certain objective things, it may say, "You have *me* by the arm." This, however, remains always superficial. The mind never becomes conscious of nerves or muscles, of molecular changes in the brain, of messages sent, of retinal images. It is perfectly direct; "I move my arm," "I see," "I think." It is conscious that it acts and acts freely. Its explanation of things is perfectly simple and satisfactory to it, and it is unable to realize anything else, though it may be forced to admit that it may be wrong. When it thinks of its body, it is as of something owned by it, like clothes—a "vesture of decay," for instance.

7. *So far as we know, mind is affected only through physical means.*

All the senses are affected physically and not otherwise. It is not thought but vibration that enters the eye or the ear; and the surface of the body is constantly transforming pressure and heat into mental equivalents. That minds may affect each other without any material means is under such circumstances an assumption, not only needless, but confusing; if minds affect each other by unknown means, those means are still to be thought of as physical. So, also, when we think of thought transference along nerves, or from one part of the brain to another. There is, however, probably only one opinion upon this point in modern psychological thought.

It should perhaps be noted that the mind may be affected also indirectly through matter. A blow may produce the sensation of light; chemicals may alter the mental condition; a surgical operation, or some physical happening like the bursting of a blood-vessel in the brain, or some abnormal condition or growth of the skull, may be a serious mental influence; and it is not to be forgotten that the flow of blood to the brain is regularly proportioned to the mental labor being performed there, the thoughts evidently needing blood.

Our attempt must now be to throw some light upon these considerations, so as to show either how their baffling nature may be reconciled or how the confusion arises.

Two theories are common: either that mind controls matter—a theory drawn from our inner convic-

tion; or that matter controls mind—a theory drawn from physical science. The first is impossible to maintain except by ignoring or denying physical science; the second leaves no room for the mental. Neither throws light on the whole situation. Usually men hybridize the two positions and choose the first for the higher phenomena of the mind, as in man; the second for the lower ones, such, for instance, as are to be observed among the lowest animals.

The confusion in the situation is this, that mind cannot be expressed in terms of matter, nor matter in terms of mind; and that both claim exclusive control over the same phenomena. If I put out my hand and take a book, the physicist will try to explain every part of the phenomenon by his laws, while I remain convinced that I did it because I chose to. It will be noticed that he is looking at the case from the outside, while I am inside of it.

Our theory meets the situation simply in this way:

Matter to itself is mind.

Mind, as it reveals itself to another mind, is matter.

Matter and mind are thus to be considered identical.

The world as discovered outside of us, is thus made up entirely of matter; the world as discovered within us, is entirely mind. Thus the two can never find common ground, for they are built up on fundamentally different experiences. Even when the mind looks for itself externally, it finds only matter, for it is impossible that it should find anything else by that method. It is only by reasoning that we learn to identify inner phenomena with those of

sensation, and to say, for instance, that such or such an expenditure of blood in the brain occurred in the same place and at the same time as such or such a thought, and that they are therefore connected in some intimate way. This recognition of the absolute parallelism of the world of thought, with certain phenomena of the world as observed through the senses, has been of slow growth, though at the present day probably universal.

The position above stated asserts the identity of matter and mind and their inseparableness. This position is not a new one. It is a form of what is known as Monism. It must be freely admitted that in the form here given it cannot remain unchanged. A further step must be taken, namely, when the physicists have determined the relations to each other of matter and force. That, however, must be left to the future. Whatever it may be, the further advance will not destroy our statement as a working theory. It will merely complete it, as it will complete and not destroy the present sciences of chemistry, physics, and their allies. The facts will remain the same and their general relationships the same.

Certain implications of our position are to be noted.

If matter is to itself mind, it will be necessary to assume mind wherever there is matter, or else that there are essential differences in this respect in the chemical elements. We choose the first position and assume a realm for the science of mind, conterminous with the realm of matter. Wherever matter is, mind

is. And we make this definition: *The realm of mind is the realm of matter as that realm is to itself.* This definition does not imply a mental unity in the realm of mind; it is merely a statement of the extent of that realm. It is meant also to emphasize our theory that every condition in the realm of matter is a condition in the realm of mind; and that the changes in the one are changes of exactly the same reach and importance in the other; in a word, that the two realms are identical. The sciences of mind and matter will be perfect, therefore, when, for every state or change in matter and force, the physicist shall have his laws and explanations; and when the psychologist shall be able to declare the corresponding state or change in mind—the two explanations matching perfectly, point for point, and covering and explaining the entire range of the phenomena of the world.

The monistic position with regard to the atoms is a large one, and may seem at first glimpse farther beyond our verifiable facts than it probably is. It is to be recollected that if there can be no proof that every atom of matter is also mind, there is equally no proof that such a state of things does not exist; so that, apart from sentiment, the one position is quite as tenable as the other. Our only care need be, not to claim one jot more than the phenomena will justify. And this is our intention; for as the atom is (we shall consider) the primitive form of matter, so the mind of which it is the external form is the primitive mind. Just what that may imply is to be

carefully considered in the proper place. At present we are concerned merely with the existence of mind.

As to the *reasonable probability* of the conterminousness of mind and matter, we add the following consideration. It is one of the laws of reason that by uniting things it is impossible to get more than the sum of the things united, though the sum need not in all respects resemble the units taken together—*i. e.*, need not be a mere mixture. There may be an alteration, but there can be no increase either of matter or of force. The progress of science has been a constant confirmation of this law as one of objective validity. Now man is an assemblage of atoms. If we suppose that the separate atoms contain no elements of mind, how shall we account for the mind? Whence did it come? Certainly, it is in accord with the scientific method of thought to suppose that if matter ever thinks (and it does think in man), it must in its elemental state contain the elements of thought. Now the elements of which the human mind is composed must be called mind. They cannot belong to the category of matter. As matter must be composed of matter or at least of something physical, so mind must be composed of mind or at least of something psychic. If we follow reason, the conclusion is not to be avoided.

But it is possible to add something that may seem more directly confirmatory of this position. Not, of course, with regard to the detached atoms and molecules of the chemist's laboratory, for it is plain that we can prove nothing concerning them. For

any direct evidence we must take the atoms we know about, namely, those in our own bodies. But here the *trend of modern thought* is in favor of our theory.

The modern theory of the body is that it is a community of cells, interdependent, but each living of itself and acting through its own power. Certain of the cells, *e. g.*, those of absorption and secretion, act almost or quite of themselves; others, *e. g.*, of the muscles, usually require an external stimulus, after which, however, they act through their own power. In the case of nervous and sense cells, this view would hold that there is first a local sensation at the point of contact with the sensation-producing force, and that the local condition, or a part of it, is then conveyed sympathetically to other cells, *e. g.*, of the brain, where it may be worked up and combined into elaborate thoughts. According to this theory, the eye itself feels light, although incapable of what we commonly call thought; we have thoughts about the feeling only after the eye has communicated its impressions to the brain cells. There might thus, of course, be a local feeling of which the brain would never be fully conscious, for whether the brain shall know depends largely upon the nerves. That is indeed the modern belief, for there cannot be the least doubt that much goes on in the body of which the brain knows nothing clearly. All parts of the community are not equally represented in the congress of the brain. Some seem not represented at all; others scantily and hazily. In the primitive multicellular animals it is supposed that each cell

feels all that any other cell experiences; but this is far from true in the more complex animals, where a division of labor and a high specialization of the parts have been accompanied by a much less universal unity.

To return now to our argument. The effect of sugar upon the cells in the tongue is chemical in nature. There is atomic or molecular action. Viewed from the inside, some sensitiveness of taste is found. The two occurrences are the same and are in the same place though the feeling is, in effect, afterward transferred to the brain and called sweetness. This belief in local sensitiveness is a distinct step in the direction of allowing sensitiveness in the atoms.

Our theory of the relationship and fields of mind and matter is thus not unreasonable nor contrary to the direction of biologic thought. It has as *advantages* not only that it avoids the difficulty of making mind come in at some later point, but that it keeps the realms of mind and of matter quite separate, and defines them clearly—a desirable thing, as many readers of our biologists and psychologists will agree. At the same time it puts them into intimate relationship, for if mind and matter are identical, and any change in the one means a change in the other, it will be necessary for the psychologist always to have an eye upon the work of the physicist—since our mental life is so fused and so largely unconscious; and on the other hand, the physicist may have his theories—especially of living things—suggested or

confirmed by the labors of the psychologist. The two, however, are working distinct fields, and the great mass of their work is hardly likely to touch seriously for a long time to come.

Before leaving this subject a word may be in order regarding law and liberty. The physicists speak of law; the mind is conscious of freedom. Our theory, holding that mind is identical with matter, may fairly be called upon to throw some light on this ancient question. If freedom is a question of the mind's will, we stand for it absolutely; the mind does what it will. Closely considered, the position of the physicist contains no contradiction of this. It merely asserts that under given conditions certain things will always happen—because they always have happened, so far as we know. Mentally stated, this will read, "Under given conditions the mind always desires to do certain things, and if possible, does them." Mind is thus perfectly free and law perfectly consistent with it. *Why* the mind under given conditions always feels a certain desire, is a question we may leave to others. That it is practically so, however, in the individuals of the higher animals and of man, there can be no doubt. It is true even of the species. In a given situation all men feel practically alike—else there could be no understanding between them, no language, laws, science, or any other common possession. And since atoms are probably exactly alike physically (we suppose, by our theory, that men differ in minds as and to the extent that they differ in bodies), we may easily be-

lieve that they feel exactly alike in given situations. This would explain their perfect regularity of action; further back it is not our business to go.

The word freedom is also used, of course, in quite other senses. For instance, as the power of free choice between two proposed lines of action, or as a freedom in the individual from the regular results of heredity and environment. Such questions, however, must be held for later discussion.

CHAPTER II

FUSION

THE act and state in nature when two or more units combine and form a single unit of a higher degree of complexity we shall call fusion. The most marked characteristic of a fused unit is that under favorable conditions the individuality of the units of which it is composed is submerged. The fused unit is thus a true unit and not an aggregation. It appears to possess qualities and powers different from those of the component units.

A complete table of the fusions in nature is probably the following:

1. The simplest fused unit is the atom. Atoms are now believed to be composed of simpler units. This science, however, is in its infancy, and need not be considered in our discussions.

2. The molecule, composed of atoms, is next in the scale. The study of the composition and decomposition of molecules is chemistry.

3. Molecules fuse to form on the one side, the crystal; on the other side, the unicellular plants and animals.

4. Unicellular plants and unicellular animals fuse to form multicellular plants and multicellular animals, respectively.

These are the last fusions, but the tendency to a continuance is observable in multicellular animals, which join in various fusion-like aggregations such as the family, the herd, the tribe, and the nation.

There are thus four steps of true fusion, and it will be noticed that this power is a most important one in the evolution of the world as we know it. It is now our task to examine this process with what care we can. Fortunately we are confronted not with a supposed occurrence but with a fact. Our theories about it cannot obliterate it.

We will consider first the case of a molecule, and, as one out of many, that of water. Water is a fusion of two substances, gaseous at ordinary temperatures, hydrogen and oxygen. The significance of the gaseous condition is that these substances at ordinary temperatures contain a larger amount of potential heat than if they were liquid or solid. Hydrogen and oxygen may be mixed at ordinary temperatures without any result; they remain a mixture and seem quite separate. But if a spark of electricity be sent through the mixture, the gases unite, giving off heat and sound, and the result is water, which is a fusion of the gases.

Two points are here worth noticing: First, that fusion is not an inevitable result of the proximity of the components of a fusion. The proper conditions must be present. The environment must be suitable.

Secondly, that a fusion means a change in the potential forces of the units which unite. In this case the gases gave off some of their potential energies in the form of heat and sound. As a result, the fused units, the molecules, have a smaller amount of potential heat than the gases had, and form a liquid at ordinary temperatures.

The molecules of water, then, are fused units. They act as units in all ordinary circumstances. Water may be boiled or frozen, may be put under pressure or divided indefinitely, may be mixed with most substances or enter into the bodies of animals. In all these cases it behaves exactly like a simple substance so far as we know. Indeed it was one of the triumphs of chemistry to discover that water is a compound. It is this characteristic of acting together that is the essence of a fusion of atoms.

The molecules of water are destructible. The hydrogen and oxygen atoms of which they are a fusion have not lost their qualities, though they act less freely than when separate. If now a bit of sodium be thrown upon the water molecules, the oxygen and hydrogen atoms at once unite with it, forming a new fusion, sodium-hydroxid, and setting free a certain amount of hydrogen not needed in the new fusion.

Here two things are to be noted: First, that when the water is decomposed it is absolutely destroyed—it is no longer water. This is a quality of all fusions. Secondly, that the formation of the sodium-hydroxid is selective, the unnecessary hydrogen being thrown

off. A fusion, if freely made, contains no impurities, nothing alien to its make-up.

Molecules differ from the next higher units of fusion in this, that they are too small to be visible. Certain qualities they no doubt possess which would be of the greatest interest if we could know them, but which are hidden by their invisibility. It is necessary that we should examine the higher units to get some idea of these things, and this we will now do. The next higher units are the crystals and the unicellular plants and animals.

The crystals and the protozoic plants or animals have plainly certain points in common. They are both composed of molecules; both are formed only under favorable conditions; both, no doubt, mean a change in the potential forces of the molecules which unite, since the molecules in uniting give up some of their ordinary freedom of action; both are true units and act together or are destroyed (the crystal is not a superficial unit but a real one); both may be destroyed, and if destroyed cease to exist, though parts may exist; and, finally, both are pure and do not assimilate substances that have no place in them (the crystals of salt water or of any other mixture are not crystals of the mixture but are pure). They are thus true fusions.

The force which unites molecules into the fused units of this class is called by the inclusive name of cohesion. Cohesion may be destroyed by ordinary physical means, so that the units we are considering may be destroyed more easily than those of the lower

classes. A hammer-blow will end a crystal or a protozoön. They may also be destroyed by destroying the molecules of which they are composed. Chemical laws affect them thus indirectly.¹

An evident characteristic of both crystals and living matter is their definite forms under definite conditions. A given substance may crystallize differently under different circumstances, and a living thing may change its form (since, from its structure, it is able to), under changed conditions. In a given situation, however, definite forms occur according to law. And these forms are characteristic. Each substance has its special form or forms, not merely in size but also in angles; and each living substance has its special forms. M. Dastre formulates this rule as follows: "A given substance in identical conditions of environment results invariably in a certain form." "We may consider this as a sort of principle of nature, or elementary law, which may serve as a point of departure in explaining phenomena."

A further phase of this fact is seen in the phenomenon called regeneration. If a part of a crystal or of a unicellular plant or animal be broken or cut off, the part is repaired and the unit resumes its characteristic shape. The method of repair differs. In crystals the hurt part merely grows more rapidly than the other parts; and the hurt surface has less

¹ A full and interesting discussion of the further bearings of this question may be found in an article by A. Dastre, "La Vie de la Matière," in the *Revue des Deux Mondes*, October 15, 1902, from which some of the following facts are gathered.

solubility, so that it resists this form of destruction more than the rest of the crystal. In plants and animals the recovery of form is sometimes by growth merely in the affected part, sometimes by a change in the form of the whole remaining organism. "If *Stentor cæruleus* is cut in two pieces each piece makes a new individual of half size but of proportionate form."¹ Evidently in this latter case the position of a given molecule is determined not by its chemical constituents chiefly, but by the organism as a whole. And in the broken crystal the proportionate growth is apparently decided also, not by the exposed surface merely, since there is no difference between the inner molecules and those on the surface (all were on the surface once), but by the crystal as a whole. This is a very important principle and is perhaps at the bottom of all regeneration. Professor Morgan is inclined to think so. He says, "The properties of the organism are connected with its whole organization and are not simply those of its individual cells or lower units" ("Regeneration," p. 279); and again, "It has been shown that a change in one part takes place in relation to all other parts, and it is this interconnection of the parts that is one of the chief peculiarities of the organism. In phenomena of this kind the cells seem to play a secondary part" (p. 278). He is here speaking of multicellular plants and animals, but the opinion would apply equally to the unicellular.

Another characteristic of crystals and unicellulars

¹ T. H. Morgan, "Regeneration," p. 14.

is that they are not composed of a given number of units of the lower order, at once combined into a perfect new unit. They grow—either by exterior accumulations (in the crystal), or by increase throughout (in plants and animals). The method of growth is characteristic but is not apparently different in principle. Growth in either case is a matter of assimilation of foreign matter, and means that there is a region round about the crystal and plant or animal within which the unit has a distinct influence, attracting and controlling such particles as it desires, and, apparently, repelling others.

The result in both cases is ultimately reproduction; crystals reproducing outside of themselves, unicellular plants and animals growing large and dividing into two or more parts. Among crystals a curious case out of many is that of glycerin:

“We do not know under what conditions glycerin may crystallize spontaneously. If it is cooled it becomes viscid; it cannot be obtained in crystals in that manner. It was not secured in crystals in any other manner either prior to the year 1867. That year glycerin was found crystallized in a barrel sent in the winter from Vienna to London, and Crookes showed these crystals to the Chemical Society of London. What circumstances determined their formation? It was not known then; it is hardly suspected now. It was a case of spontaneous generation.

“Those individual crystals of 1867 have had a posterity. They have been scattered over glycerin

in a state of surfusion and they have reproduced themselves. These reproductions have been numerous enough for the species to spread over a great part of Europe. To-day the large manufactory of Sarg & Co., of Vienna, is carrying on their breeding on a large scale as an industry.”¹

In the case of animals and plants the cell by some inevitable process of its growth divides into two or more spheres of influence, which operation, once begun, results ultimately in two or more plants or animals. This operation may be brought about by starvation or the weakening of the organism, but it is equally inevitable in the well-fed and thriving cell.

The most evident differences between living and dead matter are these: 1. Living matter is far more affected by external forces. It is, chemically, a very unstable compound. 2. The fused forms of living matter are so loosely put together that they can and do constantly assume new shapes in response to external forces. Crystals do not do this. 3. Living matter, as it is very unstable, so is constantly decomposing and constantly being renewed.

These characteristics are found only in living matter, but all are easily conceivable in matter as matter. Only the last need detain us here. The constant decomposition and building up of living matter is, indeed, connected with the two other qualities, namely, the unstable nature of the molecules and the frequent changes in shape of the living unit. It is inevitable that in a changing environment such a

¹ See the above-mentioned article in the *Revue des Deux Mondes*.

unit should be constantly losing its purity and perfection. But as the cell has the power to select its molecules from a mixture, it is not hard to understand that, when these molecules become decomposed, it should have the power to throw them off and to assimilate new ones to enable it to regain more nearly its purity and perfection. The semi-fluid nature of the unit is what makes this practicable. The process is no doubt an intricate one, but the principle of the action is not difficult to grasp.

This brings us to our final point regarding the unicellular organism. The simplest forms of the plant and animal, like the crystal, seem to have been a fused unit made up of precisely similar molecules. But the animal and plant are commonly found to be made up of molecules that are not exactly alike. Just what the differences between them are, may perhaps never be known, but the principle by which this occurs is not hard to surmise. It is a possibility resulting from the fused condition of the cell. Certain molecules which could not exist alone may exist when in a state of fusion, because of the support they receive from the other molecules with which they form a unit. The balance of the cell as a whole is kept up, but the molecules vary off from the type. It is evident that such balanced units would be different in character from homogeneous ones; that they would be more complex in character; that they would offer possibilities of almost unlimited variations. The differences in character would also, evidently, show themselves in differences in form. And this

is found to be the fact, for, whereas the cells that are homogeneous or nearly so, take only the most simple forms—most often spherical—the non-homogeneous ones are almost unlimitedly variant in shape. The ones that nature has selected to survive regularly have distinct layers of molecules so as to bring about a division of labor. The outer ones are less sensitive and form a membrane, perhaps with appendages; the inner ones more sensitive and forming a nucleus which may seem to have very distinct influences over the cell and its fate. Thus the unit may be very complex and the molecules very dependent upon each other. Such a cell because of its small size, utterly defies our present chemical resources for investigation. It does not, however, utterly defy our reason. The method of assimilation in such a cell, it may be noticed, would of necessity be more complex than in the simpler homogeneous organism. The molecules of the surface would assimilate from the external world, while the dependent inner layers would assimilate at second hand.

We come, lastly, to the multicellular plants and animals. Here we shall consider particularly the animals, the application to plants being easily made.

The simplest forms of the multicellular organism are apparently mere collections of unicellular ones—clusters originating from a single cell. These cells are apparently alike, and in some cases there may be doubt whether they are a fusion or merely a collection. In cases, however, where the fusion is certain, as in *Volvox* among the plants, we find the traits are

as they were in the lower fusion. The individual animals or plants give up their normal freedom and act as a unit; the fused unit has a definite specific form (in the simple *Volvox*, spherical); the fused unit has the power of regeneration, *i. e.*, will repair waste or injury and preserve its characteristic shape; it is affected as a whole by external forces; it may change its shape as a whole.

A notable fact about it, as showing that nature is reaching her limits, is the character of its reproduction and of its waste and repair. *Volvox* reproduces itself regularly, not by division of itself, but by the division of one of its constituent cells. The single cell thus thrown off multiplies and produces a new colony or fusion, which is a complete *Volvox*. As is well known, the bodies of all animals, including man, may originate in this same way. Waste and repair also take place in the individual cells, and the unit does not regularly assimilate or take in new cells, though they may be artificially added by grafting.

A remarkable fact in *Volvox* and the higher multicellular animals is that waste and repair cannot go on indefinitely. For some reason the chemical and cell reactions weaken after a time—as if there were a series, a regular succession of conditions in them, and never, after a change, a strict regeneration or restoration of the former state.¹ This results

¹ So far as the analogy is of value, it seems not impossible that the evolution of species may be explained, in the end, as having this law behind it. The element of orderly succession in evolution is certainly not imaginary.

ultimately in death, as it is called. It is an utter break-down of the multicellular plant or animal unit. The whole dies, and the occurrence is a clear proof of the interdependence and unity of the fusion. Traces of this state of things are found also in the unicellular organisms, but there is said to be no death among them if properly fed and protected.

In the higher animals fusion soon follows the course we have found in the higher protozoa. The cells are then no longer alike, but become such as could not possibly live outside the body in which they are produced. The mutual support of the unit makes this possible; and it is carried to great lengths. From *Volvox* and its like to man is an astounding development.

But although we consider *Volvox* and man as fusions of the same grade, there is a different sort of unity within them. Quite low in the scale it appears that though animal bodies are a unit, there is something like local unity as well as unity of the whole. Certain parts of the body, indeed, are (while under the higher unity) partially independent. This becomes clear in the experiments made in research upon regeneration. If a *Planarian* be divided through the head, the separated head-piece will regenerate at its posterior end, not a body but another head. Evidently the head does not fully imply the rest of the body. It is a sort of unit in itself. So if the tail of an earthworm be cut off very near the tip, it will regenerate at its anterior end not a body, but another tail. In each of these animals, however, a

larger piece of the body will regenerate the missing part. The planarian body will regenerate a head; the earthworm body a tail. Any considerable part of either animal will regenerate all the severed parts correctly. On the whole, the unity of these animals is pretty complete.

On the other hand, when any considerable part of an animal of the higher types is cut off, the local unit is likely to be entirely lost. If a young frog have its foot cut off, it regenerates a new foot, but if the leg be cut off above the knee, the wound merely heals over. Evidently the unit of the lower leg ends at about the knee. In the mature animal this unit seems to have grown even smaller, and the parts more specialized, for the mature frog will not regenerate even the foot. If this is well reasoned, the perfect local units in the highest animals must be quite small, since no considerable wound in them will be regenerated, or even heal over. However, after the perfect local unity has ceased, a partial local unity still often remains, as is shown by a unity of function in the cells. The liver and heart, for instance, are local fusions, though they have little power of regeneration. The cells of which they are composed act together. *

It might be supposed that the existence of local units would lead us to assume that the higher animals are fusions of a grade above *Volvox*. The objection to such an assumption is partly historical and partly anatomical. The body was not formed from these units, and it is not possible to distinguish them as

definite entities. They are rather the inevitable partial fusions brought about by the increased size and differentiation of the body.

Of all the local fusions in the higher animals and man, the most important is doubtless that collection of cells called the nervous system. These cells are located chiefly in the skull, but they extend out into all parts of the body, certain ones of them having a long wire-like shape that enables them to lie at the same time in the skull and in other parts, such as the spinal column. Moreover, these cells may connect with others so as to reach, finally, the farthest extremities, such as the hands and the feet. The cells of this system are specialized to be sensitive chiefly to external forces—light, heat, pressure, etc.—and to respond to them suitably. The other cells of the body are comparatively insensitive, or are so formed and placed that they respond to influence, for the most part, only at second hand, after the more sensitive cells have communicated their sensitiveness to them. Muscles, for instance, change their shapes usually at the instance of the nerves. The fusion of the nervous system is thus of the utmost consequence in perfecting the interconnection of the body unit so far as it is concerned with the external world. Within the body the influence of this system is distinctly less, and it falls into place as merely a part of the larger unit. Much of the body is quite out of the sphere of its sensitiveness, and it is as much subject as any other part to the sum total of the body in matters of growth, form, nourishment, and general mental traits.

Of the constitution of the brain we are largely ignorant. It is believed, however, that each cell may have its special duties, and that those having similar or the same duties lie adjacent to each other. There are also many connecting cells, bringing into still closer union the different parts of the unit. We may believe that under the larger fusion of the whole brain, there are local fusions of various sorts and degrees. If it be asked whether the fusion of the brain is not mediate, *i. e.*, does not take place in some one cell, we reply that it is admittedly certain that this is not the case, though some of the more local fusions in it may take place so. Fusion in some one of the component units, it may be noted, is contrary to the analogies of the lower fusions, though of course not an impossible state in fused units. The locus of a fusion seems regularly throughout all the fused elements, and in spite of subfusions, this seems to be the case in the brain. It acts as a unit—a real fused oneness—not a united group of units with an overlord cell.

Having thus stated our theory of fusions, it is now our purpose to take up the phenomena from the inside. The statement of our position is simple. Mental fusions take place; a mental fusion is a physical fusion as it is to itself; conversely, a physical fusion is a mental fusion viewed from the outside. We thus assume that wherever the one is, the other must be; and we will accordingly give evidence for our belief, in man and afterward in the animals, but

will then suppose a similar state of things in the atoms and molecules.

We begin then with man. There can hardly be a denial of the statement that fusion takes place in the mental side of the human brain. Our minds are essentially units. Whether a sensation reaches the brain by a nerve from the hand or from the foot or from the eye or the ear, the same mind feels it. Now it is known that these different sensations arrive each in its own part of the brain; the destruction of one part or another destroys one or another power of sensation and thought. Therefore, since it is known that there is no single cell, or group of cells, in which the mind may be said to reside, we are led inevitably to believe that the locus of the mind as a whole is a considerable number of cells in the brain, if not the brain as a whole. The various identifiable parts of the mind in the brain seem to fuse into one mind in the whole brain, and until further evidence is forthcoming we shall consider that this is the fact. The mind is a fusion of the mind of the cells of which it is composed.

This fusion theory is not a new one, but was proposed many years ago and has met with vigorous rejection at the hands of most psychologists. The objection to it seems to be partly religious but also partly intellectual. It is urged against it that it is incomprehensible and therefore false. It is said that two or more things cannot unite except in a third; that to speak of the mind as resident throughout the cells of the brain is like speaking of a mind in a mob.

One man may represent a mob, but a mob cannot have one mind. This objection has certainly some validity. An axiom that the mind rebels at is an unsatisfactory, not to say a dangerous, thing for knowledge to rest on. We must therefore make more clear what we mean by the locus of the mind, though any statement must be subject to alterations as the knowledge of the physical brain becomes more exact. A conceivable state of things is, however, not hard to make clear.

We accept the comparison to a mob, and though we shall speak only of the brain, the mob may be held in mind. The brain is not merely a collection of cells, it is that and something more; for it not only holds together in space, but—and this is of even more importance—each cell of the brain, or, if we choose, each chief cell, is affected by every other cell or chief cell. Thus, each feels not only its own sensations, but to some extent also the sensations of all the other cells. In other words, each cell is a representative of the whole mind—of its sensations, desires, and memories—each, however, with its own proper sensations, desires, and memories—and these usually stronger than those it has through sympathy. There is evidence, also, to show that all cells are not sympathetic to all feelings, though in any particular instance a considerable number probably are. If, now, the focus of consciousness were to shift in space from one of the perfectly sympathetic cells to another, the mind would still be the same, *i. e.*, a sum of what was going on in all the cells, though it would differ

in the vividness and proportion of the elements of it. This may pass as a description of what actually takes place, and we may suppose that something of the sort will some day be shown to be the fact, namely, that the locus of the mind is the brain, and to some extent the whole body, but that the focus, *i. e.*, the "leader of the mob," may be any one of a large number of perfectly sympathetic cells, and is sometimes one and sometimes another.

If this method of reasoning is pushed, it is plain that the focus must finally be identified with an atom, or less—which we are willing to admit. There is no evident additional difficulty.

If mental fusions in man be granted, those in the higher animals follow. There is no reason to believe that the state of things is different in them. Their senses, feelings, and nervous systems are evidently like ours; their acts are those of units. The fusion that takes place in the mind of man just as certainly takes place in theirs.

In the lower animals and in the unicellular animals and plants there are also actions which are reasonably taken to betray senses and feelings to be found in man. Hunger and some sex seem certainly to be present. These lower and protoplasmic forms also act as units. We will believe then that the lower animals are true mental fusions of the cell-minds; and that the unicellular animals and plants are true mental fusions of the molecular mental constituents in them.

The detailed consideration of these, and of the

atomic and molecular minds, we will take up in the next chapter. For the present we wish to consider merely the higher forms and to make our position clear.

Let us return then to the consideration of the human mind and the minds of all animals having a nervous system. So far we have spoken only of the mind *in the nervous system*, of which we have held that it is a fused unit. If, however, our theory is true, there must be a mind not only of the part of the body, but also of the body as a whole. This mind we shall call the body-mind. It is to be thought of as including the nervous-system mind, which is a part of it and is controlled by it, as is every other local fusion in the body.

That there is a physical unity of the body upon which we may rest our assumption of a body-mind, is beginning to be recognized by the students of morphology and regeneration. We have already quoted Professor Morgan's utterances upon this point, and have noted the striking case of *Stentor*, which, if cut in two, regenerates into two individuals, each of half the size of the original one. Evidently, in this case, the position of any part of the body is determined by the material as a whole, since each half, without any apparent change of material, moulds itself into the characteristic shape.

But it will be objected that, if there is a body-mind in man we ought to be conscious of it. If there is a mind that includes the whole body, how is it that we do not know all that goes on in the body? What,

in short, is the evidence that any such thing as the body-mind really exists? These questions require the most careful consideration, for, until they are answered, our theory cannot claim acceptance—though, it is to be remembered, it may be true.

We return first of all to our conception of a mind-fusion. A mind-fusion takes place when, and in so far as, each cell is affected sympathetically by all the other cells. It is clear then that the body-mind could consist only of those mental elements which all of its cells could sympathize with. If, however, we considered any one cell, there would be in it *with* the emotions of the body-mind also the special emotions native to the cell, and perhaps some of local sympathy, *i. e.*, not common to the whole body.

9 | Now the body, as we have noticed before, is highly specialized, and, in consequence, full of local fusions, *i. e.*, of collections of cells having special emotions to which the rest of the body is comparatively or entirely non-sensitive. The body-mind, then, would not include these special emotions, but only the ones common to all cells. We should not expect it to be clear about what goes on exclusively in the liver or the pancreas or the heart or the brain. Its emotions must be more general and fundamental.

But the questions we have put are special ones, viz., of the relation of the body-mind to consciousness. Consciousness, as we shall see, depends upon memory, and is a special condition of the memory cells, which are exclusively those of the brain. If, then, we are to observe the body-mind in the conscious

mind, we must observe and examine the brain. In the brain there will be, as noted above, (1) the body-mind and (2) with it the special powers and emotions of the organ, *i. e.*, the special powers and emotions of the brain as a collection of specialized cells. The body-mind, then, is to be discovered by discarding all the special powers and emotions of the brain; the residue will be found to have its locus not merely in the brain but in the whole body.

This is not so difficult an operation as it may at first seem, although we cannot at present hope to conduct it systematically and exhaustively. It must suffice to show the method of inquiry, and to give an instance or two of the emotions in question.

We discard, then, memory, reason, consciousness, sight, hearing, taste, touch, smell, and the sense of heat (in their ordinary clear senses), as being special to the brain. So, also, we must discard the special influence the brain has on the muscles. The body-mind can have none of these.

There remain the emotions and desires of the body-mind. Of these we will mention three: 1. The sense of health and well-being, with its focus often, apparently, in the intestines, liver, etc. 2. The feeling of affectionate desire, with its focus often in the sex cells. 3. The feeling of loneliness, apparently without special focus. These and many similar desires and feelings we conceive of as being those of the body-mind, and as existing not only in the brain but in the whole body.

Let us consider a special case, and, as feelings are

more demonstrative in their negative forms, let us choose a negative feeling, bodily fear, which, as we shall see, may be a negative of the sense of well-being, and let us take an extreme case.

In the case of extreme bodily fear, we find as symptoms, the irregular action of the heart and lungs, vomiting, and the opening of the intestines and bladder, spasmodic action of all the muscles, goose-flesh of the skin, blindness of the eyes, ringing of the ears, refusal of the brain to fuse—in short, the affection of every part of the body, and very noticeably of those parts over which the brain has no direct control. The fact that such fear may begin in the brain, or that it spreads through the body along the nerves, does not alter the force of our argument, for we hold expressly that nothing mental goes on in the body without its corresponding physical phenomena; and body emotions will regularly begin at some one point or other and spread out sympathetically from it. Moreover, this will require a perceptible time and means within the field of physics.

Physical fear, then, is regularly a feeling of the whole body, *i. e.*, of the body-mind, and not a matter of the brain alone. Similar evidence might easily be given in the cases of love and loneliness and other feelings. They are in consciousness because the conscious mind is part of the body-mind.

Notice, however, that as a part of the body-mind, the brain may have a real influence to control as well as to cause emotions in the larger unit. A reasoning mind may overcome, or at least moderate, physical

mental
not
physical

Christian Science

fear; and an artificially induced feeling of well-being in the brain may be sufficient to decide the outcome of a disease, and to effect cures that seem miraculous—this, of course, being made possible through the sympathy of the parts, and not by any direct and specially cerebral control. *measurable!*

It may occur to some reader to object that if the body-mind includes the body, it should contain a thought of its shape—that we should know intuitively that we have arms, legs, etc. This matter also will become clearer as we proceed, but it may be sufficient to notice that the mind knows nothing of matter except through experience, and that this experience is obtained only by the brain, not by the body-mind.

On the question of the adaptation (if it may be called so; it is, as we hold, unity) of body and mind to each other in individual instances among the higher animals, there can be but one opinion. Body and mind are regularly absolutely fitted, the one to the other. We may notice several points of fitness:

1. In all animals the mind is able to use the body. The bird mind, for instance, manages the bird body, with all its special peculiarities of structure; while the human mind manages the human body with its peculiarities. Evidently the minds in these two cases must be very different. Yet there is no sign that such adaptations are the result of natural selection. Strange new animals, "sports," are just as fully perfected in this respect as the oldest species. The unity of body and mind is the regular thing.

2. The mind has regularly the tastes and desires suited to it. All animals have the taste for their proper foods; recognize their proper mates; and congregate, if at all, preferably with their own kind. This again is not a result of natural selection. A new variety of dogs, cats, sheep, or the like, will flock and mate at once by preference with its own variety. The preference goes with the body.

3. The general instincts of animals are suited to their bodies. The swallow, for instance, is born with weak feet, strong, large wings, and a gaping mouth. If the mind were independent of the body, why should he not desire to wade in the mud and probe for worms? And why should not the heron fly about in the air and snap at flies? Or the humming-bird try to plunge and catch fish with its feet? Lamarckism, as is well known, noticed and built upon the correspondence of the bodies and instincts of animals, and this is certainly one of the striking laws in nature, for there is no evidence of any real violation of it.

It is even noticeable that when nature repeats herself in instincts, she repeats herself also in forms. Swallows and swifts, for instance, have a striking resemblance, though they are of only distant kinship. The swifts are of a strong-flying relationship; the swallows belong among the perching birds; their similarity of form is thus plainly connected with their similarity of instincts.

The explanation of the correlation of the parts of the animal body has from the beginning been an

insurmountable difficulty for the Darwinian theory, and has only of late become somewhat clearer, and that by introducing another mystery, individual adaptation; the explanation of the correlation of the instincts with the body, however, would be far more difficult—though it is so easily and regularly done by nature. Both can be explained on the assumption of a body-mind. / The body is thus the external view of a oneness of mind, which for want of a better word we might call an idea. / And it may be well to recall that as mind is local in time and space, and viewed from the outside is matter, so our theory holds that the animal *is* this idea, not that it is a representation of it—a machine made according to, or in representation of, an idea. It is itself its mind. This matter will of course come up again, and for more lengthy discussion.

We will now pass to an examination of the elements of mind.

Oct 9th 1918

CHAPTER III

THE ELEMENTS OF MIND

THE consideration of the mind of the atom and the molecule must of necessity be largely a theoretical matter. Nevertheless there will be a distinct benefit to our theory if such an inquiry can be satisfactorily accomplished. We shall perceive what the elements of mind really are and what the derived and compound qualities and powers. This resolution of mind into its elements is indeed the most important advance that can be made in psychology; for the mind of man is so complex that our researches into its nature are hopelessly baffled so long as we take it to be an indivisible unit. In any case the clews must be difficult to follow, but no other method holds out the hope of a rational explanation.

Moreover, it is our hope that by tracing the mind through its lower units and in man, we may arrive at certain general facts and laws concerning it. It is not our purpose, nor does it seem possible, to explain these; they must be ascribed frankly to the nature of the mind and left so. We have become so used to the magical explanations of "natural selection"

that it is sometimes overlooked that natural selection is after all only a selection, and that there must also be an explanation of the forms which existed, ready to be selected. Natural selection may be compared to a circle of cliffs or barriers within the circuit of which nature produces her forms. The barriers hem her in, but they produce nothing. She produces, and produces according to her nature and laws. It is, however; the study of her nature and laws that we are engaged upon, and we shall scarcely need at any time to call to our aid natural selection or its kindred much-misused terms. The study of that side of the world is a science in itself.

Our expectation, then, is that our study of the atoms and molecules will be justified by the resultant clarity in our analysis of what takes place in the higher forms of the mind.

THE ATOM

Evidently the perils of interpreting the atom are two: Either, being influenced by our goal, we shall posit too much and make the atom a soul in miniature—whereas it should be an element of the human mind in the same sense that it is an element of the human body; or, being influenced by the physical sciences, we shall posit too little and afterward befog ourselves into a development of much from almost nothing.

We begin with our facts. Atoms are or may be sensitive to light, heat, electricity, and the so-called chemical forces. This sensitiveness is shown by their behavior, for under such influences they move either

toward or away from other atoms, and if they move toward, they regularly fuse with other atoms to form molecules. As they are affected by other atoms, so they also affect other atoms, such affecting being thought of as regularly mutual, though it may well be stronger on one side than on the other. Moreover, in an act of fusion force is liberated.

It is now our duty to interpret these facts in terms of mind. For our purposes we shall assume that the atom is a simple unit and not a fusion of lesser units. There will probably be no great additional difficulties if in future the more elemental units become well known.

We begin then with our suppositions:

First. *The atom has an impulse to fuse with certain other atoms.* This impulse we shall call the fusing impulse. By it is not to be understood either a thought or an imagination. It is rather a longing or an unsatisfied feeling which proves in the event to be satisfied by a fusion. The atom has no thoughts and cannot know of any other atom. At the same time, although the impulse is without thought of any kind, it can be satisfied only in definite ways, and is not to be thought of as indefinite in its character. We suppose, also, that *the fusing impulse exists in the atom in advance of experience with other atoms.* This seems a necessary supposition.

Again, *atoms have the power to influence other atoms, and are subject to influences from other atoms.* This influencing, which is a fact of supreme importance in the development of matter and mind,

is accomplished by the setting free of forces in the atom. The forces are light, heat, electricity, and the so-called chemical forces, represented by the word affinity. The freeing of them is not conscious or purposeful, but they are rather to be thought of as set free impartially in all directions from the atom. As for the mental state accompanying this liberation, we suppose that it is merely that of impulse and we propose accordingly this axiom:

1. *An impulse is identical with a setting free of force.*

Such an identification cannot be proved, for, like the identification of mind with matter, the two terms of it belong to two spheres of experience that have nothing in common. The identification is thus theoretical, and is good only in so far as it is useful.

Again, the atoms absorb the forces sent out by other atoms and by doing so become ready for fusion. We interpret this fact as meaning that the impulses of the atoms involved become complementary. It is clear that if each has the impulse to fuse with the other, the impulses of the two must be complementary though practically amounting to the same thing. A has the impulse that may be called "fusion with B," while B has the impulse that may be called "fusion with A," but the two impulses are for the union of A and B. This general relation may be called co-operation. We make then this statement:

The influence emitted in an impulse is such as to bring about a complementary impulse in a suitable other mind.

Nothing in nature is more remarkable than this apparent fact, which nevertheless we must leave utterly unexplained.

The susceptibility to influences from other minds is called sensitiveness. In order not to pass it we make this statement:

Atomic minds are sensitive to light, heat, electricity, and chemical influences.

Not all are equally sensitive to all forces, the susceptibility depending apparently upon whether they can respond to the impulse emitting them. Stated conversely this means that the forces mentioned make responsive the complementary impulses of a suitably sensitive atomic mind.

How atoms accomplish their movements in space is not known. It would seem that these movements are caused ultimately by force liberated by the atoms. The noticeable fact is that the movements are suited to the impulse and result in its satisfaction, that is, in fusion. We suppose also that such a movement does not take place in an atom until it has been influenced by some other suitable atom. Before such influence we conceive that the atom has its impulses; but with the influence, the impulse becomes confined in direction. We broaden our statement to an axiom as follows:

2. *The influence emitted in an impulse is such as to make definite the complementary impulse in a suitable other mind.*

A definite impulse is thus one that is affected by the influence of another mind.

Again:

3. *The act of satisfying an impulse is identical with a movement in space.*

And:

4. *The force liberated in a definite impulse is such as to tend to the motion necessary to bring about the satisfaction of the impulse.*

In speaking of the fusing impulse of the atom we have probably gathered under a single head a large number of distinct impulses. Perhaps there are ultimately one or two simpler forms, which may appear in the future, when we know more about the constitution of the atom. At present it seems that the atomic mind has a different impulse for each species of atomic mind—a very complex matter, viewed either chemically or mentally. The higher forms of mind also make nice distinctions of this sort through taste and smell; but as there, so here, it seems best to class these cases together.

It is to be noted, however, that the fusing impulse must be thought of as including mechanical differences varying over a considerable field. Some impulses are stronger than others, and all may have a negative or minus value, as well as a positive or plus one. The positive impulse is commonly called attraction; the negative, repulsion. The positive is satisfied by fusion, the negative by a breaking up of fusion or by a separation of the atoms. The two forms are to be thought of as varieties of the same impulse, and in all our subsequent discussions it may be well to bear in mind that impulses and de-

sires have regularly these two values—that there is always a plus and always a minus value.

A fusion of atoms, however, cannot take place by a mere movement toward each other of the atoms concerned. The atoms do not really lie one against the other in the molecule. A point is reached, in short, when the atoms are mutually repellent. On this fact we make the following statement:

A positive impulse when strengthened to a certain point results in negative action.

We hold also the converse, namely, that a negative impulse when strengthened to a certain point may result in positive action.

These statements may be combined into the following axiom:

5. *A positive or a negative impulse when strengthened to a certain point behaves like its opposite.*

When a fusion of atoms takes place, there is a notable setting free of force. This is undoubtedly a sign of the giving up of independence in the component atoms, for the fusion cannot be broken until the force thus lost is again supplied in some way. The explanation of this is only to be conjectured. We hazard the following: As the atoms come close to each other the influence of each on the other increases rapidly, with the result that each has much stronger impulses than it had when farther from the object of its impulse. We may even suppose that this increase is inversely as the cube of the distance. When, then, the fusion takes place the impulses of the new unit are very great, with the result of a large emission

of force, until the molecule has reached a condition of equilibrium with the surrounding free atoms or molecules. In a word, the new fusion is essentially more economical than the old freedom, and this through the intersupport of the atoms in their mutual influence at close range.

This brings us to the following supposition, namely, that when an impulse is satisfied, the emission of force is accompanied by a feeling of satisfaction or pleasure in the constituent atoms.

We suppose, also, that if a fusion has taken place, a breaking up of the fusion with its absorption of force is accompanied by a feeling of displeasure, dissatisfaction, or pain.

From these suppositions we form our last axiom:

6. *When an impulse is satisfied or its result broken up, the equilibration of forces is accompanied by a feeling of pleasure or pain.*

These feelings (the names we have given them undoubtedly seem too strong), so regularly accompany the satisfaction and thwarting of impulses that it seems inevitable that they should accompany also the similar states in the atom. It is not possible to make such feelings begin at some higher stage of development of the mind. Moreover, we intend to identify them. In the atom and molecule they are what are ordinarily called the "sensations" of taste and smell, heat and light. These, as we hope to show later, are not sensations at all, but are the characteristic satisfactions and dissatisfactions of the atoms or molecules.

By connecting pleasure and pain with changes in the equilibrium of forces, it will be seen that we are in position to explain the temporary quality of these feelings, and also the "overflow movements" which constantly accompany them in the higher animals.

The supposed psychology of the atom is thus, we hope, made clear from the point of view of our theory. Sensitiveness to heat, light, electricity, magnetism, and the chemical forces; the power to influence other atoms; the impulse to fuse, and the feelings of pleasure and displeasure—these make the sum total. It is still complex, as the atom is, but it is not a human mind in miniature. It is an unconscious, unthinking, unreasoning bit of mind, acting inevitably (but freely) to certain simple situations. Its immense significance is in its power of fusion.

It may not be amiss to recapitulate here our axioms. These are:

1. An impulse is identical with the setting free of force.

2. The influence emitted in an impulse is such as to make definite the complementary impulse in a suitable other mind.

3. The act of satisfying an impulse is identical with a movement in space.

4. The force liberated in a definite impulse is such as to tend to the motion necessary to bring about the satisfaction of the impulse.

5. A positive or a negative impulse when strengthened to a certain point behaves like its opposite.

6. When an impulse is satisfied or its result

broken up, the equilibration of forces is accompanied by a feeling of pleasure or pain.

From these beginnings and with these axioms we hope to develop all minds, including that of man.

THE MOLECULE

We pass now to the consideration of the molecule.

The atoms of it are sensitive to heat, light, electricity, and the chemical influences, *i. e.*, to the influences of other atoms. Impulses thus aroused become common to the molecule through sympathy. This sympathy between the atoms of a molecule is, of course, to be conceived as brought about in the regular way, according to our second axiom.

Here two possibilities may be noted: Either that the different atoms may be differently influenced by the same force, so that the result will be either a compromise or an annulling of the impulse, with the result that molecules will act differently from their constituent atoms. Or, which is especially notable, that the result of an influence will make a change in *the nature of the unity* of the molecule, resulting, that is to say, in a new sort of relationship between the atoms and, in a sense, in a molecule new in character, though composed of the same atoms. Some of such changes would cause a feeling of pleasure, others of displeasure—or at least we may suppose so.

The fusing impulse of the atoms remains, but in the molecule it is to be thought of as the shaping power. It is this impulse that gives the molecule its supposed characteristic form. If the character of

the unit is altered by influences from without, we may suppose that the shape of the molecule is altered correspondingly.

The molecule through its atoms also has the power to influence atoms outside of itself. It may even annex such and form a new unit. Such outside units may also affect it so as to break it up and make it form a new arrangement. In either of these cases the original molecule is, of course, quite lost as a unit.

The great gain in the molecules is that they are related to each other in a way that is similar to the relation between the atoms. They unite to form units of a higher degree, namely, crystals and the unicellular plants and animals. This phenomenon we shall call repetition. The fusing impulse of the molecules is a repetition of the fusing impulse of the atoms.

We suppose, therefore, the same things as before.

Molecules have toward other molecules the fusing impulse. Viewed physically, this means a liberation of force. This impulse, again, is not to be understood as a thought or an imagination. The molecule can know nothing of other molecules. It is rather a longing or dissatisfaction (though, as in the atom, these words still seem too strong) which proves to be satisfied by a fusion.

Again, molecules emit an influence (physically, a force) which is such as to bring about a complementary impulse in suitable other molecules. It also makes such an impulse definite in direction.

The act of satisfying the impulse is, also, a movement in space, the molecules assuming a definite relation to each other in a definite form; and this is accomplished, as in the atoms, invariably and through the force liberated in the impulse. Moreover, the molecules are not supposed to touch each other, but the positive impulse changes, as the molecules approach, to a negative manner of action. Hence the elasticity of molecular fusions. All these details are repetitions of the phenomena in the atom.

When the fusion takes place, force is set free, and we suppose a feeling of satisfaction accompanying it in the newly made fusion. We suppose also a feeling of dissatisfaction in case the perfection of the fusion is lessened.

In physics, the names of the forces joining molecules are called cohesion and adhesion. They are much weaker than the chemical forces, and may be overcome by simple physical means, such as a hammer blow.

The fusions of molecules are largely composed of similar molecules, but in the unicellular plants and animals the commonest forms are made up of dissimilar ones. In the first case, the sympathy between the molecules may be considered as resulting in a nearly identical complementary impulse throughout; in the second, the impulses are to be thought of as on the whole complementary. In the sum total, the molecules of the protozoic plants and animals are one and act as one.

THE CELL

Cells have been supposed to be made up of units of a higher grade than molecules, but as this has been merely for purposes of theory, and as there is no evidence of the existence of such units in a free state, we shall suppose that cells are simply molecular fusions. If there are units between, we shall suppose them to be what we have called local fusions, or subfusions.

With cells we shall also make some references to crystals, which we consider units of the same grade.

These fusions, then, have, first, the qualities and powers of atoms. They are sensitive in their atoms to the influence of other atoms, namely, to light, heat, electricity, and the chemical forces, and any atom so affected may affect in some measure the cell or crystal, for it may communicate its impulses to other atoms. It is to be noticed that it does not communicate its sensitiveness but merely its impulse, and that this may be done not only by means of the same force that influenced it, but (since the atom affects first the molecule of which it is part, and this molecule then affects other molecules) that it may be accomplished by means of other, namely, molecular forces.

An important difference between cells and crystals is that in the crystals the fusing impulse is very powerful and, apparently, simple; while in the cells it is far less powerful and simple. As a result, crystals are solid and fixed in form, whereas cells are soft and mobile. When, therefore, a cell is influenced from

without, *i. e.*, by another mind, it may be far more profoundly changed than the crystal. It may assume many different unities, each represented by some special characteristic form of the organism.

The cell through its atoms has also the power to influence atoms both inside of itself and outside.

Through its molecules the cell is influenced by outside molecules, and it has an influence over molecules both within and without it.

This power is used in at least one very characteristic way in cells composed of dissimilar molecules. A suitable external or internal molecule, namely, may be so influenced and supported by the other molecules of the unit as to find that it has too many or too few atoms, or that its atoms are wrongly arranged. This molecule, then, will either throw off or assume atoms and will rearrange itself to suit the unit as a whole. The process as regards external atoms is called assimilation.

The fusing impulse of the molecules exists in the cell and crystal as a shaping influence. It determines and maintains the form of the unit. In cells of dissimilar molecules, it operates naturally to bring together those molecules that are similar. The result is a nucleus (of molecules, apparently, in which the fusing impulse is strongest) and successive layers, the outer ones being least mobile.

A special trait to be noticed in these fusions, however, is that they may exist though incomplete. The mind in such cases is to be thought of as having an unsatisfied molecular-fusing impulse or a partially

satisfied one. If circumstances permit, this impulse will more nearly satisfy itself by the assimilation of and fusion with more molecules; and we find the crystal completing its broken parts, and the plant and animal regenerating (which is the same thing). Both crystals and the unicellular organisms also increase in size within certain limits, maintaining their unity, *i. e.*, from the outside, their characteristic forms.

In this connection we must notice a striking difference between the crystal and the cell. The crystal may apparently attain its satisfaction; the fusion seems to become perfect, after which the crystal may remain fixed forever. But with animal and plant cells this is not so. If placed in favorable circumstances they continue to grow until, having reached a certain size, the unit becomes too large to keep in full sympathy. It then inevitably divides into two or more spheres of influence, and finally separates into two or more individuals. Just how this occurs is not fully known. The first appearance of division is in the nucleus which divides into parts, but without doubt the cell acts as a whole, though the nucleus is the most influential part. This division of cells may also be brought about by starvation—a lack of energy and perfection evidently being the equivalent of the too great size. Living cells, then, are never perfect, though always working toward perfection. Their impulse is toward an unattainable goal. We make, accordingly, our definition:

The essence of life is an impulse which cannot be perfectly satisfied.

True!

It is a constant "hunger"—a constant setting free of force—a constant struggle. As often as the unit approaches its goal, it gives off force and experiences pleasure; as often as it loses ground, it absorbs force and feels displeasure or pain.¹

A further fact to be considered is that while molecules and atoms are affected only chemically, the living unit may be affected also physically. Being soft, it may be squeezed out of its characteristic shape. It may also be crushed or cut. Such a disarrangement of its form affects, of course, the molecular-fusing impulse in it—either pleasantly or unpleasantly. The feeling thus aroused we identify as what is ordinarily called the "sensitiveness" to touch. If the cell were crushed or cut it would amount to pain.

We have thus, in the cell, the elementary forms of all the senses of the fully developed animal. Its perfection may be advanced or lessened, and it may, consequently, experience pleasure or pain through light (sight), heat (feeling), pressure (touch and hearing), and the chemical forces (taste and smell).

The cell in its relation to other cells is now to be considered. Repetition occurs and our axioms all hold good. Cells have the impulse to fuse with other cells; they emit influences that are mechanical in nature; the force set free through influence tends to bring about the satisfaction of the impulse; the im-

¹ Whether molecules and atoms are ever perfectly satisfied we cannot, of course, know. Under given circumstances, however, they remain at rest, whereas living substance does not.

pulses made definite through influence are complementary to those in suitable cells that emitted the influence. Nevertheless, since we have now reached units that are visible, and that are extremely complex, the matter needs a fuller discussion.

The fusing impulse in cells varies greatly with different species. All the multicellular plants and animals are fusions of cells; but there are an immense number of protozoic plants and animals that are free-living and that do not fuse. When we suppose a fusing impulse in these free protozoa, we can evidently mean very little—nothing more, in fact, than that they gather in groups or clusters, or that they are not affected by each other as they are by food or by inanimate objects. There is some mutual influencing of the organisms, and our theory supposes that it is of a fusing nature, but it is often so weak that it is easily overcome by the stronger impulse for food, *i. e.*, the molecular-fusing impulse. The study of the fusing influence and relation of cells is thus to be made, fruitfully, only as the cells are part of a multicellular organism, *i. e.*, only when the fusing impulse is strong enough to give active evidence of itself.

Several things, however, should be noted here, before passing to the multicellular organisms.

We do not know how atoms and molecules accomplish their movements in space. They and their movements are invisible. The unicellular organisms on the other hand are visible, and are found to progress by rhythmic changes of form that push them

through the surrounding medium. In other words, they propel themselves very much as the higher animals do, by swimming, crawling, and the like.

The possibility of these rhythmic motions is not hard to make clear. They occur according to our fifth axiom. When, namely, the cell feels a positive impulse (in its nucleus, apparently) and so liberates force, the sympathetic impulse in the appendages or in the surface layers of cells quickly causes a movement to a certain position; the force, however, continues, and perhaps accumulates, until the appendages or surface layers act negatively and change the shape of the organism to another form. This movement consumes force, and the cell resumes its original form until the impulse has grown strong enough to bring about the positive and negative positions again. Thus, an even discharge of force may produce a rhythmic motion.¹

Just why this should result in a movement toward or away from the source of the impulse is not clear. That it always does so, is the fact. It is as regular as the movements of the atoms and molecules, and seems as inevitable. It has no appearance of being a result of natural selection. Our axioms hold good, namely, that the force set free in a definite impulse tends to bring about the satisfaction of the impulse; and that this act toward satisfaction is a movement in space.

In explaining these cases, and the similar ones in the many-celled animals, we must be on our guard lest we assume more than we may. It is as certain

¹ See Loeb, "The Physiology of the Brain."

as anything reasonable can be, that there is in these animals no thought of the foreign object or of the space to be covered or of uniting with any other substance or unit. There is merely the impulse, or longing, aroused by the affecting object and resulting ultimately in an undulatory change of form. That additional light can be thrown upon it, however, is not to be doubted.

Besides the fusion of cells in the multicellular animals and plants there is also another extremely important uniting of cells which now calls for our consideration. This union is between unlike cells and is of a more primitive nature than the fusion of cells which forms the multicellular organisms. The cells are always two in number and no more. Their union, which is now generally admitted to be primitive *sex*, is not a true fusion of the cells, but is rather a fusion of the molecules of the cells. The two cells quite cease to exist and one cell is the result. The union is of part with part, *i. e.*, the nuclei of the two cells unite to form the nucleus of the new cell and it is believed that the other parts unite correspondingly.

This impulse seems clearly to have a connection with the general perfection of the molecules of the cell. Every molecule in the unit seems to feel an impulse to join with a molecule of the other unit. It may thus be described as the extreme case of hunger, or the molecular-fusing impulse, in the cell. Ordinarily the cell satisfies its impulse by assimilating an atom or a molecule; here it takes in and is taken in by a whole set of corresponding molecules.

Several points may be brought forward as evidence of the truth of our position toward this phenomenon.

1. Such unions are known to exist only between cells that have had a different environment. Sister cells will not unite, but if they are put into different foods, they will unite if brought together afterward. Each cell, in that case, seems to possess something that the other wants.

2. If cells are kept alone in an unchanging environment, they will ultimately die. They can be made to live indefinitely (1) if the environment be changed, or (2) if they can unite sexually with other cells. Evidently in this case sex union is equal to a change of food. It has been noted generally that sex crossing with individuals of a different environment increases the vigor and perfection of species. }

3. If cells be "starved," by a lack of change in food, even sister cells will, at the very last before death, attempt to unite sexually. The extreme of hunger thus appears to be sex.

It is to be noted, however, that sex is not an extreme of ordinary hunger; there must be a lack in all (or approximately all) the molecules of the cell. It is a mutual impulse of molecule for molecule throughout the two cells. There must be a strong general imperfection.

It seems plain that such an impulse could be aroused in a cell only by a cell that was composed of molecules that corresponded, *i. e.*, by a cell of the same species. The principle of recognition seems thus to be simple.

The sex form of impulse is to be regarded as a true and distinct one. It is evident, however, that it is of no such consequence for the advance of the universe as is the instinct of fusion between cells. The sex union leaves the world where it was; a single cell is the result. Cell-fusion gives us a unit of a higher order, the multicellular organism.

THE MULTICELLULAR ORGANISMS

Under multicellular organisms we shall consider almost exclusively the animals. Plants show so little mentality that the consideration of them is hardly fruitful except in the simplest matters.¹

Multicellular organisms are fusions of cells. Being composed ultimately of atoms, they are sensitive to light, heat, electricity, and other influences from outside atoms and between the atoms within the organism.

The so-called "sensations" of light, heat, etc., are, as we have held, special feelings of pleasure and displeasure. We will now consider this, and, as a representative of this class of feelings, let us consider especially the feeling of light in man.

Light affects directly the ends of the optic nerves in the eye. At this point, we hold, the light arouses a sympathetic impulse in the atoms and so affects the molecules to a definite impulse. This impulse of the molecules passes sympathetically from mole-

¹ It may be noted in passing that crystals also show some signs of this grade of development. Not only do they propagate themselves (in the surrounding mother liquid), but the group of crystals thus formed often has characteristic shapes, as very notably in snow-flakes.

cule to molecule, according to our axioms, until it reaches the brain cells, practically unchanged. The cells of the optic centres, having this impulse, are either lessened in perfection by it (and perhaps throw off atoms or molecules), or they are enabled, through the defining of their impulses, to gain a new perfection, and this either without atomic increase, or by assimilating new atoms from the blood (probably the latter, since blood is probably needed). In the brain cells, then, there would be a characteristic feeling of pain or pleasure; and this characteristic feeling we call the "sensation" of light.

The reasons for believing this are several:

1. It is certain that light does not pass along the nerve. Something passes along it, but it is not light.

2. The brain cells themselves are not sensitive to light. They have no distinct feeling under a ray of light.

3. If the optic nerve be harmed, a "sensation" of dazzling light is felt. What should be felt is pain. Pain in the optic centres is thus the sensation of a dazzling light. It may be said that pain also is felt, but this pain, we believe, is not felt in the optic centres as such, but through sympathy in the other cells or molecules of the brain. When the impulse in the optic centres passes to other cells or molecules, it would result in the pain characteristic of those centres, *i. e.*, would become what we more commonly call by the name pain.¹

¹In a similar way are to be explained all pleasures and displeasures in objects of sense, *e. g.*, in colors or sounds and their combinations.

4. Our supposition explains how it is that in certain individuals a certain sound calls up a clear sense of color or taste, and vice versa. Sound is a pleasure or pain in certain cells of the brain. If the impulses back of these pleasures are communicated sympathetically to the other cells of the brain and ultimately to the optic cells, a pleasure or pain would or might result in those cells. This pleasure or pain, being characteristic of the optic centre, would be the sensation of certain colors regularly suited to the pleasure or pain of the sound.

This would give us, besides, a theory to explain special forms of artistic minds. To a musician the sight of a butterfly suggests definite melodies, and when these melodies are played, the world recognizes that they produce a pleasure like that produced by the sight of the butterfly. (This is evidence, by the way, that the same thing takes place, though to a less degree, in all brains.) To the painter, on the other hand, the sound of music may suggest a color "harmony," and when he has painted it, the elect may agree with his calling it by some such name. In this way music, painting, sculpture, and architecture may become each an "interpretation of life" in a very wide sense.

Through the molecules (in the cell-fusions) the body has the feelings of touch and the specially developed form called hearing.

Through the cells (in the body-fusion) the body has the pleasures and pains of a perfect or imperfect body—the "sensations" of health and ill-health.

Again:

Through its atoms and molecules, the body has power over atoms and molecules, within and without the body. It can thus assimilate external matter, as in digestion; and can control its cells so as to make them assume special shapes, notably in the special cells of the muscles.

Through its cells it controls other cells, the whole body being made to assume characteristic forms. This is the principle back of the science of morphology.

Again:

The fusing impulse of the atoms brings about assimilation.

The fusing impulse of the molecules causes and preserves and regenerates the cell forms.

The fusing impulse of the cells causes and preserves and regenerates the body shape.

As the fusing impulses of the molecules and the cells are unsatisfiable, the mind is always imperfect, always approaching or leaving perfection; always longing; always feeling pleasure and pain; always liberating force (since it always has unsatisfied impulses); and always using this liberated force in action directed toward the satisfaction of its impulses.

It may not be amiss to notice certain acts in detail.

The fusing impulse of the atoms works for the perfection of the molecules. The acts of this impulse are seen in the elaborate processes of assimilation

and purification in the body. Each cell of the body throws off its impure atoms (chiefly into the streams of blood) and assimilates others (chiefly from the same source). Moreover, it is to be noted that this is a native power and not dependent upon experience. Strange chemicals (produced by microbes or inserted into the body) are thrown off or adapted temporarily with the same efficiency as the ordinary waste of the body.

The fusing impulse of the molecules works for the perfection of the cells. The acts of this impulse are seen in the preservation of the forms of the cell and in the curing of cuts and bruises; in the growth of hair and nails; and the like.

The fusing impulse of the cells works for the perfection of the body. The acts of this impulse are seen in the maintaining of the shape of the body as a whole; the healing of broken bones; the natural straightening and forming of parts, as, for instance, after rickets. This impulse is found in all multicellular organisms. Plants assume definite and characteristic forms and proportions as wholes, and have the power of regeneration often to a striking degree. The lower animals have also their regular forms, and regeneration in them is often far greater than in man. We have noted the regeneration of the head in Planarians and earthworms, and of the foot in frogs.

At this point it seems proper to speak at some length of growth. All multicellular animals and plants grow. They are composed of a number of

sister cells, and they begin regularly as a single one which afterward by continued division forms the complex unit of many cells.

The word growth is used in common speech with various meanings: The hair grows, *i. e.*, increases in size until the fusing impulse of the cell is satisfied. The frog's foot may grow again, *i. e.*, a new foot is built upon the stump of the old leg. These forms of growth are quite different from what is meant when we say that the child grows. The child is always approximately perfect. Its growth is a regular change from one form to other succeeding ones. It is this form of growth that now demands our consideration.

Our theory holds that the body and the mind are identical. Any change in the body, therefore, means a corresponding change in the mind. But the form of the body (and the mind) we have identified as due to the fusing impulse of the cells. Any change, then, in the body is due to a change in the fusing impulse of its cells. The development of the animal through its successive changes means a constant shifting of the fusing impulse—a constant shifting of the ideal that would satisfy this impulse. The course of the embryo is thus not the shortest practical way of building up the body. The embryo is always a relatively perfect unit and shifts along from one perfection to another, from the original single embryonic cell to the birth, and even to the death of the individual.

We conceive of the mind of the body as a unit—its locus is the whole body; but we suppose also that it

regularly has some special part that is prevailing in influence, and that may be called the focus of the body-mind. Our idea of the course of development is that as the body advances and is about to reach some one sort of perfection, it develops some new focus that turns it into a course toward a new perfection, not essentially contradictory to the one just approached.

We shall be able to develop this view better after an illustration drawn from physics. If a bowl of water have an aperture in the bottom, the water will flow out of the aperture with increasing velocity. The lines of the flow will at first be straight; but as the velocity increases the water gets into a state of unstable equilibrium, when the slightest influence will cause it to change into the whirlpool form. This change will in practice inevitably take place, and by it the water is brought again into a state of stable equilibrium, and goes on increasing its speed of motion until it develops a tube of air reaching down to the aperture. Having reached this ultimate form of the whirlpool, the water again arrives at a state of unstable equilibrium. It regains its stable equilibrium by changing into a movement by which the air column turns so as to describe by its turning a cone, the apex of which is the aperture. Mathematically stated, it is found that when the equation of the movement of a body reaches its limit, it may agree closely with some form of the equation of quite a different sort of movement, and may then develop further by slipping over and following the develop-

ments of this other equation, with which it had become almost or quite identical. In certain forms of movement, as many as four or five successive changes have been found to follow each other in this way.

Our idea of development is analogous. When the fusing impulse approaches one satisfaction, its power is still great, but it has reached or nearly reached the limit of its possibilities along that line. This brings about a state which may be compared to a state of unstable equilibrium. Another focus may then come into decisive influence and the development of the unit may take an entirely new direction—which, however, must not be directly contradictory to the preceding direction, else the preceding influence, which was stronger, will annul it. Thus development proceeds along regular lines. The stronger, more primitive impulses accomplish themselves first; the finer and finest ones last; and each builds, on the whole, upon the work of its predecessors.

Before proceeding further, let us examine the evidence for some of our statements. First, as to the body as a representation of its body-mind *at each moment*.

That the mature organism is a representation of its own body-mind, and not dependent upon its previous development, is evident from the facts of regeneration. When, to take one instance out of many, a frog's foot is amputated, a new foot grows in its place. But this new foot does not begin as an embryonic foot. It goes through no metamorphoses, but fills out as directly and rapidly as possi-

ble into a mature, fully developed member. It completes the *present* body-fusion.

Secondly, as to a change of body caused by a change of mind.

We might adduce the cases of the parasitic crustaceans and other animals, which, when they become sessile, lose all organs of locomotion; or that of the flatfish, which, when it develops the instinct of lying flat on the bottom of the ocean, changes as if its body were of putty, to the suitable strange form. We consider these as cases to be explained so, but will give a more indubitable one.

The lobster, as is well known, is armed at its forward part with two large claws or nippers. These claws are not alike, the right one being provided with fine sharp teeth, the left with blunt rounded ones. The right one is also the one most used by the lobster. If, now, this right claw be amputated, the lobster remains deformed until it next casts its shell and secretes a new one. Meanwhile it makes constant use of the left claw which remains. When, now, it casts its shell the lost claw is regenerated, but this new right claw is not a right claw in shape, but has blunt teeth; and the much-used claw on the other side is found to have gained sharp teeth. In a word, the lobster has changed into a left-handed animal. Here we see that a change of habit (*i. e.*, mind) may result immediately in a change of body.¹

¹ In this class of phenomena may be put what are ordinarily called individual adaptations, *i. e.*, the changes in the individual, caused by use and disuse.

Thirdly, as to the existence of foci that are influential in growth.

We adduce here the cases of gelded animals. A gelded sheep differs from a normal one in character, size, appearance, voice, and taste of flesh. It is a different animal from the normal male. The workers among bees and ants may be parallel cases. Or, again, we may consider the changes in character, size, development, and taste of flesh in female mammals that have had young; or the condition of plants that have flowered. All these profound changes seem undoubtedly due to causes which were at first very local, but which evidently changed the character of the organisms as a whole. Experiments may very well show that these cases are not at all isolated ones.¹

We may thus consider our general thesis as probable, though it is not clear that all directions of progressive development are influenced by special foci. When the organism has reached a point of unstable equilibrium, its further progress may be determined in some cases by the mere nature of the position, as in the case of the flowing water.

Whatever may determine the changes, it is clear in certain cases that a determination early in the development may have a profound effect upon the whole future life of the organism. Most animals, for instance, have two possible courses of development, distinct almost from the beginning of their life. We

¹ A curious case of influencing the fusing impulse is that of tree and plant galls. Here (apparently by the injection or production of a chemical) the whole manner of development of the vegetable cells is altered, and takes on new characteristics.

male & female
refer to the difference of the sexes. Sexually, an organism seems to reach a point of balance, from which it may follow either of two quite distinct lines of growth. It may become either a male or a female. What decides which it is to be has never been definitely determined. It seems as though the vigor or condition of the whole organism at the decisive moment might be the decisive factor—the more perfect organisms becoming females, the less perfect males.

Other determinations are equally variable and, so far, insoluble. Apples, pears, peaches, and many other common plants as well as many of the domestic animals vary constantly within certain limits. These variations seem as though they might be new directions added to the ordinary limits of their corresponding wild species, *i. e.*, the wild species go through a certain number of shiftings of direction from the germ cell to the mature condition; the domesticated ones go through these, and besides (perhaps because of their new and better surroundings and surplus energy) add a new one, varying with different individuals. By selection these varying new types may often be made to breed true, though interbreeding of the new types will commonly cause a reversion, to a greater or less extent, to the original type—the mongrel being perhaps unable to pass the turning point. Insufficient care or nourishment may also result in reversion.

The higher types of modern man are probably also an advance of a similar sort. The mind after going to the limit of the original man, passes a point of

unstable equilibrium and enters on a fresh line of advance that is essentially a new thing. Whether an individual man shall pass that point depends also, at least in part, on native vigor and nourishment—mental as well as physical. Hence the value of education and other environmental influences. Many men and women—notably among the rich and the poor—spend their lives below this critical turning point. For those who do pass it, the experience is described as being like the falling of scales from the eyes; new expanses, new possibilities, new goals for effort, are vaguely felt; life, which seemed nearly complete, now seems far from its limits; the mind has passed from unstable equilibrium into a new and stable direction of growth.

We here catch a glimpse of a freedom differing from that mentioned in our first chapter. Animals and many men follow their impulses of the moment; but it is possible for a reasoning man to foresee that by a completion and satisfaction of his present impulses he may reach a higher and broader plane of thought and life; and by a judicious use of his environment, and relying on the known facts of evolution, he may work toward, and in many cases finally acquire, this new outlook, of which he has not even a slight realization in advance.

Since the living organisms may exist though imperfect, the advance in development is often what might be described as in a straight line. It moves straight to its perfection. The change for a new perfection we may compare with a turning at an

angle. We should explain what is called individual variation as a variation along the straight line. Some individuals advance farther, others less far, and this means a physical variation corresponding to the mental one. The change when an angle is turned and a new sort of perfection is sought, we should identify as what is now commonly called a mutation. Different organisms which had made the same mutation would thus still have the individual variations. Individual variations, however, could never amount to a mutation, though Darwin believed that they could. By selection, individual variations may be accumulated, since the offspring of an individual possessing a certain power of advance toward perfection would be apt to have the same power; but such variations are never perfectly true, and must be constantly watched and the unsuitable individuals constantly weeded out. White pigeons are an illustration. Most of our breeds of animals, however, are, as to their chief characteristics, mutations.

We now return to our original theme.

Every satisfaction of an impulse is, outwardly viewed, a movement in space. This is true not merely in digestion and the like and in the movement of limbs, but also in satisfactions in thinking. Every change in mind is also a change physically, and means a movement of the physical constituents of the body.

Again, the force liberated in a definite impulse is such as to bring about the satisfaction of the impulse. We can here again only state the law and the fact.

Why a mature animal can walk or fly, for instance, without practice, we do not attempt to explain, any more than we attempt to explain the regularly fitted actions of the heart, intestines, and brain. The fitting action follows the impulse regularly, except in immature animals, where we suppose, of course, that the impulse also is correspondingly immature. There is no evidence that this state of things is due to natural selection.

Finally, multicellular organisms repeat the lower phenomena, and influence each other to the fusing impulse and to sex. In the latter the attraction is part for part, *i. e.*, there are only two individuals concerned and the impulse is toward a union of every part of the one and every corresponding part of the other. In the fusing impulse, on the other hand, there is no recognition of parts, but the tendency is to a union of individuals as units, and many may be concerned in one fusion.

Of the nature of the mutual influencing of the higher animals, it may be well to say a word. We have not in mind anything strange or mysterious. The influencing is through definite forces, so far as we know—namely, light, sound, smell, etc. The influence through these forces is regularly definite and corresponds to the impulses of the mind emitting them. To illustrate: If a dog were to be brought up quite alone to maturity and were then to be taken through the streets and were to see another dog—for the first time in his life—the impression made upon him would be perfectly definite. He would

recognize a fellow-dog. If the strange dog were a female, he would again be definitely conscious of sex. These things do not have to be learned. Neither are they to be explained through the evolutionary laws. They are the affecting of one organism by the other, through light, smell, etc.

Any advance toward the satisfaction of an impulse is felt as pleasure; any decrease in satisfaction, as displeasure, pain, and the like.

We are now prepared to sum up the instincts of the animals and man. An instinct is an impulse with its inevitable influences and actions. We shall consider that there are three:

First. The fusing instinct of the cells. This forms and shapes the body and tends to its perfection. In treating of it we shall include with it the fusing instincts of the molecules and atoms.

Second. The sex instinct between individuals. With this we shall include the sex instinct of the cells, of which it is a repetition. It is to be noticed that this instinct is impossible of complete satisfaction. Its ideal would be a union of all the cells of the one individual with all the cells of the other. This sort of union does not occur.

Third. The fusing instinct between two or more individuals of the same sort. This is, of course, a repetition of the fusing instinct of the cells. It is thus related to our first instinct. It is to be noticed that this instinct also is impossible of complete satisfaction. Individuals of the grade of man do not fuse.

We find, then, that two of the three great instincts

are impossible of complete satisfaction. They have not on that account less significance in action and struggle; but it is plainly no wonder that with such a proportion of unsatisfied and unsatisfiable longings the animals are the active part of the universe, and constantly expending energy in movement.

In our further discussion it will be necessary to speak often of these instincts. All are natural repetitions and combinations of the fusing instinct of the atom, but now, to distinguish them easily, they must have names. The first will be called the MATERIAL INSTINCT, as dealing with the substance of which the unit is or may be composed; the second, the PERSONAL INSTINCT, as dealing with a unit of equal rank, but looking at it from the point of view of its individual traits; the third, the SOCIAL INSTINCT, as dealing with collections of organisms of the same rank. Since these instincts include impulses and desires which, perhaps, have heretofore not commonly been classed together, it may be well for the reader to be slightly on his guard, for the present, against the ordinary meanings and limitations of these words. Each instinct will be discussed more fully later.

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CHAPTER IV

THE BUILDING UP OF THE MIND

HAVING thus discussed and decided upon our elements, it now becomes our duty to give some notion of how the mind rises out of its simplest state and reaches the innumerable forms that we are familiar with in the higher animals and in man. It need hardly be said that we consider the development of the animal mind to have gone on identically with the development of the animal body. In the present chapter we shall consider the course of this development and its mechanical means, so to speak, leaving for future discussion the consideration and partial enumeration of the actual details.

In the earliest stage of the organism all the cells appear to be similar or even exactly alike. This, however, soon ceases to be the case. Following the line of change noticed in the protozoa, and which seems somehow to be inevitable, the cells begin to develop in special directions, *i. e.*, some perform special duties better than others. According to our theory of the unity of the organism as a whole, it is plain that if one cell varies, all cells must vary com-

pensatingly. Hence, if one cell varies in the direction of the assimilative power, the other cells will compensate by having less assimilative power; and so on. As these partially specialized cells divide and redivide, local centres and fusions are formed; which again becoming specialized, the various special organs of the body come into existence. All such development and specialization, however, must remain under the control of the fusing instinct and unity of the body, *i. e.*, the Material instinct, and can only take place in so far as they do not run counter to it, though, at the same time, each local fusion is part of the general unity, and may at any phase become a very influential part, causing a general alteration. Thus, for instance, before birth some shifting of influence causes the absorption of the gill-formations in man; and at adolescence the influence of the sex cells becomes important.

Nevertheless, whatever specialization may take place, and whatever local fusions may become influential, the unity of the organism is the chief fact. Embryologists identify organs of the fully developed body even in the first divisions of the cells, and often speak as though these early divisions were separate entities, as they often speak of the fully developed organs as separate entities. This is, no doubt, necessary for their discussion, but gives a false idea of development. The unity of the body-fusion is the elemental, never-to-be-transgressed fact, and the development of special organs is at every stage absolutely subject to it. To use a comparison with a

machine, the body at every stage of its development must work. Its development is like the *historic* development of a machine. Our locomotive is a very different machine from that of Stephenson; new inventions securing additional efficiency and economy have been added from time to time; but at all stages the locomotive has worked. Regeneration is like the mending of a machine, but embryonic development does not resemble the making and assembling of the parts of one; its course always resembles historic development. It passes from the simple to the complex, and at every stage is approximately perfect and complete.

Thus, although the body of man has an immensely complicated system to bring about its processes of assimilation and purification—the heart, lungs, liver, kidneys, pancreas, digestive canals, arteries, veins, and the like—yet this has been possible of accomplishment because each step was possible to make, while at the same time the system was efficient and could provide for the nourishment and purification of every cell of the unit. And similarly the muscular system has at every stage brought it about that the freeing of force in impulse caused action tending to satisfy the impulse. So, again, the organs of sense and the nervous system have at every stage responded to external influences according to the nature of those influences. In a word, the primitive nature of the organism has been specialized and divided up, but it is still the same primitive nature and has been so at every stage of the development—the primitive nature has

been analyzed and redistributed, but never for a moment has its essential unity been disturbed or impaired.

It thus becomes possible to explain all the complex phenomena of mind in man according to the simple rules of the lower forms of mind. The simple powers and qualities are resolved into their elements; the body splits them up as a prism does light, and has special organs for each constituent element; but the sum, the range, is always the same, and no detail in the complex man-mind must be left unexplained or without its presumed equivalent in the atomic mind. In fact, such explanation must be made to cover all existing minds, those of all animals as well as man, and those of all abnormal, diseased, or degenerate beings. Nature can use only the elements in it, and all forms must come within this limitation.

Thus, for example, from considering the production of gastric juices, bile, etc., it would be possible to know in advance that assimilation in the unicellular organisms, and even lower, takes place not simply by absorbing atoms and molecules, but that it occurs in part outside of the unit through the sending out of certain units into the surrounding medium, though without losing hold of these emissaries. This is, indeed, the fact in the case of the protozoic forms. Similarly it might be considered as certain that the units originally sent forth resembled in certain respects all the secretions of the digestive canal; since development is merely specialization and increased efficiency through an analysis and division of the original comparatively crude act.

More important, however, for our purposes, are the explanations of the various subfusions of the body in sensation and movement. Even this we can only treat generally. The limbs fall into units naturally, as we have shown, and the sensations from any one of them regularly fuse. If, for instance, I put one foot into a puddle of water, the sensation is not of a number of separate wet cells, but of a wet leg or foot. The details fuse. If, now, I put the other foot into the puddle, I have again a single sensation. But the sensations from the two feet do not fuse. Each leg remains distinct. In the case of the eyes and the ears the situation is different. Here, not only do the sensations in each organ fuse, so that I have chords and timbre in music, and a single picture or compound colors in sight, but the sensations from the two eyes or two ears may seem as one, and will seem so unless they differ markedly. Such subfusions, or local fusions, have grown up with the developing body, and their unity is to be thought of as having existed all through the process of development of the delicate differentiation and specialization of the organs, and to have been the essential necessity in such development. So, also, the unity of the brain, and its sympathy with the sense organs and the muscles and with the impulses of the body in general, are to be thought of as the essential condition which all development had not merely to leave untouched, but even to render finer and more economical.

We now turn to the actions of the mind itself.

A chief quality of the brain, *i. e.*, of the most important part of the nervous system, is its close sympathy with the rest of the body. It is by this that it becomes the faithful intermediary between the body and the external world. When, for instance, the body feels hunger, the brain has the impulse and translates it into action; when the body ceases to feel hunger, the brain ordinarily ceases also. Similarly with sex and the Social impulse. All these and similar general impulses pass from the body to the brain, which ordinarily is faithful. (Special and local impulses, however, as we have said, it hardly knows about, unless they are of a nature to be general or unless the external world is concerned.)

When, then, sensations are felt through the sense nerves, the brain may mate them with impulses which it has received from the body (or which it has in common with the body), and the impulses are thus made definite; thereupon, as a result of a return flow of impulse, the proper muscles and other cells act. The automatic and essentially simple nature of this whole process is not hard to conceive of.¹ First, however, the reader must rid himself of the thought that the brain does the whole work, or that it somehow differs in its essential powers from other cells. It cannot differ, and does not, except in the mechanical quality of speed. Its usefulness, from our present point of view, is merely this, that it receives impulses quickly from all quarters, and transmits them quickly to all parts of the body. These im-

¹ Cf. "The Physiology of the Brain," J. Loeb.

pulses, moreover, are to be thought of as transmitted to all the cells of the body, and not merely, as is often held, to certain ones. This can be shown in many cases (we have already described bodily fear), and doubtless it occurs in all.

With these facts in mind, the operation is perhaps to be conceived as follows: A sound wave, to take a special case, arouses an impulse in the end of the auditory nerve, which impulse passes rapidly, through sympathy, to the brain. Here it passes to all the cells of the brain, arousing a full sympathy in some cells and a far less perfect response in others, according to the natures of the cells, and the quality of the perhaps complex impulse received. The cells which responded most strongly, and indeed all cells which responded at all, would then quickly send out their impulses, if they could, to all parts of the body; and the whole body, then, by a similar selection of suitable impulses (*i. e.*, of those with which each cell was sympathetic), would either change or be unchanged; or would change in part and be unchanged in other parts. Such a unity and simplicity of the body (underlying the apparent complexity caused by the analytic and distributive effects of specialization) the experiments of Loeb and others clearly indicate; and, indeed, that the operations must be essentially simple might have been surmised, since, if the progress of science has revealed anything strikingly, it is the simplicity of nature in its essential workings. It is the poor guesses that give us Ptolemaic cycles and epicycles.

Before going further, let us consider two details that seem to come in best here:

It may be asked, what is the nature of the great differences between animals, seeing that all are developments from practically similar original cells. We reply that the differences are more apparent than real—are in details, not in essence. Given a very slightly different original cell, all the observed differences follow. A slight difference of cells would, in the working out, result in a different shape of body. There would thus be a difference in details of action, taste, sex, and choice of companions. But in the essential impulses there are no differences. All animals assimilate food, all move, all mate, all congregate, more or less.

We notice here, also, that all local or subfusions are to be ascribed to the Material instinct—the fusing instinct of the body cells. Even the sex centres are to be ascribed to this instinct, for the Personal instinct does not bring about fusions, but, rather, tends to break them. Moreover, the sex centres, though with a tendency to independence (which is due to their nature), are true fusions both in themselves and as part of the larger fusion of the body unit. In a word, the Personal instinct in them, though influential, is less than the Material.

We pass now to the consideration of the brain as it develops through memory.

Memory is the power to revive sensations after the actual sensations are past. Just which animals first

show signs of memory is perhaps not agreed upon. The highest animals all possess it to a marked extent.

The exact physical basis of memory is not clear, either, but that blood is necessary is at least one certainty.

We suppose that what enters the mind by the nerves is an impulse. In the cells of the brain this impulse (received through sympathy) satisfies itself by taking some atoms from the blood. A feeling of pleasure thus results, which we have identified as so-called "sensation." After the cessation of the sympathetic impulse, the cells apparently lose again the atoms they have taken—but not altogether, in every case. Some of the molecules in some cells are permanently changed. These have thrown off some of what they took, but not all. Consequently, if the same impulse enter the cells again, the changed molecules again take on their old condition, but with less effort and a much fainter pleasure. We have then a double sensation, the brilliant one, of the molecules which quite gave up their atoms and so feel as if they had never felt before; and the far less brilliant one, of those that were permanently changed. Such a double sensation (or, rather, feeling) we conceive to be memory in its simplest form. It takes place in man particularly in sensations of light, hearing, and touch; but far less freely in taste and smell.

Now sensation (in its proper sense) may make definite an impulse in the atoms, thence in the molecules, thence in the cells, and thence in the body-mind. If, now, in addition to the sensation, we have

the fainter impulse of the memory cell, the fainter impulse will also regularly make definite the cell or body-mind impulses, which thus may be somewhat stronger and more distinct than an original and simple impulse. Hence the responses may be stronger.

Moreover, since memory impulses are more easily aroused than "sensations" (for the molecules or cells in which they reside are definitely changed in the direction of the old impulse), they may be brought to vividness by the impulses of the body-mind, and without present sensations. Being thus aroused and having satisfied themselves (as we have supposed), the pleasure or pain (so-called "sensation") of the original experience is renewed. Thus the impulse of hunger may arouse the definite memory of food; loneliness, the memory of individuals; etc. By this method we are able to call up again the objects that have satisfied or disappointed an impulse. But it is to be noticed that no impulse can, without experience, call up the sensation of an unknown object that *would* please it. Impulses are quite blind until sensation has made them definite; and no impulse can be associated with any object except through memory.

It may be well to describe this process again. An impulse either of the brain or of the whole body arouses the same impulse in a memory cell; this cell, which has been altered by previous experience, is already partially satisfied in the direction of the impulse and is able to make the impulse a definite

one; the cell then completes itself (we have supposed, by the assimilation of atoms from the blood) with a definite though faint sense of pleasure, which is like what is ordinarily called sensation. The impulse thus both arouses the sensation and is itself made definite.

Such an act is called recollection. It depends directly upon impulse. Hence when any impulse is much aroused we recall most easily the memories connected with that impulse; and on the other hand, at such moments we are best preparing for future recollections. A new sensation at such times is given its worth, whereas if the impulse is slack or lacking we notice little or nothing.

Sensations occurring in succession in time regularly have a greater or less amount in common. When, then, an impulse arouses one part of such a series, it is able also to arouse the others successively, either forward, or, with more difficulty, backward. We may thus recall the whole of an interesting series of acts. Moreover, since the same object (*i. e.*, a molecular impulse or combination of impulses) may arouse several higher impulses at once, the higher impulses may arouse one another and overlap; and in recollection (though there is regularly one chief impulse) the different impulses may join forces. A good story-teller illustrates this overlapping, for he will not merely tell a story from his chief impulse, but will color and broaden it as he proceeds, now with one, now with another subsidiary interest.

The memory of events in sequence is of the great-

est importance. Memories, as we have noted, have the power of sensations to make definite an impulse, though they do this ordinarily with far less power. Hence a memory may determine the course of action of a mind, the acts being the same as those upon a previous occasion. This is a common experience. Moreover, this may occur although the present sensation is not in all respects like the former one, but only sufficiently so to arouse the memory of the former one. Thus in the classic case of the cow who was made to give down her milk by the sight and touch and perhaps smell of the stuffed skin of her offspring. Mr. Burroughs supposes that the cow was completely deceived and took the stuffed calf for her living offspring. Such a supposition, however, is not at all necessary. The stuffed calf satisfied and made definite the maternal instinct enough to make her give down her milk. Further we need not go. So a man may smile at the picture of a friend or dislike a man who faintly resembles one of his enemies, though, of course, no deception takes place. The arousing of a definite action through memory may and does occur if the similarity of the present situation is sufficient to arouse the old one.

Trains of memories also act with deterrent effect. If a series of experiences ended with a feeling of negative impulse, *i. e.*, of repulsion, any sensation calling up the memory of the series would also make definite the negative impulse, which accordingly would tend to inhibit the positive impulse with which the series might have begun. It might inhibit the

whole series of acts and would certainly have influence from the time that the situation had developed enough to have a good deal in common with the final situation. Here, as above, a general resemblance between a present and a remembered sensation may be enough to determine action. Mr. Lloyd Morgan's birds, that had eaten nauseating worms, would avoid everything resembling them.

Animals, including man, are able to and do meet all situations in life without any previous experience of any sort. Instincts alone are sufficient for this. But in the more complex units it is plain that while the impulses may be rightly aroused in suitable situations, they may also be wrongly aroused. The lower units, for instance, may have impulses that are not at all suited to the complex units of which they are part. The molecules may be eager, say, to unite with poisons (so called), and may do so to the destruction of the body unit. Moreover, the end of a train of acts may not be visible at the beginning. Hence the higher animals all make mistakes, and in so far as such mistakes are not fatal, it is clear that the memory of experiences must be of immense importance in future action. And this is so.

Moreover, many of the acts of the higher animals are so intricate and so remote from the primal instincts, that the desire is not accurately aroused by the sensation. In such a case the instinctive action may not result in satisfaction. In a repetition, then, the memory of the first experience may tend to make the impulse more definite, with the result that a

repetition is more nearly accurate and is more apt to result in satisfaction than on the first occasion. We thus learn *by practice*. In the case of the technique of any art, for instance, it is to be noted that the result of practice is not a physical matter but rather a clearing up of the mind. The artist learns what he wants. Technique thus requires an immense amount of repetition for its acquirement, but once acquired, commonly remains. Its acquirement, moreover, is not a matter of mere repetition, but of actual interest at every point, a good teacher awakening the impulse and making it more definite at points where it was wrongly or too easily satisfied.

We come finally to *reasoning*. In the higher animals, and especially in man, remembered experiences may be combined almost endlessly. If a number of experiences on one subject varied, one being satisfactory in one respect, another in another, and a third, say, in a third, the higher minds may, through the power of the impulse (which would evidently work automatically so as to result in selecting what was favorable), combine the satisfactory parts of the three experiences with the result of an imaginary method of action satisfactory in all respects. All *synthetic* reason is essentially this. It is a combination and mating of memories by the impulses. Of course, in man the matter becomes very complex, but the essential principle remains the same. We hold together in memory the things that arouse the same impulse; we arrange a reasonable series of thoughts out of experiences by means

of an impulse. Reasoning may also be a clearer defining of minor impulses for the satisfaction of greater ones; we may learn to think by practising.

Thus, impulse is the secret of reasoning. This fact is often overlooked in current discussion. Mr. Lloyd Morgan, for instance, compares his dog, which could not learn to bring a long stick through a gap in the fence, with the wren who will take a long twig through a hole no larger than a shilling. He wonders at the intelligence of the wren and the stupidity of his dog. But the essence of the situation is in the differences in impulses. The bird is interested in getting the twig into its box; it will try and remember and reason until it succeeds: but the dog has no interest at all in his stick; his interest is in his master; and the mere fact that he will do so unnatural an act as to fetch the stick at all is a proof of a far higher conception of means to an end than is shown in the comparatively simple act of the bird. There is intelligence in both cases but the one is assuredly not to be compared off-hand with the other.

Much of our talk about animals is of this sort. They are often considered unreasoning because they do not reason where they can have no interest; and then are denied reason in the plainly reasonable acts they carry out along lines where they are interested.

This line of thought again is valuable in education. The youth who receives the highest grades will not always do best in after life. He may be doing the work to please the instructor or for some other

Read Dave?

impertinent reason. He is the dog fetching the stick. The youth who will succeed in the line of the study in hand is more like the wren; his interest is in the work. Obedience and discipline are an important Social experience in education; an attractive school-mistress may be an important Personal experience; but for the development of scientific ability, interest in the work is necessary. These things are often not clearly perceived.

We now turn to the discussion of *analysis*. This power is of much later development than that of synthesis. It is probably found only in man and even in him is not much developed until he reaches the higher and older stages of civilization. It demands a well-developed power of memory, a wide range of experience, and language.

The classification of sensations takes place according to the impulses aroused by them, for the aroused impulse causes the recollection of those sensations that previously aroused it. Hence classification is at first comparatively simple, *e.g.*, into objects that may be eaten or not; into objects satisfying sex or not; into those satisfying the Social impulse or not. A large mass of sensations is thus at first quite unnoticed in detail, since it satisfies nothing or else satisfies generally. Experience and practice make the impulses more definite, and with them classification becomes more detailed. Notice how much of the progress of the world has taken place through the practical handicrafts, arts, and professions.

Through experience certain objects (enough alike

to be aroused together in memory through some one impulse or group of impulses) become classified and related to man. These objects will finally be those of one definite sort or species. The lion and the deer, for instance, were soon identified. Now, individual lions, though much alike, would have individual differences, and would appear different upon different occasions, but the different memories would all come up at once, being aroused by one impulse or by the group. Man would thus have a mass of memories in mind. Of this mass the clearest points would evidently be those that were common to all the memories or that made most definite some impulse. These points would thus tend to be the ones by which the memories would be most easily aroused, and, when speech came in, some one of them would be regularly chosen to give to other men the idea in question. An imitation of a roar might call up to every one the lion; or a suggestion of speed, the deer. Or, on the other hand, if the animal had received some artificial or chance name, the name would be associated with these special traits, and would be used to recall them even in some quite different animal. The strange animal is like the lion or deer, the likeness being understood at once as being in roar or speed. Words would thus gradually and through long experience, come to mean special traits.

} Analysis, then, we think, grew up through the natural classifications made in many experiences, and the attempts of language to keep up with them and

communicate them. Its value to man is a comparatively late discovery, but when once this value was discovered, the act became related to man's impulses and was pushed to its present stage. It is plain that analysis soon leads to abstractions; time, space, individuals, wholes, goodness, truth, and a hundred others, would inevitably come forth out of the confusion. Truth, for instance, is the satisfaction of the practical instinct (all instincts have a practical side, as we shall see) by the everlastingly reliable connection of thoughts with one impulse. Two and two are four because under all circumstances we can use four for them—they come to arouse the same impulse as four. Strychnin is poison, because if we take the relation to it that we take to poisons, we may be perfectly sure of the course of events. The outer world is true, because it is reliable. So, also, heaven exists—so long as it is perfectly satisfactory to the impulses that man should think so.

Of all masses of memories probably the most important is that of the sensations and experiences of the body. Not all of these are noticed, of course; but in the end many are held together by the Material impulse, and the result is an enormous aggregation which may be more or less aroused in all experiences. This aggregation is the conception of self, or the Ego; and its existence and relation to the Material impulse is *consciousness*. The word consciousness is used in several ways. Sometimes as the opposite of the state of a man who has been knocked on the head; sometimes as equivalent to sanity or sensitive-

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 Truth

ness or attention. It is used here as the opposite of the condition in sleep. A sleeping man is sane, sensitive, and quite normal, but not conscious. He becomes conscious when the mass of memories, we have called the Ego, becomes more vivid. There are degrees of consciousness proportionate to the mass and vividness of the Ego. A new-born child has no consciousness of itself; its consciousness is slowly built up. In general, the lower animals are to be thought of as conscious in proportion to, and along the lines of, their Material memories and reason.

When consciousness is used as meaning attention—as when a man “unconsciously” walks or hums a tune—it means that the Material impulse is not fully aroused. Some other impulse may be lively and exhibit itself in the tune; for it is quite possible to have whole trains of Personal and Social thoughts without arousing the Ego. In such cases acts, even, may be done without entering the memories of the Ego. Moreover, an impulse may cause an action as a sort of by-product, the main part of its force being expended upon memories. (What often happens, no doubt, is that the memory of the act done is not afterward to be distinguished from the memories of the same act done on many other similar occasions.)

Consciousness is defined, again, as the immediate knowledge of our mental states. In this sense the definition may mean nothing. The mental states *are* the mind. If we distinguish between the two and

wish to make out the connection between the Ego and a present mental state, *i.e.*, how we know that the present thoughts belong with the past experiences, the matter is capable of explanation. Past memories group themselves into a mass because of their relation to the Material impulse. When, then, a present sensation makes definite that impulse, the past experiences also arise and make it definite in the same way as the present one. The whole is thus one, for all has the same relation to the impulse. The experiences of the Personal and Social impulses enter the Ego by taking place at the same time with it—for the mind may feel more than one impulse at a time. In themselves, however, they would never have created it, and the mind is never so unobservant of itself as when they are aroused.

It must be recollected, however, that although memories of past actions and experiences are aroused automatically and have an effect automatically upon present actions, the valuation of them and the recognition of the fact that they are records of an actual past, is a matter of experience. The knowledge of the historic continuity of the memories of the Ego with present experiences—a very important part of consciousness—is gained, thus, experimentally. Children are often quite wrong in their relations to memories; they fail to distinguish truth from fiction in their own memories, often in a most striking way. The sense of the reality of things, *i.e.*, of their continuity from the past, in larger matters, is, indeed, hardly likely to be acquired before maturity.

truth
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by some

It is to be noted that consciousness, and indeed all thought, is made up of remembered sensations (so called; really satisfactions and dissatisfactions) and other satisfactions and dissatisfactions. Impulses themselves are not conscious; but only their satisfactions and dissatisfactions. Thus we do not know what we are impelled to do or to have until after experience. An infant is hungry before it has tasted food, and after experience only, does it connect the thought of food with its impulse. Our impulses come thus, however, to have names, and these names are taken from the experiences that accompany them. An impulse plus such a memory is thereafter a *desire*. The impulse that turns out to be satisfied with food is thus called the desire for food. It is this state of things that has been one of the great difficulties in the way of making a science of psychology. Men have valued above all things the thoughts, for these alone are conscious. They have studied and classified them. But the unconscious springs of thought—the motive power behind the reasoning—this they have scarcely recognized, scientifically, as even existing. Nor is it easy to discover the impulses, for they are disguised and overspread with thoughts almost beyond recognition, and these thoughts are often quite impertinent. The great mass of our impulses have thus never been named at all. A sentence, a train of thought, a story, a painting, an edifice, may possibly satisfy the mind in much the same way, but how was it possible to discover the impulse in the mass of these special instances?

Desire
how
Created
by
Impulse

A case worth mentioning in some detail, for its chance association of memory and impulse, is that of our ordinary relation to the acts of the body. The movements of the body in the child are the direct result of impulses, according to our axiom that the force set free in a definite impulse tends to bring about the satisfaction of the impulse. The child moves its limbs to a purpose long before it notices that it has limbs; it commonly even walks and runs before it has what we call a conscious knowledge of them. Each act is as simple as the flying of a butterfly. First, then, it may remember objects it found satisfying. Next it may notice that when it wants things, its hand goes out, takes the desired object, and brings it to it. Thus the outward appearances enter consciousness and represent the impulse—and nothing else ever does. Man knows only his acts, and really, only a few of them, because these are not always easy for him to observe. When, now, language enters in, it represents the phenomena observed. The man says, "I raise my arm," "I move my leg," "I swallow," and the like, and these words are connected with the impulse in memory. In the end the words, having been associated with the case, may arouse the impulse. Others say to him, "Raise your arm," and the arm is raised. The man may then say, "I raised my arm because I wanted to—because I was told to." The original simple act is not altered by the thoughts that have been woven over it; it is still, in its essence, what it was when the child used its arm before it knew it had one; but

observe how the act has been disguised beyond recognition! Or consider, for instance, such an act as writing—how the impulses, which were originally perhaps mere positive and negative Material impulses, resulting in movement toward or from a definite sensation, have been harnessed through memory, and made to carry out the most delicate evolutions—perhaps for the satisfaction of a Personal or Social desire. Nevertheless, such acts are to be explained as above; and that there is a continued control of them through memory may be demonstrated even in the case of an act that is seemingly perfectly simple, as, for instance, by the experiment of writing in the dark.

Another form of control to be explained similarly, is that of the force exerted. This may be delicately regulated through the associative power of memory. The muscles may be aroused to exertion or may act with slight power. Nevertheless, the essence of the position is the unconscious impulse satisfying itself inevitably, according to its nature; acting weakly if the impulse is weak, and vigorously if it is vigorous.

It will be noted that the difference between an impulse that is made definite to be satisfied (through a movement of the molecules of the brain) with the pleasure of a lively memory or arrangement of memories; and one that is made definite to be satisfied by the movement of molecules in the muscles (with a pleasure in the result), is entirely superficial. Brain labor and physical labor are, essentially, the

same thing. Both, viewed from within are the satisfaction of unconscious impulses; both, viewed from without, are molecular changes; both are brought into consciousness through memory, and both may have a false show of consciousness of the desire causing them; both are accomplished by the expenditure of more or less energy; both have word associations; both give pleasure. The great difference is in their manner of entering consciousness—the ones through visual and tactual associations with the results; the others through direct consciousness of revived memories, which are their pleasure. What may be said of the one may thus, in general, be said of the other. Men may develop the powers, in either, by exercise and practice; may be worn out, body and mind, by either; etc. Parallels between them are not analogies but real.

Let us now consider, finally, the highest positions of the mind. These are regularly reached after education or (which is the same thing), after a wide experience in affairs. Education and the first acts of a man in the world are determined by the Social instinct. One thinks and does chiefly as he is told or as he finds others thinking and doing. The man of strength, however, begins to relate his experiences to himself. He finds that he likes this; dislikes that; and is indifferent to certain other things. He remembers these relations, and in the end reduces them to simpler forms and builds them up to include more complex masses. This is the method of developing a sense of values, and, in the complex cases, grasp.

Mind
Oct 14/14

He sloughs off some of what he had taken imitatively, and grows more and more sincere. (It may be said that the value of any educational system is determined, in large part, by the amount sloughed off by such men.) Thus, gradually, the man's individual character emerges. He finds himself, as the phrase is, though this phrase is more often used of some one important recognition of relation. Such a development and relating of thoughts and actions and speech to the impulses may go to great lengths, but requires time and strong impulses. The sum total of such a mind is called the man's temperament, style, mood, view of life, or the like.

The difficulty of relating oneself emotionally to the great facts of life is extreme. Not only are some of them exceedingly complex, as, for instance, religion and government, but there are also regions where impulse seems forever more or less disappointed. Witness Wordsworth, who

"must needs confess

That 'tis a thing impossible to frame

Conceptions equal to the soul's desires;"

(*Excursion*, Bk. IV, 135-7)

It is no wonder, then, that deeds and thoughts of great moment are almost never the fruit of youth. The youth may be a mathematician or an inventor or a lyric poet or an extravagant reformer; the moods of a Cæsar, a Shakespeare, or a Darwin, however, are quite another matter.

As with the individual so with mankind. Civilization is the accumulation of what satisfies the human

*Civilization is great satisfiers
for human character*

THE BUILDING UP OF THE MIND 109

character. Each of its truths, conventions, and inventions, exists because it satisfies some impulse, and has been found in practice to be thus satisfactory. Civilization is, in a sense, an objectifying of the human heart. It is far more suited to our impulses, far more true to our natures, than a natural environment can possibly be. No doubt some details of it are mistaken and cause discontent. Constant improvements—constant changes to make it more suitable to us—are necessary; nevertheless, it fits us like a glove on the hand, as compared with the life of savages. And as often as discontent and suffering arise from its details, they are and will be sloughed off or altered.

*Human
Heart*

This view of civilization—no doubt the true one—is curiously at variance with the evolutionary one, which considers impulses and instincts as the result of past experiences—"inherited memories" they are sometimes called. Memories are not inherited, impulses are. No doubt animals have survived because they had more fitting impulses than certain other animals, nevertheless, instincts are not the result of experience, but are original. Among animals they are probably never entirely satisfied in any possible experience, and they often and even regularly adapt themselves to experiences that are absolutely novel. This will be elaborated in a later chapter.

We will now take up a matter of rather distant consequence to our theory, but which it is hardly advisable to pass over. The reader, however, may do so, if he chooses, without serious loss.

Chap 14th

CHAPTER V

FIRST TRUTHS—KANT

WE have, until now, taken for granted our basis of realistic philosophy, because, although a preliminary discussion of it might have been possible, it would of necessity have encountered much difficulty and obscurity, and so have remained inconclusive until the main elements of our position had been made clear in detail. Now, however, we have reached a point where the consideration of these matters cannot well be delayed longer, if it is to be taken up at all. But as all philosophies and religions rest ultimately upon psychological bases, they fall inevitably into the realm we are reasoning about. A thorough-going system of psychology must, therefore, be also a philosophic and religious (or theological) system. The exact sciences, treating only of matter, do not encounter the philosophers so inevitably.

Philosophy is the attempt to find a ground for religion, and is usually a compromise between science and the received religious beliefs. It is an attempt to pass through science into religion. We need not consider the proposals in this direction made before

science really existed. They have long since fallen of themselves. But it may not be useless to run over in some slight detail at least one of the modern systems—not to oppose it in its essentials (all such systems will fall or remain without the need of opposition), but to bring out more clearly through comparison the possibilities and range of our own. For our purposes, then, we shall consider the elementary position outlined in Kant's "Critique of Pure Reason."

Kant's position may be said to owe its existence to the problem of free-will. He perceived that the mind feels itself free, whereas the body obeys the laws of matter. Not being able to believe both of these facts, he chose the first as true. This could only be done by practically denying the laws of matter. Now, we must believe in the laws of matter and yet, said he, it is a mistake—a necessary mistake therefore. Hence there are certain mistakes that are necessary. These he conceived to be caused by the nature of the mind. The nature of the mind causes us inevitably to take a view of the external world which is consistent with itself (since it springs from the unity of the nature of the mind), and yet is utterly without objective sense. These inevitable mistakes he then identified. They must have as their mark the quality of necessity, and when applied to the greatest matters may result in absurdities or contradictions. Kant thus distinguished two worlds—the world as it inevitably appears to us, and the world as it is. The world as it is cannot be known to us, for

all knowledge of it is determined (and vitiated) by the nature of the observing mind. Nevertheless, in the case of the mind itself we can know something as it is, for although the mind cannot observe itself directly, but only its thoughts (which are a delusion), yet it is possible (here Kant seems to have juggled a little) to argue from the existence of the moral sense the existence of free-will. Free-will is thus a power of the mind in itself, while the obedience to law is only an appearance necessitated by the nature of our powers of observation and of thought. From free-will he argued a moral God and immortality. It is evident that free-will, God, and immortality are thus the only thing of first importance in life, since everything else is essentially a necessary delusion. We will not trouble ourselves about them, however, because it is pretty generally recognized that they do not follow from Kant's premises. It is the premises that have gained a much wider acceptance, and these are a study of the nature of the mind and of the credibility of its knowledge.

The ultimate ground from which to argue the question is found in our statement that mind knows nothing of matter. All our knowledge is inevitably that of our own psychic life. We inevitably have a practical belief in a world corresponding to our thoughts and visions, but it is plain that the real world and our thoughts and visions of it are not the same thing. It is impossible, and always will be, to prove absolutely that there is anything outside of us corresponding to our thoughts. The thought and

the thing thought of must always be two, and their connection a matter of reasoning—which may be false.

This being so, it is evident that several positions are possible. Either (1) that there is something corresponding to our thoughts—which are true so far as they go; or (2) that there is nothing corresponding to our thoughts—which are false; or (3) that some of our thoughts are true and some inevitably false.

The first position is the natural, simple one. It is essentially, also, the position commonly taken by Christianity. "We know in part." The second cannot possibly be disproved and is thus perfectly tenable. Our thoughts and sensations may be utterly false. In this case, however, the theory must go the whole length and include the knowledge of self. Absolutely nothing must be left as sure. The world is then an utter delusion—or may be. Any belief may be a matter of faith; nothing can be proved.

These two positions evidently go together. If everything is true or everything a delusion in the world of experience, that world remains, so far as its existence is concerned, intact within itself.

Kant and his followers, however, take the third position, in that they hold that science can never explain nature; that the phenomena, although real, will not admit of scientific explanation; and that, while we may believe in an external or seemingly external world, it is necessary to explain it by supposing that it is in some of its essentials a sham.

They hold that their position is an unavoidable one, and that the simple and naïve method of solution involves us inevitably in problems that cannot be definitely solved, since they can be solved as well in one way as in another. *Lawyers*

The chief of these problems is, as we have said, the difficulty in harmonizing the belief in the laws of nature with that in the power of the mind as a cause. Every change in nature must have a natural cause—must take place according to a law of nature. The movements of the body must, therefore, take place according to laws of nature. How, then, can they take place as caused by the will of man?

Our theory, as we have seen, settles this matter easily enough. The laws of nature are merely an observed regularity of action. They are discovered to be regular because matter is composed of atoms large numbers of which are exactly alike, so that phenomena often recur. The nature of the atoms is thus the secret of the laws of nature. The supposition of a mental atom with impulses—atoms that are alike being alike mentally—clears the whole situation. When an atom acts it is obeying its impulses; when a collection of atoms acts (as in man), it, too, is obeying its impulses. The details are certainly not clear; we have no way of examining the atom; but the essential contradiction is gone. It lay in the meaning given to “laws of nature,” and this meaning arose from the separation of man from lower nature.

In Kant's day our position might fairly have been

called a mere fancy, but that is no longer the case. If the last century of science has proved anything, it has proved the unity in origin of man and the lower animals and, ultimately, matter. It is, therefore, no mere fancy to relate them mentally. So soon as the miraculous element in science dropped out, it became evident that, if a mass of atoms possessed mind, the simple atom must also possess it; and this belief has been accepted by men exactly in proportion to their scientific knowledge and character. Monism has been regularly recognized as the position most in accord with science. That it has never been worked out has been the great bar to its general acceptance.

Kant found three other antinomies, as he called them, besides that of free-will. They are, however, mere playing on words. No unprejudiced mind could possibly be in doubt as to their solution, and no fair arguments could really mislead any one as to them. Since, however, they are often stated as real difficulties, and are taken for granted on the authority of Kant's word, it may not be amiss to run over them.

He holds, first, that he can prove that the world is limited in time and in space. It is clear that he cannot prove any such thing, since, however far we were to go, the world might extend farther, space and time being unlimited. His argument as to time is as follows:

Suppose that the world had, so far as time is concerned, no beginning. Then to each given point an eternity must have elapsed. But the endlessness of

a sequence consists in this, that it can never be completed. Therefore, an endless past time is impossible, and a beginning of the world a necessary condition of its existence. Q.E.D.

The practical answer to such an argument is not difficult. The argument itself seems to be that by taking a given point in time, we bring it to an end; and that if it has one end it must have another. But we do not find an end by taking a given point; time has no end, or else it has an infinite number. Moreover, even though we found one end, it would not be a proof that there was another. Nor does any one believe (except as a theological dogma may influence him) that time begins or ends.

His argument as to space is this:

If we think of the world as a real whole, we must think of it as completed, that is, as of a fixed size. But if it is of a fixed size, we have only to go on far enough and we will come to the end of it. Therefore, it must have limits in space.

Here the question is begged in the word "fixed," which is used as meaning limited. We may reach the end of the world in space (Kant's world is the universe, of course), but that we must reach it, it is impossible to prove, since no matter how far we went, it might extend beyond. It may be of fixed size and yet unlimited. There is no contradiction in the words.

The second antinomy concerns the divisibility of matter. Kant holds that he can prove that in dividing a substance we must reach a limit—a palpable

absurdity, like those stated above. His proof is as follows:

Suppose that compound substances did not consist of simple parts. Then when the compound was reduced in thought, there would remain no compounds and (since there are no simple parts) no simple parts either. Nothing would be left, therefore no substance at all. Either, then, it is impossible to think of a compound as entirely reduced, or there must remain something uncompounded, *i. e.*, the simple parts. In the first case, however, the compound would not be composed of substances (for in substances the compounding is only a chance relation, and it is not a necessity that they should be parts of a larger unit). But this contradicts our supposition, therefore there remains only our second case; there must remain something uncompounded, *i. e.*, the simple parts.

Here the error is in the words in parentheses. The conception of a substance it is true does not include the thought of being part of a larger whole. It does, however, include the thought of being a whole of smaller parts; for it includes the thought of extension. Every substance must occupy space; and, as occupying space, every substance, by the nature of our conception of it, must be composed of theoretical parts and be theoretically divisible. Theoretically, then, substances are infinitely divisible. Actually, the division may stop at any point. Wherever it stops the substance or force remaining must occupy space.

As to these antinomies there is no chance of real

confusion, however words are twisted. The third antinomy is the real difficulty, namely, as to the relation of mind to matter. It is, however, as we have shown, capable of settlement.

The fourth and last is one of special interest in several respects. It is the conflict between the two views that the world must have a first cause (God); and that it cannot have a first cause. He claims to prove both views.

Let us note, to begin with, Kant's idea of the world. He claims that by the necessity of our natures we are compelled to think of the universe as a oneness. We do not, he says, derive this idea from experience, though experience agrees with it. As in all such cases, it is the mind that determines the experience, which experience, therefore, must agree with the mind, else we could not have it as experience. Now Kant's idea of the oneness of the universe is not that it can be held together in thought, but that it is one in itself. Its parts influence each other, complete each other, presuppose each other. In a word, the universe is an organism and seems so to us, necessarily.

This curious thought (taken, probably, from religion) has, of course, absolutely no foundation in fact. The universe is not an organism so far as we have as yet discovered; its parts do not mutually complete, presuppose, or influence each other. It is an aggregate of units, each going ahead of itself. Gravity holds our solar system together, it is true, and may be an influence reaching to other systems;

*The Soul holds the
body together*

but gravity does not make a true unit of the units it holds together. Kant's proposition to treat the universe as an interacting unit, and from it to derive a free cause corresponding to the unit, is thus mistaken in its terms, and need not be argued.

But, it will be asked, does not this aggregation of units called the universe, need an explanation? Does not its present condition imply certain past conditions, and those others before them, and so on back to a beginning? Certainly, but that is only a question of conditions, not of essentials. The world at present is out of balance, especially as to the distribution of force. There is a constant shifting of influences toward a balanced condition. How the unbalanced condition came about must certainly be explained if possible. The question, however, is merely an historical one, and would be answered by explaining how the sun came to be so hot. For such a question, moreover, it is not difficult to imagine an answer. A collision with another heavenly body would have caused it. And the other body, where did it come from? From the same place that some of the comets come from—the infinite depths of space. There is no need of further explanation. Since space is infinite, and since a moving body will move until it is stopped, the colliding bodies may both have been moving forever.

At this point we may as well take note of another matter. Undoubtedly, some reader of the above has said to himself, "Very well, but that does not satisfy me. There must be some better explanation than

that." There may very well be a better explanation, though it is to be doubted whether any can be made without using the fact of infinite space. The more important matter is that the explanation does not *satisfy* the *mind*. In its form the explanation is unassailable; it is the *feeling* we have that makes us wish to refuse it. No mind capable of conceiving of vastness likes the idea of infinite space or infinite time. The great starry spaces of heaven filled Kant with awe, and Pascal with despair, and many another mind has been affected similarly by them. This matter of feeling will come up again, but we may notice here, that whatever our awe or our despair, those great spaces exist and are without end; and they are not to be denied merely because the mind faints and fails in its attempt to grasp them.

We conclude, then, that Kant's antinomies are not of intellectual difficulty, but that, so far as they cause or have caused trouble, they appeal to our feeling of dissatisfaction in handling matters that run into infinities and (hence) cannot be fully grasped. There is no intellectual difficulty because, after all, an infinity is only an indefinitely large finite, and can be dealt with exactly as the finite cases.

We turn, then, to Kant's theory of the relation of the mind to external experiences. He held that our mental classifications are due, not to the nature of the experiences, but to the nature of the mind. Not all classifications are equally plain in principle. The classification, for instance, that gives us the conception "dog" is, says Kant, "an art concealed in the

depths of the human soul, whose true springs we shall probably never succeed in guessing from nature and laying bare to the view." Nevertheless, he held that the conception dog is in the mind before the dog appears, and is merely called into consciousness by the appearance of the dog. Other conceptions are much clearer in principle. The conception of the relation of objects called "cause and effect," he thought, could never have been discovered in experience—since we say of certain phenomena that they *must* have causes, although we may have no way of knowing in the least what the causes may be. We add the causes and say they must exist. Such a view of experience—that its relations are absolutely necessary—could not have arisen, says Kant, out of the mere memory of the repetition of experiences.

Perhaps the theory can be made clearer by considering a case of another sort. Let us take the idea of justice: An action is presented or related to me, and I may say of it, "That is not just—does not agree with my idea of justice." "But," says some one, "it is the universal practice. Have you ever known any one to act differently?" And I may reply, "I never have, but for all that it does not square with my idea of justice." If I am asked what my idea is, or where I got it, I cannot tell; nevertheless, I am perfectly clear that some things are to be classified as justice and others as injustice. The idea, says Kant, evidently exists in the mind in advance of experience, though it is aroused only by experience. In fact, says he, there is no such thing as

Recall —
 Car nature

justice; it is merely an idea, leading us on, but never completely realized.

Let us now turn to our theory and explain how it deals with these situations. The essential difference between it and Kant's is this: that he conceives of the mind as, first of all, intellectual. It has conceptions, ideas, etc., in advance of experience, though only to be aroused by experience, *i. e.*, in advance potentially and really, but not temporally. The mind is like a frame of pigeon-holes, into which experience must fit, if it is to be experience at all. The form of experience, according to him, exists, not in the experience, but in the pigeon-holes. Our theory, on the other hand, conceives that what exists in the mind prior to all experience is a number of impulses, instincts, interests, and the like. Thoughts, on the other hand, we put in the category of sensations. The male bird that sees the female may be said to have a thought of her, though he may never have seen her or any other female bird before; that this thought is felt in a certain relation or significance is due not to any latent thought in his mind before the experience, but to the impulse of sex, which the sensation makes definite. Kant's "idea" of justice is, according to this theory, not an idea, but an impulse. It is like the sex of the bird. The various cases brought before the impulse of justice are to be classed with the sensations affecting the bird. These may either satisfy it, or partially satisfy it, or displease it, just as different females may affect variously the sex of the male.

Classification thus ceases to be a mysterious art. A dog makes definite certain impulses. Another dog makes definite a number of the same impulses. The latter impulses awaken the memory of the first dog. Thus the classification takes place, as it were, automatically, through the impulses the sensations arouse in common. But that these impulses were in advance connected in the proportions necessary to the conception dog, is a wholly unnecessary and gratuitous assumption.

If, now, thoughts are to be put with sensations (sensations being the simplest thoughts), it is evident that the mind can have no thoughts except of the external world, and such compounding of these as the impulses may make. All thoughts must be the fruit of the experience of the external world. The essential import of every thought, however, must be the impulse awakened by it, *i. e.*, its relation to us.

Hence, in examining such a concept as that of cause and effect, we seek its origin and meaning in experience on the one hand, and in the impulses on the other.

It may be well to examine, in some detail, the origin of the thought of cause and effect. To do this we must begin at the beginning—in memories.

When man has reached the point of remembering his experiences, the memories, as we have seen, affect future action. A situation that calls up a memory, will be treated like the former situation. Whether memories can accumulate in experience depends, evidently, upon whether the repetition results as the

first instinctive act did. It is found that this is sometimes the case and sometimes not. Certain trains of action result unfailingly in one conclusion; others may or may not. In the one case, the action is therefore performed unhesitatingly, and the impulse comes to feel pleasure in the result even in advance of the action; in the other, the conflicting memories bring about a state of hesitation in action and of dissatisfaction in feeling. In the one case the thought is felt as certain, in the other as doubtful; in both, however, the repetition of a sensation is absolutely necessary. If sensations were never repeated, we might, it is true, have memories which might be called up by the *impulses*; we could, however, not apply them to any action, nor could we have any expectation of events, *i. e.*, any understanding of the external world. Every act would be new and instinctive, and could have no relation to what was remembered.

Thought thus depends upon repetition in sensation; certainty upon reliability in sensation. The certainty of thoughts is called knowledge or truth; its essence is reliability in the world of sensations; its pleasure is in its partial satisfaction of an impulse in advance of experience.

Now, as impulses are partially satisfied by thoughts, so there is a power in them to arrange thoughts in such a way as to give them this satisfaction. This trait (found in all impulses) may be called, in general, the desire for certainty. The desire for certainty (which is evidently not one desire but a gen-

eral trait of the impulses) works to pick out of the complex phenomena of existence the parts that are entirely reliable.

The reliable parts of a phenomenon are found to be of two sorts: Either the phenomenon is alone, in which case the reliable elements are called elements of existence; or the phenomenon is in relations to other phenomena, in which case we have qualities. Thus, that a body occupies space is an element of its existence; this same fact, however, when it is related to other bodies (impenetrability) becomes a quality.

Now the word cause is used in two senses, Either the qualities of a body may be called causes, or the word may be used as referring to the occasion of the coming into play of these qualities (*i. e.*, historically), in which case a previous situation is said to be the cause of a succeeding one. Kant recognizes only the latter use of the word, and says that there must be a change and a succession of phenomena in order that the word may apply. As for reliability, that does not enter his discussion at all. He is plainly wrong. If I were to remove my hand from under a book, and the book were to remain in the air, there would be no succession nor change, but I should certainly inquire into the cause of the phenomenon—because it contradicted my idea of the laws of nature, *i. e.*, the reliability I had found in my memories. I should say, “What qualities in the book or in the surroundings cause it to hold this unheard-of relation to other objects?” Kant’s definition leads him to an endless chain of causes, each behind the other in time,

but there is no such endless chain, for when we have reached a quality, the chain ends. If, for instance, I find a stone lying on the ground, my inquiry into causes leads me to the quality of gravity in the atoms. Gravity, however, has no cause, but existed and will exist in all time; or if it is composed of something simpler, then that existed in all time. If, on the other hand, I ask for the historical cause of the stone's lying on the ground, I am led back, it is true, and must reach a beginning of the history of the earth, which, however, must be explained both as to its beginning and as to every step, by the qualities of the atoms, or of the still simpler parts.

The study of causation, then, is the study of the qualities of the elements—the reliable relations of things. The study of the history of the world is then a science derived from it.

The regularity of the external world is possible only through its stability. Its atoms and their qualities are the same from moment to moment. Our *discovery* of its stability is due to the fact that many of its atoms are alike. If each atom were different from every other one (and the world still were stable), the regularity would exist, but would probably never be discovered, for combinations would rarely or never recur; and without the repetition of sensations and events, there could be no thoughts about them.

Repetitions, thus, are a necessity for thoughts but are not a necessity of the external world. Hence we may very well say that we cannot conceive of a world without laws; that such a world contradicts the

very rules of thought and is unthinkable: but that our world actually obeys laws and is regular in its events, cannot be known in advance, nor be entirely certain until those laws are all actually known.

And this has been the fact. Men have not believed in the lawfulness of nature. Many do not believe in it now. "Science," they say, "can never explain the most important facts of life—the mind, for instance, obeys no laws in its highest workings." Until the regularity is discovered, such a position is perfectly justified, except in so far as analogy compels us to the opposite assumption. What we can understand must be reliable, but there may be things "beyond our understanding." Hence, until lately, it has been perfectly easy to believe in a multiplication of loaves, or a changing of water (H_2O) into wine (with carbon and other atoms). These things were beyond our understanding, but not to be rejected on that account. Of course, the ordinary facts of experience were observed to be regular (and the strange facts were "miracles"), but the necessity of regularity was not felt, nor is there any such necessity. Regularity is necessary only in order that we may classify and think about and "understand."

It may be asked, however, how it is that the ancient philosophers came upon the axiom that there is no such thing as chance (*non datur casus*). We reply that in so far as it is true, it was a lucky hit; that they did not really believe it in our sense of the word belief; that it was evolved, like most of their beliefs, out of the pleasure it gave them, and that it was held, like

most of their beliefs, only for the pleasure it gave. It made the universe thinkable; as for the actual universe, they cared not at all that it seemed to contradict them at every turn. Kant's philosopher who said that the weight of the smoke could be found by subtracting the weight of the ashes from the weight of the wood, is an illustration. He was, luckily, correct (not strictly, but at least in a general way, since weight does not change), but it is noticeable how, for the sake of his theory of the reliability of nature, he went flatly against the phenomena. His theory satisfied him—the remark was bright—he asked no more. If he had been questioned as to what became of the candle flame when it was blown out, he would have been equally fertile, perhaps (since flame was believed to be a substance), and equally careless of his phenomena. Such cases prove, at most, only that men of thought noticed or felt that regularity in phenomena is the first rule—the essential prerequisite—of *understanding*.

We have, finally, to consider the origin of necessary truths, such, for instance, as that a straight line is the shortest distance between two points. This is, however, easy, and has been done, doubtless, many times before.

Every simple thought is a belief. What we think first is a belief, and seems absolutely necessary. If we are to be in doubt there must be some other experience (real or imagined) to balance, at least in part, the first one. When experience gives us nothing out of which to construct an opposing thought, a

belief becomes necessary. The three dimensions of space, the one dimension of time—the denial of these cannot be conceived, because we have no data in experience out of which to form a conflicting idea. Kant notices the statement that “all bodies have weight” as true and yet not necessary; it is not necessary (though universally true, so far as we know) because we can easily conceive the contrary. That a body should rise instead of fall, is perfectly easy to imagine. That a body should occupy no space at all, it is impossible to imagine, though we can imagine the body as disappearing. So long as it exists and is a body, it must occupy space.¹

We hold, then, to the essential reliability of our impressions from external objects. The manner in which this is brought about is contained in our axiom regarding influence, namely, that an impulse regularly has the power to make definite the complementary impulse in a suitable other mind. Our impulses, then (being always complementary), are related in a regular way to the external world, and, therefore, are reliable guides as to the nature of external bodies. Our so-called sensations, *i.e.*, our pleasures and displeasures, are regularly related to our impulses (we may believe so, at least), and therefore give, so far as they go, a true idea of the objects of impulse, *i.e.*, they correspond somehow to the world and are a true interpretation of it in some sense or other.

¹ It may be suspected that the axiom that bodies must occupy space is rather a definition than an axiom.

This short exposition of the bearings of the theory upon the beginnings of things may well close here. It can easily be elaborated by any one who will put time upon it. Of course, there is no claim made that our theory explains everything. It does not. Its tendency is, however, to throw the seat of mystery back upon the atom. Behind that, no theory can go. The atom is, and ever was, and ever will be, so far as we know at present. With its eternal qualities known, investigation must rest.

Chap 15

CHAPTER VI

THE SIMILARITY OF THE INSTINCTS

WE now come to the detailed examination of the phenomena of the mind in actual conditions. Our intention is to show that these are all either simple or complex states and actions of the Material, Personal, and Social instincts. We will consider first the mind in its full range, *i.e.*, so as to include all possible minds. The discussion of the differences between individual minds will be taken up afterward in our concluding chapter.

To begin with, it may be well to reconsider some of our more general positions.

An impulse is an unconscious desire, *i. e.*, a desire without thought. We consider all desires as having existed first as impulses; or, since many objects of desire are the object of more than one impulse, that the elements of all desires existed first as impulses. Impulses are a release of force, and regularly result in action. Such action, if in absence of thought, is called *impulsive*, or *instinctive*, or *reflex*. We shall consider an instinct as the impulse plus the suitable influence and action. The impulses, according to

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<u>Impulse</u>	action without Thought
<u>Instinct</u>	action <u>plus</u> Thought

our scheme, must explain all actions, whether of body or of brain (thought).

Here we strike upon a common idea to the contrary. Many persons believe that instincts are reasonable, in their origin at least—that they are unconscious thoughts.

Such a belief often rests upon an ignorance of the actual workings of the instincts, the holders of it having an idea that the acts of the animals are machine-like. The bee, for instance, is conceived as a sort of machine, turning out mathematically perfect combs according to the most economic method, supposed to have been acquired through ages of reasonableness antedating its present instinctive condition. So much, however, at least, is certain, namely, that the bee does not turn out any such combs. A bee's comb is not made according to a fixed model. No two combs are alike, and artificial combs would be recognized in an instant from the very fact that they were regular. There is probably, in a word, no instinct among animals that does not adapt itself to its surroundings. The spider builds its web, the bird its nest, and the beaver its dam, with a large power of adaptation. Theirs are not the acts of a builder following an architect's plan, but rather of the artist struggling to express what cannot be expressed—his own nature with its tastes and preferences.

But through ages of repetition, says the arguer, the experiences of the bee have become impressed upon its nature. We reply that there is no evidence that ages of repetition do actually impress an organism.

Dogs have been coming at call for thousands of years, yet every dog has to be taught to come at call. And, again, many instincts are modern and are impressed without any ages. The swifts of America, for instance, built in trees for ages, but when chimneys were built they immediately and unanimously left the trees for the chimneys. Their instinct has not changed, for they still build in trees where no chimneys are available. The same may be said of barn swallows, and of the chimney swallows of Europe. Or take the mosquito. It lived in America for ages upon the juices of plants—and still does. But if a man enter its domain it immediately chooses human blood in preference to plant juices. Or take man. What previous experience made him take to tobacco or whiskey? The savage needs no ages of experience to like whiskey. In a word, an instinct seems to be a taste or liking which recognizes its object, and may find that object in something entirely new, artificial, and strange.

It will be well for the reader to recognize also that even if the intellectual theory of the instincts were admitted, it would hardly advance the case. Suppose that a dog meets another dog, and that the recognition comes through a comparison of the other dog with himself. (We will suppose, for the sake of the argument, that the dogs resemble each other, though, as a matter of fact, the recognition takes place equally well between quite different breeds.) After the intellectual recognition of likeness, it still remains to be explained why a dog is pleased at the likeness;

and we are compelled to fall back on a native taste in the dog. Or, if a dog by argument could discover that the other dog was a female while it was itself a male, it would still be necessary to suppose a native liking of males for females. Or, to take a more abstract case, if a man is told that $2 + 2 = 4$, and accepts the statement, it still remains to be explained why the man prefers that statement to the statement that $2 + 2 = 5$. If we say it is because the one equation is true, we may still ask why man is more satisfied with truth than with untruth. All thought, in short, rests upon choice and interest; and these must finally rest upon the native desires (impulses) of the mind. The reader may easily satisfy himself of this by following back a few thoughts. Many preferences, of course, are quite direct. The liking for sugar, salt, tobacco, bright colors, etc., can have no possible intellectual explanation. We like them because we are so made.

It will not be useless for the reader to examine also in detail what is ordinarily called purposeful action or thought. The purpose of an act or thought is its conscious cause. It will be found in every case that such causes soon end, if carried back, in a cause that is quite uncaused, *i. e.*, they end in the nature of the mind. We can give a cause for an act, and perhaps a further cause for that, but the ultimate cause is that we are human. The cause of my working may be that I need money; I need money because I must have food; I need food to eat; I need to eat to live; I need to live because I want to live: there the matter

ends. All "purposeful" acts and thoughts and acts may be traced similarly. The word purpose is thus only to be applied to reasoned acts. We purpose to satisfy an observed impulse. Thought is thus, in essence, only the handmaid of the impulses and does not exist for itself, nor has it any significance in itself. Psychology has pretty regularly misconceived the merely economic value of reason.

Further light is thrown upon the nature of the instincts in the cases of their more unusual adaptability. In some cases the instincts result at once in definite actions; in others, however, the actions must be "learned," *i. e.*, the animal either chooses what suits it among the actions of other animals, or else accomplished its natural actions better after repetitions. Thus certain birds (it is said) will never sing perfectly if kept in close captivity and out of hearing of others of their kind; or they may sing imperfectly at first. Again, most animals in the lack of the natural objects of impulse will adopt some method of satisfaction that is certainly less suitable to them. The swift, for instance, built in trees until chimneys were invented. Birds will sometimes imitate the songs of other species, if they have never heard their own characteristic song. Tree-nesting birds will build on the ground or on a fence in a treeless region. Butterflies, birds, and the mammalia, will mate with strange species, in default of members of their own. Evidently in such cases the impulse, though of such a nature as to be more perfectly satisfied, makes shift with something less than the best it might conceivably

Good argument!

have. Nevertheless, it is not to be thought that such animals are consciously dissatisfied. They have no thought of the object of their impulse. These are cases of deceived or mistaken satisfaction, as we shall call them. A story showing this clearly is given by Mr. Lloyd Morgan. A young hen had reared a brood of ducks. Her maternal instinct had satisfied itself with them, in default of better. Her next brood was of chickens, and she was found beside the pond with them, using every sort of persuasion to get them into the water. Her maternal instinct evidently had contained no thoughts originally; the only thoughts connected with it were those given her by her experience with her first brood; and the instinct, in the case of the second brood, was made definite through memory of her experience with the first.

Undoubtedly natural selection might enter as a factor to decide how great the range of satisfaction for any impulse may be. In general, however, it may be said that only the more complex units have a wide range in degrees of satisfaction. The simple organisms and the dead units are in general satisfied in definite ways or not at all; the higher ones may have many grades of satisfaction and adopt a lesser grade when the higher is, for some reason, impracticable. Man is a striking illustration of an organism whose satisfactions are often deceived. Moreover, animals possessing memory are the more apt to be led astray, since the memory of a partial satisfaction may determine action contrary to an opportunity for a fuller one. Hence the common human feeling

against improvements in life and society. Such improvements often require a new generation for their adoption—the new generation ordinarily choosing the greater satisfaction without hesitation or difficulty.

My cows

We hold, then, that impulses contain no thought. The objects of their desire must be learned through experience. We cannot know what we like or dislike, desire or have a repulsion from, except as the object is presented to us.

Now, consciousness is made up of memories of experiences. Hence the impulses do not even enter consciousness in advance of experience. They must have been partially satisfied before we can know that we have them at all.

There can be no doubt that the impulses exist in advance of experience. They are of the nature of the mind, and though they are made definite by experience, they are not caused by it. In all animal life they certainly may and do arise to strength without any external stimulus whatever, or any internal stimulus in the way of memory or thought. The wants of the organism are there.

An impulse, according to our axiom, is a liberation of force. The first appearance of an impulse (before consciousness) is thus an action, a restless and aimless movement of the body, accompanied, as the impulse grows stronger and its satisfaction less, by a feeling of displeasure. Thus the hungry infant is restless and displeased, though it may have no possible thought of its want, or even that it has a want. No doubt the pleasure and displeasure of the impulses

Youth

is characteristic in each case, and, after experience, the mind may identify, in a general way, the method of search for its satisfaction. That, however, is rare even after years of self-study. The importance of the recognition of this state of things in the field of human conduct and self-understanding, cannot be over-estimated.

youth { One of the most noticeable characteristics of youth and early manhood, for instance, is the large number of their unidentified and misunderstood yearnings. New impulses have come with adolescence, and the youth has no idea of what he wants. His restlessness, rashness, vagaries, ideals, poetry, and wild oats, are largely the natural attempts to satisfy what he does not understand in himself. Restlessness and discontent lead him, and he finds a fresh eager joy in his new discoveries—which seem to him the greatest things in the world.

Children, with their constant activity, freakishness, and insatiable curiosity, are another illustration of the same state of mind.

The unconsciousness of the impulses is no less evident in more mature life. Every man is at times ashamed or pleased at his own acts. Almost every one has been in love, or angry, or treacherous, or philanthropic, without knowing it. The discovery that the heart is deceitful above all things and desperately wicked, has been made by many besides Jeremiah. We approve the good until the evil comes with the rousing power of actual sensation; then who can be sure of himself? "Opportunity" says

Franklin, "is the worst pander." "Who can understand his errors," sings David, "cleanse thou me from secret faults." Even elaborate actions are often performed without conscious purpose. So the lover may find himself at the home of his beloved; the drunkard at the bar of the saloon; the murderer over the body of his sought-out victim.

Often self-discovery is a matter of mere chance. Witness the many able men who discovered their distinct callings in life by some accident or other.

Such matters are common knowledge and experience, but cannot be made too clear. The truth is that man learns to know himself, if he ever does, not intuitively, but by careful self-observation; and this self-knowledge requires time and determination—and even so, is never perfect. *Self*

Deceptions in the satisfaction of the impulses are of two general sorts:

1. There can be no doubt that important desires are often satisfied ignobly. Men find that they can be quieted, at least in part, by drinking, smoking, hard labor, or lust. Thus the higher impulses may be dulled or tired by undermining the power of the body. Sometimes, as among some of the sons and daughters of the rich, this method of procedure may be sheer ignorance or inexperience. Sometimes the impossibility of a proper satisfaction is also a factor. Disappointment, riches, or poverty, may prove such bars.

A variety of this sort of mistake is when finer natures pitch their lives upon the merely practical

plain. Food and drink, good fellowship, a little lust, and a decent obedience to the simpler rights of society—these fill their lives. Certainly these may be enough for simpler natures, but when fine ones live so, it is a blunder. Men should follow their partial dissatisfactions.

2. The other sort of deception occurs when impulses are quite wrongly interpreted—one being taken for another. Lust among the poor is doubtless often an attempt to satisfy the craving of an empty or ill-fed stomach, or to satisfy the longings felt in a wearisome attempt against dwarfing conditions. Men write sad poetry or bitter philosophy who need physic for liver complaint, or glasses for their eyes. That these things occur honestly but mistakenly is evident to all observers. So, again, many women and some men take religion to satisfy sex; some take it to satisfy hunger. Or, again, men mistake their callings in life, and spend their years trying to satisfy one instinct with the food of another. Or, as is perhaps most common, they may not discern which instinct should be used in one case and which in another, so that we find the scholar's work colored and distorted by theology or by the love of glory, or by hostility; the divine's by pride and selfishness; the great soldier's by the love of popularity; etc.—and all this quite unconsciously.

The misfortune in this blundering assortment of impulses with objects is that when the memory has once arranged and associated them wrongly, it is extremely difficult to separate and correct them.

The objects give pleasure, certainly, and satisfy an impulse; and it is hardly or not at all noted that the chief impulse remains quite unsatisfied. A very careful self-study is the only cure. The man or woman must notice whether, after all, contentment is the result.

An important corollary to the unconsciousness of the desires is the fact that, containing no thought, they have no consciousness, in advance, of their economic purpose or result.

We do not eat in order to nourish the body. Sex has in it no thought of reproduction. The social state is not a social contract, nor is it invented for mutual protection, but is an unforeseen result of man's liking for man. The practical results of man's impulses are not contained in the impulses, and can be known only after experience has revealed them.

Much theorizing is wasted because of the opposite assumption. Thus, theories of the origin of the family and of the state often go wide. It is, for instance, not sufficiently considered that in the earliest stages of civilization and of the family, man had not noticed that children were the offspring of two individuals. A tribe in this condition has actually been found in Australia. Or, again, some philosophers have wished to reduce the sources of all actions to pleasure or calculating selfishness. Satisfied impulses result in pleasure, but there is no purpose of pleasure in them. They act whether pleasure or pain be the result—at any rate, until experience and memory come into control. Similarly,

selfishness requires experience, and cannot be found in the native impulse.

Biology, again, speaks of the instincts of self-preservation, and of the preservation of the species. Doubtless the instincts have these economic values, and may well be considered from these points of view; psychologically, however, it is important to note that there is no such mental content. The animal that eats or flees from danger is not consciously preserving itself; it is hungry or afraid. In this treatise we have accordingly named the instincts not from their economic values, but, as simply as possible, with adjectives drawn from the general nature of their objects. Even that is in so far false, that the impulses contain absolutely no thought, whether of object or of purpose.

Indeed, it is important to notice that, as the impulses contain no thought, and as they are not the product of environment, so we can have no exact idea of what they are or of what (if anything) would entirely satisfy them. We know them, for the most part, only in their relations to the actualities of the world. How they would act, were these actualities different, we can know only by experiment, and such experiments, even, can only reveal their nature more nearly, never entirely. It might have been supposed that the barn swallow's building impulse was quite satisfied with the cliffs as a breeding-place, but with the advent of barns, the bird infallibly chose the new sites, and it is impossible to say whether something may not turn up that will suit it better. So of the

mosquito. No one could have guessed that it would prefer human blood to vegetable juices, yet such turned out to be the case, and there may be some food that it would prefer to either. It is noticeable that when an animal is put into quite a new environment—for instance, when it is introduced into a new country—it very frequently adopts new habits of life, sometimes, it is said, with physical changes adapted to the new habits. Darwin was of the opinion that the striking variability of our domestic animals was due to the change in environment. The domestic environment, perhaps, brought out new ways of using and satisfying the impulses, with consequent developments (variations) in the physical forms of the animals.

The case of the human impulses is particularly striking. Man has developed an extremely intricate environment, quite different from anything found in nature, to satisfy his impulses. If the other animals had his memory and elasticity of mind, who can possibly say what they would invent to satisfy theirs? As it is, they must use what is at hand. The bird may build on the ground if it must, in a tree if it can, and in a human artificial structure if fortune is favorable. Man, with his inventive brain, passes from the tree or cave to the hut; from the hut to the house; from the house to the palace with glass windows, electric lights, telephones, sewer systems, steam heaters, ventilators, etc., etc.—discovering and supplying new wants every day. Or, to make another comparison: the animal uses foods, mates,

and companions, to make definite its impulses; man, following in thought the lines of his dissatisfactions, arrives at supersensual desires for knowledge, beauty, and God. We are not to be sure that the great gap between the animals and man is caused by a great difference in the impulses. It is rather to be assumed that the difference is in memory and flexibility (invention) which has enabled man in the course of ages to discover and invent truer objects of interest and desire, both in nature and in thought. Impulses, whether of animals or of man, are never entirely satisfied, but that man by his inventions has come much nearer satisfaction and has revealed the essential nature of the impulses, at least to some degree, by insisting upon their more perfect satisfactions, is quite clear.

To sum up: the impulses exist in advance of experience; are not caused by the environment; cannot be entirely satisfied (at least in the animals and plants); contain no thought of their object, their purpose, or their result.

Since, then, the impulses are to be known only through experience, it appears that any theory of conduct must be built upon the study of experience, which study must consist of three parts: First, the study of the objects of desire; second, the discovery or invention of the means of attaining those objects, so far as that may be possible; third, the study of the economic results and relations of the satisfactions of the desires.

It has often been supposed that some one theory of

conduct and life could be invented that would suit all men. When, however, we consider the differences between individual minds, in delicacy, intellect, and the proportion of the impulses, it appears highly improbable that any such consummation is to be hoped, however devoutly it may be wished. Up to the present time, at least, men of strong and sincere minds have disagreed much in their solutions, and, as all such solutions are the fruit of the study of the world as related to the impulses, and so (since the world is a constant factor) may be said to be the fruit of the impulses, *i.e.*, of the character, it is hardly to be expected that the solutions can ever be less in number than the number, at least, of the great types of human minds. It is evident, however, that a careful and systematic study of the impulses and their relations, can hardly fail to be of great importance in determining and assisting these solutions.

We now turn to the more detailed consideration of our special subject, namely, the similarity of the instincts.

In the formal consideration of the instincts it will be necessary to divide them into spheres of action, or grades. The chief of these are the cell, the body, the body and the external world, and the grade of thought. The last of these arises from considering the mind in memory as of a comparatively independent grade in its activity.

Hence we have a Cell-Material instinct and a Cell-Personal instinct. The Social instinct begins with the body.

Next, the Body-Material, Body-Personal, and Body-Social instincts.

The third we shall call the Practical-Material, Practical-Personal, and Practical-Social instincts.

The fourth, the Thought-Material, Thought-Personal, and Thought-Social instincts.

As a subhead of the Body instincts we shall have to consider that the body often includes more than the living cells of the organism and that these appendages also come within the sphere of the mind's impulses and actions. Hence the Extra-Material, Extra-Personal, and Extra-Social instincts.

Between the Practical and Thought instincts we shall make a subdivision including those impulses and acts that are accompanied and made possible by memory without a real power of thought. These we shall call the Recognition-Material, Recognition-Personal, and Recognition-Social instincts.

Under the Thought instincts also there will come a subdivision, which we shall call the Ideal, namely, the Ideal-Material, Ideal-Personal, and Ideal-Social instincts.

The Social instinct extends into grades beyond the other instincts and demands special subdivisions and special treatment in general. These, however, are analogous to those already mentioned, and, as they apply only to the Social, need not be mentioned in detail here.

In order to make this summary clear, it may be well to go over our scheme somewhat in detail, grade by grade.

THE CELL INSTINCTS

The Cell impulses are made definite by external influences—light, heat, sound, pressure, and the chemical forces. There are corresponding cell activities. The pleasures and pains are those of sensation.

THE BODY INSTINCTS

The Body impulses are under the sympathetic unity of the cells of the body. They are made definite by the condition of the cells. The activities are the growth of the body and the arrangement of the cells in it. The pleasures and pains are those of the body tones.

THE EXTRA INSTINCTS

These are Body impulses when something beyond the living cells forms part of the body. The activities are the growth and arrangement of the Extra parts. The pleasures and pains are those of the body tones.

THE PRACTICAL INSTINCTS

The Practical instincts have to do with the body in its relations to the external world. The nervous system here becomes important, if present. The impulses show themselves plainly in advance of experience, in the form of a partial displeasure accompanied by aimless actions. This state is called craving, longing, yearning, and the like. The actions are restlessness.

If, now, the organism receive a sensation from

without, one or more of the instincts may be made partially definite. The result is attention. It is accompanied by beginnings of movements toward the object of sensation. Attention, thus, may be a condition of any one of the impulses, or it may be of any two or of all at once. Language, however, has but one word for the condition, whether it be an apple or a beggar that aroused it.

It should be noted that attention presupposes the impulse. The hungry man notices food; the charitable man, the beggar; and so on. Much of the blindness of men is to be explained in this way.

Stronger forms of attention may be alertness, intentness, or interest. The lack of attention is indifference.

If attention or interest continues, the impulse is often made definite enough to cause a positive movement toward its object. This state, in which the impulse is not entirely definite, is called curiosity, inquisitiveness, prying, and the like. It is found in all the instincts and is of immense economic importance. It is one of the strongest traits man has, and has been a large factor in his advance.

Many sensations make certain impulses quite definite. If the definite impulse is affirmative it may be called appetite, desire, inclination, liking, love, or passion. If negative, dislike, or repulsion. The precision and delicacy of such intuitions is one of the wonders of life.

As each impulse is roused by special sensations, and as the sensations may be complex or received through

several senses at once, these various sensations, being held together and fused by the impulse, would result in special perceptions for each of the impulses.

Sometimes the influence is too strong or too sudden for the mind to adapt itself immediately (or at all) to its situation. In that case perception fails to take place, and confusion results. This is a breaking down of the strength and unity of the mind, *i.e.*, of the Material impulse, and is thus disagreeable, *i.e.*, results in a negative impulse. In its stronger forms it is apprehension, fright, fear, dread, terror, panic, or even agony. This occurs in all the instincts, and in all grades from the Practical up. No doubt it occurs also in the lower grades, but it is not plain in them. Perhaps certain reflex and local actions of withdrawal or self-defence are to be attributed to it.

Definite impulses result in definite movements. If the impulse is positive the movement is, in general, an approach. If there is an obstacle the result may be called striving or attempting. As qualities of the impulse or the action we may use such words as eagerness, spiritedness, ardor, and haste; or laziness and slackness; or, with obstacles, courage, boldness, assurance, industry, or tenacity. These words, of course, may be used of all the instincts and so have each at least three different senses.

If the impulse is negative, the movement is, in general, a retreat. It may take the forms of shrinking, quailing, flinching, trembling, flight, and the like. (It has been noted that such actions are without conscious economic purpose. The animal re-

treats not to save its life, but because of dislike or fear.)

Of the movements resulting from impulse we repeat what we have said before, namely, that a steady impulse with its steady release of force may result in a complex and rhythmic motion. As we have seen, unicellular plants and animals may move their swimmerets rhythmically and advance through the water as the result of a simple stimulus (influence) and, apparently, a simple impulse. The more complex movements of the higher animals we would explain by the same principle. The swimming movements of fish; the flying of birds; the walking or running of land animals—all these are probably simple results of simple and steady impulses. The animals move so, not because they have learned, but because they are so formed that (at maturity, at least) the simple steady impulse causes these more or less complex movements. It is the inhibition of the acts that is learned and is the result of a more complex state of mind, namely, one with memory, or with several influences at once.

It is to be remembered of all acts, that an extreme of an impulse may result in the opposite sort of movement. The frightened animal may rush toward the cause of its fear; the affectionate may move away. A frightened man or woman is notoriously dangerous; and among the animals it is common to find individuals rushing into peril and death. The moth and the flame is often mentioned. This effect of extreme fear is commonly spoken of as a fascination

in the object of fear. Of the opposite manner of action, namely, an affirmative impulse leading to a negative manner of action, bashfulness is perhaps the most common example. This state of things is found also in the cells and the lower units. We think of it as underlying the vision of complementary colors when the eye is "wearied" with looking at one set; the experience of pain in continued tickling; etc.

The pleasures and pains of the Practical instincts are those commonly called physical. Some of these, if affirmative, may be called satisfaction, happiness, relief, or relish. If there is a diminution in the satisfaction of an impulse, it may take the forms of displeasure, annoyance, distress, pain, hurt, suffering, woe, torment, torture, and the like. Satiety is satisfaction so overdone as to result in displeasure.

The overflow actions, *i.e.*, actions after or accompanying pleasure or displeasure, are regularly present. Those associated with pleasure may take the forms of dancing, bounding, shouting, laughing, and various facial expressions, such as smiling, flashing of the eyes, etc. Those with displeasure may be weeping, moaning, with various facial expressions, such as glumness, dulness of the eyes, etc. Here, again, strong impulses may work to opposite results in action, and men may weep for joy and laugh from pain.

THE RECOGNITION INSTINCTS

We shall call Recognition instincts those forms in which memory (but not recollection) is involved. Such cases would involve recognition and some im-

provement through practice. They would in general be the same as the Practical ones, with the addition of such states of the impulses as are brought about through the recognition of repeated former situations—hence some degree of confidence, assurance, determination, insistence, hesitation, doubt, uneasiness, wavering, apprehension, surprise, and bewilderment; and such acts as seeking, returning, and the like. Few of the lower animals show signs of rising above the Recognition instincts.

THE THOUGHT INSTINCTS

The essential fact upon which the Thought instincts depend is that an instinct may be more or less satisfied by the mere thought of its satisfaction or dissatisfaction. In the simplest cases such thoughts will evidently be mere memories of cases of actual satisfactions, with their interesting historic details. Such mental pleasures can take place only as the mind possesses the power of recollection. It must be able to call up the former experiences—*i.e.*, not merely to recognize recurrences, but actually to re-enact in memory what has happened, and this, in the more elaborate cases, even though such happenings are only distantly, if at all, connected with present sensations. In a word, such a mind must be able to live and act in memories, and, to a greater or less extent, to recombine them as it would recombine, or experiment with, actualities. This one grade of the instincts thus covers a considerable grade of actions within itself, since it must extend from the

cases in which the thoughts are closely related to present happenings, to those in which the mind works almost entirely in abstractions.

If the mind have in memory the object of an impulse, the impulse plus the memory is called a desire, want, wish, taste, leaning, inclination, appetite, liking, love, etc.; or, if negative, a dislike, hate, or repulsion; or, with an inability to meet the thought, it may be hate, dread, fear, and the like.

The result of recollections, making the impulses definite in advance of action, and so leading to special action, may be a state of mind with purposes, intentions, resolutions, expectations, and the like. The thought itself may be called a plan. (These words, like most of the others we shall mention, may be used also of purely mental states.)

This power of the mind is of the greatest importance, in that it may result in a suiting of actions to the previous thought. Such actions are, in general, called reasonable. There is no necessity, however, in the sequence of reasonable acts upon reasonable thoughts and purposes: for in thought all the impulses are or may be awakened in their normal proportions; while in the actual experience afterward, some one impulse may be made definite enough (through the sensation of the moment) to overthrow the whole purposed act, bring the character quite out of its normal balance, and result in a purely impulsive act. This is indeed common experience, and men of the most delicate balance of mind when alone, may act like fools in actual life. Witness such men

of genius as Goldsmith, Corneille, La Fontaine, and Andersen. Nevertheless, the Thought impulses give man the possibility of a freedom such as no lower animals possess to more than a slight degree, and it is regularly used.

At the same time, it is to be noted that man's freedom through this power can go no further than to make him act according to his nature. If in his lonely hour he prefers the foolish or evil, nothing further can be done. Moreover, a man's impulses are not conscious even in thought, and a man may profess all the virtues and yet plan atrocious acts, or may do them without consciously planning more than the *going into* the temptation. Such behavior may fairly be called self-deception, and it may be presumed that the act is not an unbalanced one, but is according to the man's real nature. / The man who deliberately goes into known temptation may fairly be supposed to prefer the crime, though he may be quite unconscious of his preference. (Of course, this does not apply absolutely to cases where the entrance into known temptation has quite a different origin—as, for instance, when a man's business or social duties lead him in. Nevertheless, even in such cases there is a measure of probable responsibility.)

In applying reasonable purposes to actual conditions there may arise certain conditions unforeseen, or not to be foreseen by the mind. Hence the mind may be brought suddenly into a state of inability to meet the situation, perhaps even because of the strength of its memories. This (ordinarily dis-

agreeable) condition may be called disappointment, amazement, astonishment, bewilderment, marvelling, surprise, wonder, stupefaction, consternation, dismay, and, finally, fear, uneasiness, anxiety, misgiving, and the like.

With increasing experience and memory we reach finally such states of mind as anticipation, forethought, and foreknowledge; with such traits as caution, prudence, providence, circumspection, vigilance, watchfulness, precaution, and the like; and such general traits of character as reserve, guardedness, and the various forms of self-government, such as self-restraint, self-control, and self-possession.

Meanwhile, the power of actual thought, *i. e.*, that exercised nearly or quite apart from the present and influential phenomena, has come into play. Here it is plain that what was said of the Practical instincts applies, except that the sphere of operations must be chiefly that of memories, instead of being merely that of sensations.

Thus an impulse that was indefinite would result in a state of restlessness and undirected action, not merely externally, but also in the memories. The mind might wander about through memories seeking its satisfaction.

Any memory, or thought, may make an impulse partly definite, with a resulting state of mental attention, interest, or intentness; the opposite state, again, being indifference.

If interest continues, the impulse may become so far definite as to result in actions—hence mental, as

well as physical, curiosity, experimenting, and the like; rising to mental and practical investigation and research.

The results of this condition of mind, with its interplay of thought and external action, have been numerous. The simplest are the classifications and concepts which grow up under each instinct, being held together each by some impulse or group of impulses to which they are related in some common way.

Besides, each instinct gradually sifts out of its memories what is reliable; each has its own sort of reasoning, both analytic and synthetic. Some of such acts are analysis, synthesis, induction, deduction, comparison, and criticism. The result of such mental acts will in the end be truth or knowledge; and, if possible, the more abstract truths called axioms, principles, methods, and systems. In short, each instinct has its own sort of imagination, thoughtfulness, orderliness, and love of truth. In practical matters a man may be, in each of them, discreet and shrewd, and may show calculation and care.

It should be noted, also, that language, with its associations in memory, is largely used in this grade of each instinct. This circumstance is especially important in the Personal and Social fields, since these have to do with the actions and relations between individuals. In them the actions and relations may come to depend almost entirely upon speech. A man, for instance, may woo with words and,

through them, with thoughts, instead of with direct physical blandishments.

We now turn to the qualities and pleasures and pains of the Thought instincts.

According to the strength and vigor of an impulse in a train of action or thought, we may use such words as enthusiasm or zeal; or, on the other hand, reluctance, lukewarmness, and the like.

Of the continuance of an impulse through a train of acts or thoughts, we may use such words as determination, tenacity, persistence, patience, industry, stubbornness, and obstinacy.

Of the pleasures and displeasures of the Thought instincts, very much the same words are used as in the Practical. There are, however, certain special cases.

If the mind looks forward over a course of action and discovers no serious obstacle to prevent its satisfaction, its condition of mental pleasure in the thought may be implied in such words as assurance, confidence, or expectation. A lesser degree may be hope. On the other hand, there may be worry, uneasiness, anxiety, misgiving, or hopelessness.

Overflow actions in the Thought grade may also be much the same as in the Practical, though they may also take the form of lively cheerful thoughts (which may be expressed in the words as in joking, jeering, and the like, in the Personal instinct), or a mere easy mental (or perhaps verbal) repetition of the accomplished acts, the mind going over and over them under the continued strength of the impulse.

THE IDEAL INSTINCTS

When the mind has found that the experiences of life are not sufficient to satisfy the impulses entirely, it attempts to create for itself in thought and through imagination a perfect satisfaction. This field is that of the Ideal, and the impulses when laboring in it are to be called the Ideal impulses. By such labor the meaning of the impulses themselves may become more clearly defined in consciousness, and a clearer relation to the facts of the world be discovered. The acquisition of this more abstract frame of mind is not possible to all individuals, and may be regarded as a separate and higher grade of the mind. In religious parlance the change from the Thought grade to this may be conversion, and one of the plain benefits of Christianity is that it has insisted upon and promoted the acquisition of this spiritual state. There are, however, many other forms of conversion than that of religion, if indeed religious conversion itself be not of many sorts rather than of one.

There are at least three distinct methods of attempting the Ideal satisfaction of the impulses. Either (1) the attempt may be made to discover satisfaction in the world as it is (Science, Ethics, etc.); or (2) an improved imaginary world may be created (Art, Social theories, etc.); or (3) a different world, more satisfactory than the actual, may (thought faith) be believed in (Religion). Any impulse may strive in the field of Ideals, which is, consequently, of considerable extent and, with its three methods of

treatment (and crosses between them, of course), variety.

It is to be noted that Ideal beliefs and theories, as they are merely a grade, namely, the purest forms of the instincts applying themselves to their satisfaction in thought, do not require a large knowledge of facts for their existence. Hence we find ideals very firmly settled at an early stage in history. As, however, the instincts cannot be cleared by a small experience (since there are several of them, and each has many applications) nor be wisely applied without a very wide knowledge of men and facts (partly, indeed, because no one man is likely to have an even enough endowment or experience), so it has happened that ideals have changed constantly and broadened constantly with the growth of science and of experience with mankind, and we of later ages gaze with amazement at the simple maxims and ironclad decisions which rulers and great men of the past thought sufficient for the settlement of all the questions of life; and at their naïve faith that all else could be crushed or would disappear. Even now, however, such simple natures are not lacking—who would preach or force the whole world into some exquisitely plain (and yet profound) method of meeting all life, though in reality their plan may meet the case of only one human being in ten, and cover only a slight fraction of actual existence.

It should be remarked also that there is perhaps no other grade of the mind in which deceived satisfactions play a larger part than in the Ideal. The

vaguest thoughts will sometimes, in this grade, result (in certain minds) in the liveliest and apparently most complete satisfactions. *LdL*

It will be noticed that the instincts have much in common. Many words may be used in three quite distinct senses, and in fact are regularly so used, and often without conscious distinction. Confusion not infrequently arises from this source, a word being used in one sense and understood in quite another. Hence, from their respective points of view, two combatants may fight all day and be no nearer a settlement—both being quite right. Among the words most frequently misused in this way are love, courage, and happiness; will and thought.

On the other hand, the poets sometimes have the knack of using these words so as to kill many birds with one stone. Longfellow, for instance:

I see the lights of the village
 Gleam through the rain and the mist,
 And a feeling of sadness comes o'er me
 That my soul cannot resist:

A feeling of sadness and longing,
 That is not akin to pain,
 And resembles sorrow only
 As the mist resembles the rain. Etc., etc.

Such a poem (all of it is exquisite) might be read with sympathy by the business man, the lover, or the philanthropist, each in his own way, and perhaps not one of them would have anything of importance in

common with either of the other two. As for the poet's mood, the lines hardly give a hint of what its special nature was—if, indeed, it had a special nature, and was not, rather, compounded of two or three instincts acting together.

It should be noticed, finally, that as thought, reason, determination, courage, and many other strong or excellent powers and qualities are found in all the instincts, so they may be well developed in one or more of the fields, and be far weaker (or even conspicuously lacking) in others. Ability follows character, and the striking unions of frailty and strength in human lives are often very easily reconcilable in thought.

Oct 16 K

CHAPTER VII

THE MATERIAL INSTINCT

THE Material instinct is the impulse and influence and action of the mind as related to the substances of which it is or may be composed. It would be satisfied by the perfection of the individual mind, either through the addition of suitable new material or through a suitable arrangement and proportion of the parts of the individual. It has thus two distinct interests: one toward the body itself and the arrangement and proportion of its parts; the other toward matter outside of it, which may conceivably be annexed and assimilated. The Material instinct is to be thought of as controlling both of these interests.

The perfection of the individual is of course not to be considered as a thought or imagination of the instinct. We should say rather that as this instinct is more or less satisfied, the body and mind are more or less perfect. As the individual minds vary, so the perfections vary. Perfection is thus to be understood as an individual, not a specific, thing. Moreover, in all living minds it is only approximately attainable

THE CELL-MATERIAL INSTINCT

The Cell-Material instinct is the Material instinct of the cell. It is the power back of the morphology of the cell, *i. e.*, it determines the existence and shape of the cell. It also determines the cell's relation to its food. The cell through it is sensitive to heat, light, the chemical forces, and pressure. Its impulse is made definite by these, with resultant actions, such as assimilation and purification (either directly, or from and into the blood), and change of shape (as notably in the muscles). Its pleasures and pains are those commonly called "sensations"—warmth, light, touch, sound, taste, smell, and other vaguer feelings connected with experiences of hunger, thirst, sultriness, humidity, fresh air, exercise, and the like. Cells have, finally, more or less of the power of regeneration, and (if uncontrolled) multiplication. The relation of these to assimilation has been explained elsewhere.

THE BODY-MATERIAL INSTINCT

The Body-Material instinct is the Material instinct of the body, without reference to its relations to the external world. It is the morphological power in the multicellular plants and animals. It is the creator and supporter of the body and is responsible for the arrangement of parts, the proportion, and the size of it.

It is of importance that this should be clearly noted. The Material instinct is responsible for the very existence of the body. The Personal and Social

instincts presuppose a body. They may influence its arrangement of parts, its proportion, and its size, but this cannot go beyond influence. The actual existence of the body is determined by no other influence than that of the Material.

The Body-Material instinct is a sympathetic union and fusion of the cells of the body. All the cells are subject to its regulation and are controlled morphologically and physiologically by it. If any part escapes from it, we may have such diseases as withering, elephantiasis, or tumors (such as cancer, or the galls on trees). Artificial separation of parts has also been accomplished in some animals and plants. In this way a two-headed or two-tailed monster may be created; but, if the artificial restrictions are removed, such animals soon absorb the extra parts, and the normal form and proportion is again secured.

Regeneration and development are thus controlled by the Body-Material instinct, as are also the casting off of impurities, diseases, and poisons.

It may be well to note clearly the fact that the Body-Material instinct works, so to speak, backward. The cells connected by it suit themselves to one another, each one adapting its Cell-Material instinct to the larger control of the body as a whole. We shall hereafter find the Social instinct (which is a repetition of the Material) similarly active in influence upon the lower units.

The Body-Material impulse is made definite by the general condition of the body.

Its pleasures are those of the body as a whole, the

sense of health, vitality, refreshment, tranquillity, and well-being. Its pains, those of weakness, fatigue, sickness, infirmity, despondency, depression, debility, enervation, nervousness, and the like.

It will be noted that the pleasures of the instinct take place when the unity of the body is more perfect—when it is more perfectly formed and well knit together. The pains, on the other hand, when the bonds of unity are loosened, and the parts live more or less independently of the whole.

THE EXTRA-MATERIAL INSTINCT

Besides the body proper, most animals have also as part of them certain dead matter which is felt as necessary to them. The Material Instinct controls the formation and arrangement of these parts, though, of course, after formation they commonly remain fixed, for they cannot always be altered readily to suit the varying impulses of the organism. The instinct as working in this sphere is called Extra.

The Extra parts of the human body are the bones, hair, nails, outer skin, and cornea of the eye. They are made by the body, but are not subject to it after they are finished.

In the lower animals many interesting variations occur. Most quadrupeds in addition to skin have a full coat of hair; the birds have feathers; the snakes a peculiar skin; the tortoises, bivalves, crabs, and the like, an external shell. All these cast the Extra parts, wholly or in part, and renew them again, from time to time. The lobster, as we have noted, cannot

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comfort, cosiness, and the sense of safety, security, and the like.

That these are in general the feelings of animals in this relation, has often been noticed. The moulting bird, the shedding dog, the serpent or crustacean that has cast his skin or shell—all these are evidently depressed and nervous. They are sometimes described as shy, but it is evidently rather a dispirited condition. So the spider out of his web is an entirely different animal in character from the spider in his web. In the one case he is all nervousness; in the other all tranquillity and security. The destruction of an animal's home, in short, is like a physical harm done the animal, and he is not at rest until the home has been replaced. The spider, the bee, and the squirrel are not physically complete or content until they have their retreats—not merely retreats but theirs.

Man's clothing is perhaps not so plain, yet, despite exceptions, man is a clothes-wearing animal, and has a feeling about it, and the matter is not entirely explicable on grounds of prudence or modesty, though it has undoubtedly been affected by them. (Of course, clothing is often very immodest, but it was not invented for that alone, either.)

Man's houses, again, are not inventions of prudence, but are instinctively built. If it be said that houses are protective, it may be replied that this is not always the case and that if it were, it is still easy to think that he might have protected himself otherwise. Moreover, a man does not value his

house as a protection chiefly, but as a place and as his place. He feels a special tranquillity in it.

Again, in the case of tools, although this form of the instinct has been much more affected and developed by reason and invention than either the house-building or clothes-wearing forms, yet its universality, and the natural adaptability of man to it, make it pretty clear that it is by origin instinctive. Note also how a good workman or artist is "alive" to the end of his tool.

As this style of thought may be new to the reader, it will be well for him to be on his guard against the thought that the animals have in their acts purposes other than the satisfaction of immediate impulses. The nature of the Extra parts of an animal is determined by the nature of the animal's impulse, and not by the use to which the Extra parts may afterward be put. The spider, for instance, is not to be thought of as building his web to catch his prey. He builds at the promptings of his nature, and according to his nature, and will build so under any circumstances, and though he may never have seen an insect. And so of all animals.

A striking fact should be noted here, namely, how the impulses in different situations accomplish similar results, although the means employed may be quite unlike. On the one hand, by mere exudation, the Extra-Material instinct may form a delicate and perfectly characteristic sea-shell; on the other, by a very elaborate act, it may produce a spider's web or an oriole's nest—equally delicate, equally

characteristic. We shall find this general state of things common, and we can say of it only what we said in our axiom—an impulse is a release of force that tends to result in the satisfaction of the impulse. For while it is plain that we cannot actually follow the details of the action of the impulse in the formation of a delicate shell, it turns out to be equally difficult for the reason to follow the weaving of the spider or the bird. Each animal secretes or builds as though it had some thought or plan of its result, and not as though it were working tentatively under the constant leadings of the satisfaction or dissatisfaction of the impulse. Doubtless the latter explanation is the fact and not the former; but in any case a comparison of the acts of the impulse in shell-building with those in nest-building cannot but result in a growing sense of wonder at the similarity of the results and the seemingly utter dissimilarity of the methods of attaining them.

THE PRACTICAL-MATERIAL INSTINCT

The Practical-Material instinct is the Material instinct of the body unit in its relation to external matter. Our study of it is the study of the body-mind in its active relations with the external world, so far as the external world may become assimilated and made part of that mind—either of its living or of its Extra parts. It differs from the Personal and Social instincts in that it has no interest in other individuals like itself, as such. Its interest in them, if it has any, is purely as they are substances.

The essential fact of the Practical-Material grade is that certain external substances so affect the Material impulse that the unit moves toward or away from them, and, if toward, goes through certain actions to assimilate them. This sort of action in response to the Material impulse has existed at all stages of the life of the organism; hence the impulse is the responsible agent for those formations in the body which make such acts possible or practicable. It is thus responsible for the unity of the active body—the correlation of the actions of muscles, glands, and the like. Before taking these up more in detail, another word should be said of what may be called the priority of the Material instinct.

We have already noted that the Material instinct is to be regarded as the essential cause of the body as a passive unit. It is the formative impulse, and, though it may be affected by the other instincts, yet they could not have made a body; they presuppose its existence. The same is true of the active body. From the time the primitive cell divides, and long before the Personal and Social instincts come clearly into being, the Material instinct is active and in control. It forms and maintains the details of the possible activities of the organism. Moreover, it is the first instinct to be active in the new-born animal; and when in old age the others have died out, it still remains, the last upon the stage.

Its activities are thus prior to those of the other two instincts, and are the basis upon which they build. They may affect it; they may even be stronger than

it; but it must always be actively present supporting the body, and if they are to act, it must be through its bones and muscles and brain. They thus, both of them, presuppose the Material instinct.

The Practical-Material instinct is thus to be thought of as responsible for the arrangement of the specialized cells of the alimentary canal, the liver, etc.; for the circulatory system; for the heart, with its pumping action; for the kneading muscles of the intestines; for the biting, chewing, and swallowing muscles of the head and throat; and, finally, for the muscles that make possible the movements of hands and arms (or legs) to the mouth, and the movements of limbs and body, bringing about relations to external objects. Moreover, there are the lungs, to provide the body with oxygen; and the special organs of sense and thought to put us in touch with outside influences. There are also organs of the reverse sort, namely, to expel impurities from the body. Such are the lungs, pores, and kidneys; and the bladder and intestines. All these, and others, which, like them, work directly to the advantage of the organism in its external relations, are to be ascribed to the Practical-Material instinct. They are, as we have supposed, differentiations and specializations for duties originally done without specialization. It is to be noted also that the useful organs of the body are not merely those of the living cells, but, quite as regularly, those of the Extra parts. The human skeleton, for instance, though Extra, is useful and indeed indispensable in the movements

of the body. Similarly, the feathers of birds in flying; and the armor of tortoises and bivalves in movement. Often such parts are actually tools, *e.g.*, the claws of many animals, the teeth of rodents, the nippers of the lobster, etc. These are dead parts used by the organism as man (by the same instinct) uses artificial helps to his members.

The Practical-Material impulses of the mind may be said to be (1) the appetites of hunger, and thirst, and the likings for warmth, light, and air; and (2) those inclinations connected with the existence, situation, or parts of the home, *i.e.*, with sticks, straw, wood (in paper-nesting insects), or a suitable place to dig or bore or build. These impulses all exist in advance of experience.

When aroused without external definiteness, they result in actions such as wandering, prowling, hunting; and are in general the predatory instinct, or the building or nesting instinct.

Almost any influence from without may arouse them to attention, interest, and curiosity. The Material instinct is indeed by far the most inquisitive of all impulses.

The impulses of the Material instinct are made definite, and a fused perception results, through influences received in tastes, odors, light, heat, pressure, and sound; and may become definite, either positively or negatively. If positively, the result is a movement toward the source of the influence. (It is to be noted that a pulling of the object toward the organism is really a movement toward it, the movement of the

object occurring merely because the object is of lighter weight. Note that among such actions is to be included the drawing of air into the lungs.) If the impulse is negative, the result is a movement from the source of influence. (The pushing of the object from the organism is likewise a movement from it.)

The actions following the approach to the object may be various, and various words are used of them.

If the attractive sensation arouses the home-building impulse, the organism may dig or bore or arrange materials (stones, wood, or exudations), and, according to its force or energy, may be called eager, assiduous, industrious, lazy, slack, and the like.

If the sensation arouses the body-building impulse, *e.g.*, hunger, the accomplishment of its satisfaction may be far less easy. In the carnivora, for instance, we may notice various details. The sense organs are all turned to the object. The eyes glare or frown. (All this is attention.) The teeth may be shown in a snarl or grin. The larynx may utter sounds. The salivary glands may be excited. (All this is an anticipatory release of the force of the impulse.) The animal hastens or rushes or springs toward its object; seizes it with teeth or perhaps otherwise; tears it, chews it, or otherwise prepares it to enter the mouth; finally swallows it. The attack may be called ferocious and the state of mind ferocity. Such words as courage and boldness may also be used. The eating may be said to be voracious, or gluttonous.

After the object has entered the mouth it is shoved along the intestinal canal, treated with juices and

kneaded up; and the suitable intestinal cells feed upon it, taking out suitable molecules and passing them to the blood, whence the various cells of the body abstract what is necessary for them. The useless and waste portions of the object are then shoved along and cast out at the vent.

What we would call first to the reader's attention is the "repetition" in these acts of the impulse, namely, that the food is first treated and taken into the larger unit of the body; then treated and taken into the special cavities of the arteries; the actual assimilation into the cells being then a third repetition. In animals possessing homes or Extra bodies, there is usually still another step or repetition, the food or prey being first taken into the home (lair or den), quite or almost unharmed. We have then four steps of repetition in the working of the instinct—the food is taken into (1) the Extra body, (2) the body, (3) the arteries, and, finally, (4) is assimilated to the cells.

We wish also at this point to insist upon a point of a more general nature. In the interpretation of the actions of animals (and all actions must be interpreted psychologically), it is important to insist that all movements toward an object are by origin acts of positive and never of negative impulse. Negative impulses can produce originally only acts of retreat. Negative impulses, if strong, may act like positive ones, and the positive, if strong, like negative. What must be insisted upon is the identification of all such acts. In many cases this is simple enough. When,

for instance, the tiger attacks for any reason, we may recognize, perhaps, the movements of attacking his prey. In other cases, however, it is not so plain. The bee attacks with his sting; certain of the herbivora use their horns. Such cases will come up as we proceed. We merely call attention to the general principle that such acts must be explained, and that in so far as they are acts of approach, they must be by origin acts of positive and not of negative impulse. Undoubtedly the position encounters difficulties, but the method gives promise of solid and enlightening explanations and classifications.

We may now return to our subject.

It often happens that an animal finds its food in larger quantities than it has any immediate need for. In this case several acts may happen. (1) Either the animal may cease to put the food into the body; or (2) it may fill the body to excess (this is called gluttony, but in certain animals, *e.g.*, the snakes, is regular); or (3) it may take it into the body, though not into the alimentary canal (camels thus take in water, the ruminants grass, and monkeys and squirrels food into mouth pouches¹); or (4) it may take it into the Extra body (as bees take honey, squirrels nuts, etc.).

The repetition in these cases is evident. The snakes exhibit an act which might be called a result of alimentary hunger; the camel, of bodily hunger; the bees, of Extra bodily hunger.

¹ The same instinct may also be noticed in plants, *e.g.*, beets, cacti, seeds, etc.

Of course, these acts have been described as forethought, etc. The camel saves against the droughts of the deserts; the bees and squirrels against the winter; etc. Such theories fall to the ground at once. Camels know nothing of droughts, nor bees and squirrels of winter. How should they? Moreover, they perform their acts in advance of all experience of drought or winter. Certainly, we do not mean to say, here or elsewhere, that habits of economic importance are not selected (and so, indirectly, increased) by natural selection. Undoubtedly they may be so selected and increased. But they must exist in order to be selected and increased, and their existence and perpetuation must rest upon grounds in the nature of the animal—in character, in short.

We have thus, then, a general explanation of the hoarding instinct in animals. It seems pretty clear that this variety of the Practical-Material instinct exists also in man, though much of his hoarding and saving is clearly due to prudence or love of power.

A curious and not altogether clear detail of this instinct is the habit, found in some cases, of hiding the stored object. Thus, bees cover their honey. It would seem that the taking of honey into the Extra body is not complete so long as the food is visible.¹

The burying of bones by dogs is apparently another instance of the same sort. The digging of a hole and the placing of the bone in it are simple enough, or may be. The hole may represent, or be the prod-

¹ See also pp. 281-2.

uct of the same instinct as, a den. The covering of the hole, however, is an act of quite a different nature. It would seem that, as in the case of the bee, the object is not considered fully within the Extra body so long as it is in sight. Hence the dog noses about it until it has disappeared. Undoubtedly experience helps in the successful accomplishment of this act. Note especially, however, that the dog must not be considered as intentionally hiding the bone from the sight of other dogs. The other dogs absolutely cannot enter into the question.

We now turn to those cases in which the Practical-Material instinct is made definite but negative.

In most cases the Material impulse is quite indifferent to influences from objects that can be of no use to it. When, however, such substances interfere with its perfection, the impulse becomes definitely negative, and the result is a movement from the object—or a pushing of the object from it.

Here the case of impurities within the body concerns us. The repetitions are like those in the case of the positive impulse, but in the reverse order. Impurities may be cast out of the cells into the blood:¹ from the blood they pass, more or less directly, into the lungs, bladder, intestines, or pores; from these they are cast out of the body. The impulse thus follows them through the various stages until their exit. Not only so, but the impurities are regularly cast out of the Extra body—nest, den, or the

¹ Exceptional impurities, as in the case of a bullet, may be pushed out directly.

like—the impulse thus tending to keep the home neat and clean. Most animals go from their homes to defecate, and the feces of the young are regularly carried to a distance by the mature animals.

The repetitions of this form of the impulse, then, are: (1) cell-purification, into the blood, etc.; (2) body-purification, of matter that may never have been in the body itself, but merely in the intestines, etc.; (3) Extra-purification, as when the den is kept clean. Similar Extra-purification is seen when the cat cleans its fur and the bird bathes and preens its feathers. So also man cleans his skin, his clothes, his house, and his tools.

Of interest in this connection is the burial of their feces by certain animals. Cats and dogs, for instance, bury their excrements. This has been explained as an effort to hide from their enemies the evidences of their presence. We do not suppose that such an explanation is either psychologically tenable or even supported by the plain facts. There is no evidence that either cats or dogs have the desire to hide their presence. Both, for instance, have the habit (the males, that is) of urinating against landmarks—a habit which certainly reveals their presence to others of their kind, and would reveal them to their enemies far more than the burial could protect them, supposing, which may be doubted, that such burial protects them at all. On the other hand, it is an utter mistake to think of the animals as planning to elude unseen enemies. Their acts have definite impulses, but the far-seeing plan is not among them.

We fall back, then, on the simple theory that in the case of the cat, at least, the acts are influenced by the impulse of the Extra body. Why the cat should treat its feces as the dog treats an extra bone (except that the cat covers with its paws) is hard to see, and I can suggest only that its extreme sense (impulse) of neatness may experience acute pleasure in defecation, and that, as an overflow act, it behaves toward an object of indifference or even of some slight repugnance as though it were an object of positive impulse. (The actions seem plainly positive.) This suggestion seems weak, since, for one thing, the cat does not bury foods. The behavior of the cat is, on the other hand, extremely puzzling. In the case of the dog, the case seems and may be simpler. The dog scratches the earth, barks, and urinates over his feces, and does not properly bury them at all. His acts are apparently overflow acts of pleasure, chiefly of the Personal or sexual sort. We may suppose that the presence of impurities within him is depressing, or, at any rate, that the voiding of them is sexually exciting. In either case, the relief, and consequent pleasure, of defecation might result in overflow acts of Personal pleasure.

The Practical-Material negative impulse may take the form of what is called bodily fear or fright. The effect of this negative impulse is to counteract and lessen the positive Body-Material fusion. Hence the frightened animal acts in a disordered manner, and, besides moving from the object of sensation, may show signs that the cells of the body are acting inde-

pendently of the body as a whole. Perceptions may not fuse properly. The animal may seem deaf or blind. Glands may work violently or not at all or convulsively. The body may tremble. The heart may beat violently and irregularly. The state may go so far as to result in physical helplessness, fainting, or even death.

Sensations causing Material or physical fear are those that are of such a sort that the perception cannot (from the nature of the body) result in a clear fusion, or, from another point of view, they are experiences which disturb the unity of the body-mind.

The commonest of these experiences are perhaps those in which some harm is done to the organism—either to the body or to the Extra body. In these cases the unity of the mind is harmed physically, and pain results, with fear, and the withdrawal, if possible, of the hurt part or of the entire organism. Sometimes the mere pain of a disease will cause an animal to rush about in an attempt to escape the pain—as when a dog or horse runs “mad” (compare with the dog and the tin can); or when a sick man paces the room, however well he knows the uselessness of it.

Another case of fear, with similar actions, occurs when phenomena alter so rapidly that the mind is unable to fuse them instantly into perceptions.

So, a sudden noise, or touch, or light, or movement, is startling, until the mind fuses the phenomenon to a perception.

So, again, a sudden growth in brilliancy or loud-

ness or apparent size causes alarm. All animals are confused at coming suddenly from a lesser light to a brilliant one; or from comparative quiet to a loud noise; or at being suddenly confronted with a very large object. This lasts until the mind can fuse the phenomena.

Again, a rapid alteration in the appearance of a phenomenon is alarming. The most important of these cases are those in which the angle of vision is rapidly increased. This may take place either by the rapid approach of an object or by a change in its position. An animal rising to its feet or rearing on its hind legs is startling. I noticed not long since a kitten, whose eyes had not been open more than a day, scared and backing away from the appearance of sand thrown several feet up into the air by a small boy distant perhaps twenty feet from it. On the other hand, a rapidly approaching hawk, by its increase in apparent size, scares the birds, and indeed any rapidly approaching object scares any animal. The human infant as soon as it can notice, will blink its eyes at the approach of a hand toward them, though the hand may be at a distance of several feet. This fear of looming objects is no doubt the secret of the possibility, in flying animals, of avoiding obstacles from the first—and, indeed, at all times, since they can have no proper conception of space.

A diminution in apparent size ordinarily causes no confusion and is not disagreeable, but if sudden may alarm. The child's appreciation of the soap-bubble is of this sort. The growth of the bubble is or

may be startling, if rapid; the explosion is regularly startling; the recovery from the startled condition is pleasant and is evinced by certain overflow actions.

Finally, any phenomenon that changes too rapidly to be followed, may cause alarm. An object moving swiftly across the field of vision; a rapidly waved stick or fist; the whirling of the parts of a large machine, etc., may cause alarm.

It is to be noted that in all these cases there may be no actual repugnance to the object causing the fear. The fear is caused by the nature of the phenomenon and that of the organism. In a given case the amount of fear will be related inversely to the strength of the body-fusion and to the strength and rapidity of the fusions of perceptions; and directly to the sensitiveness to external influences.

It may be well to notice, also, that as the other instincts presuppose the Material, so they are indirectly affected by what affects it. Hence, in actual cases we may expect to find Material phenomena often accompanied by Personal and Social ones. The sorting out of these should not be of insuperable difficulty after the separate phenomena under each instinct have been identified.

The simplest action in cases of fright is that of retreat or flight. If, however, the fright be great, as in terror or panic, the actions may be those of the positive impulse, and the animal may approach the object of fear and may show the outward signs of ferocity and fury—not infrequently Personal in part.

An interesting and somewhat complicated case is

that of the moth and the flame. The moth sleeps during the day, but wakes and flies about at night. If now the moth comes suddenly into a bright glare of light, it is stricken with fear. In most cases the result is a precipitate retreat, but in many the moth is so far gone that it plunges toward the flame. Commonly, however, even in this case, it is not entirely beyond control, and between its desire to retreat and its panic leading it to advance, it circles round and round the light. Three things may then happen. Either (1) its panic increases and it plunges into the flame—usually again and again until disabled; or (2) its fear gains control, and it flies away; or (3) it grows accustomed to the light (fuses it into a perception), settles down in some shaded place, if possible, and goes to sleep as it would in the sunlight.

The cases in which animals will attack those who harm them or their homes or their stores, or who scare them, are of course innumerable and need not be gone into. The actions vary greatly and in many cases are far from being merely Material. In so far as they are not Material, they cannot, however, be treated here, but must wait the examination of the other instincts. We need only notice that in the case of man, actions springing from these sources (but with memory), have been of constant and great importance in every era of history, and are being more and more emphasized—perhaps over-emphasized—by our historians.

We have already mentioned the pleasures and displeasures of the practical material instinct. It will

be understood that the pleasures take place, after a negative impulse, when, for any cause, the impulse ceases; and that so long as the negative impulse continues, there is the feeling of displeasure.

The overflow acts of pleasure are such acts as we think of in steadiness, briskness, vivacity, exuberance, friskiness, exhilaration, and, in general, animal spirits.

The overflow acts of displeasure may be those connected with such words as fretfulness, feverishness, and the like.

THE RECOGNITION-MATERIAL INSTINCT

The Recognition-Material instinct is the Practical-Material instinct with the addition of so much memory as is implied in recognition.

An important advance made through this new form of the instinct is the increase in the extent of the Extra body. Many animals never quit the artificial Extra parts. The snail does not ordinarily leave his shell, nor the spider his den or web. Others, however, like the birds, bees, and the mammalia, go out, more or less, into adjacent territory which is quite unchanged and unassimilated to their special uses. In these cases, recognition makes it possible to spread the feeling of the Extra body over an increased space; and this occurs. As the animal grows familiar with the neighborhood, the sense of home spreads, with a power gradually lessening with distance, to include the familiar region, toward which, accordingly, the animal feels the Material relationship. Birds, thus,

for instance, often have a strong interest in the tree (and even the neighboring environs beyond it), where their nest is built. They are much aroused at the entrance of any strange object or animal into these precincts. Their feeling of disturbance increases as the nest itself is approached; and decreases as the intruder retires; at a regular distance it diminishes practically to nothing. The actual distance to which it is felt, however, would evidently be greater, namely, would include all the land over which the bird habitually wanders and from which it returns home. In some cases this means many miles of territory, of which the nest itself is the nucleus. The exhibitions of memory in such cases are the first and lowest to be observed in nature. The act itself is called homing; and the instinct, the homing instinct. It may be observed in many animals, but no cases are more striking than those of birds and bees.

The mental action is not hard to follow in theory. The impulse urging the animal to wander is most commonly the Material one of hunger. In proportion as the wandering carries the animal from the nucleus (the nest), the sense of home diminishes. If now the impulse of hunger (or whatever it may have happened to be) is satisfied, or if the animal is scared, it will retire into a more satisfactory position. But of the various objects within sight, those will offer satisfaction in which the home sense is greater than it is in its present position. Hence it will move toward them; from them it will then pass to others in which the sense of home is still stronger; and it

will thus finally arrive at the home itself, though it has not had any real thought of the journey as a whole. Mere recognition of present objects will be sufficient.

The most wonderful exhibitions of the homing instinct are the feats accomplished by the migrating instinct of birds and fish. These acts with certain others will be discussed under the Social instinct, and need only be mentioned here.

In man, the sense of home resulted in a claim to the land about his house—*i. e.*, a readiness to resent any sort of encroachment upon it as an encroachment upon him. Hence the feeling of ownership in land. It may be well to notice that such a feeling toward land, *i. e.*, the resentment of encroachment, is dependent upon the irritability of the animal and not upon the sense of home itself.

Dogs, for instance, have a clear sense of ownership of land, in the human sense; while cats, with no disposition to resent intrusion by any action, have a much stronger sense and need of home.

Beside the feeling of ownership in land, the Extra-Material home feeling in man ordinarily extends to some degree over the familiar approaches, and indeed the whole landscape in which the house lies. This may be distinctly felt by any one who, having travelled for some time, returns. The sense of home reaches its height at the house, but is plainly aroused as soon as familiar objects begin to appear. The pleasures of home, the sense of Material security, comfort, and well-being, extend over the whole region in so far as we have assimilated it.

Kentucky
Home
—
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This instinct evidently includes also the sense of location, and of roads, ways, etc.; and is the power or orientation, getting one's bearings, and the like.

It makes possible, also, such other Recognition acts as returning to food, and the storing up of honey, nuts, and other booty. In these cases the Material instinct evidently makes a sub-centre of the desired prey or booty, with a diminished feeling toward den or nest, so that when the nest-hunger is satisfied by the storing up of part of the booty, the sense of location of the rest of the booty leads back to the place where it is. This act is evidently one requiring a higher flexibility of mind than the mere homing instinct, and it is not found in all animals that home.

Other acts of the Recognition-Material instinct, such as the increase of efficiency through practice, have no special points of interest and may be passed by.

THE THOUGHT-MATERIAL INSTINCT

The Thought-Material instinct is the Material instinct with the memory power of recollection, *i. e.*, of recalling in the mind whole facts and trains of action.

The first groups of memories under this instinct are no doubt those gathered in the many experiences with objects interesting to the mind as food, clothes, tools, house, and land.

These would evidently lead to definite likes, dislikes, desires, etc., with regard to them. Hence definite appetites, definite ownership in clothes, tools, land, treasures, etc., and a definite love of

home and of familiar landscapes, roads, etc. There would arise also definite fears of dangers of many sorts.

Moreover, there would be definite methods of behavior relating to the various objects of Material interest. Purposes, intentions, and plans would, with experience, become more and more elaborated and reliable. Prudence and self-control in Material matters would also be developed.

Curiosity would, meanwhile, be continually at work, and the results of its Material investigations and experiments and inventions would be cumulative in memory.

Since, however, the interests of the instinct include nearly the whole practical life of man, the result of these labors would evidently be the coming into existence of many arts and handicrafts, *e. g.*, those of health (medicine, physiology, hygiene); those of food (herding, hunting, agriculture, weather-prophecy, and, in Society, trading); those of the house (building, with its thousand sub-divisions); those of clothes (tanning, weaving, sewing, spinning, and the like); those of tools (all the trades, together with the arts of the machinist and designer); and those of the wider home (the thousand means of travel and conveyance and road-building; the study of geography, the stars, and of the various means of orientation). In a word, practical science is the product of the Thought-Material instinct. Much even of our more abstract knowledge began thus practically. Arithmetic and the alphabet are the inventions of traders, and geome-

try of builders. The exceptions are the Social sciences, such as law and government. In these the Material instinct can have no direct interest.

As such accumulations of knowledge are reliable and are of great range, so the Material instinct is most commonly back of what is ordinarily thought of when we speak of knowledge, and of such traits as calculation, care, deliberation, circumspection, caution, prudence, providence, precaution, vigilance, and the like.

The Material impulse is evidently prominent in the business world of human society. As it is satisfied in part by storing up what it desires, it may here be called the love of money, gains, profit, riches, wealth, or treasures. It has had a chief hand in the invention and use of money, in buying and selling, bargaining, and trade generally. Its simplest acts are then characterized by economy, frugality, abstemiousness, sparingness, thrift, closeness, stinginess, miserliness, avarice, sordidness, parsimoniousness, and the like. In every-day life, men, in so far as they possess it, may also be called canny, hard-headed, crafty, or cunning. Some of these traits happen to be thought well of, others ill. The Material instinct is, of course, absolutely indifferent to Social claims and laws, except as experience may show them to be factors in its success.

The pleasures and displeasures of the Thought-Material instinct have certain names beside those mentioned under the Practical grade; and some of them had best be noted here. The pleasures may

thus be the sense of gain, affluence, opulence, and the like. The pains may have such names as the sense of need, necessity, poverty, adversity, loss, destitution, penury, and the like. We may also mention homesickness, or nostalgia, though this may exist without definite recollection. It is found, *e. g.*, very notably in the domestic cat.

In meeting obstacles, the essential inclination of the Thought-Material instinct is to accept and make the best of the situation. It is persistent and patient. In defeat it is what is called reasonable. It is never to be described as rebellious. It does not cry long over spilt milk, nor does it kick the stone it stumbled over: for it says, "How can that help the matter?"

We come now to the consideration of the Thought-Material instinct in actions that are more nearly abstract.

Its first classifications of objects are, of course, into food, clothes, tools, home, house, property, belongings, possessions, hoards, stores, roads, ways, landmarks, and the like; and into the more general classes of the useful, the useless, and the dangerous.

It likewise causes the mass of memories called the Ego, resulting, through experience, in a clear consciousness of self, with conceptions of health, sickness, and the like.

Time, space, and causation are also relations that gradually emerge. The general reliability of practical phenomena and their sequence, results in the sense of physical reliability, and in such abstractions as Material fact and truth.

Then come analysis, comparison, criticism, and like forms of mental ingenuity, resulting at last in axioms, principles, general laws, systems, methods, and the like, in objects of Material interest.

As, however, these objects are practically the whole physical universe, so the result of such investigations is the discovery of the actual order that is in the natural world, *i. e.*, of the physical sciences. This development has been a slow one, but it now, at last, covers most of the world's phenomena. Physics and chemistry, together with the special sciences of astronomy, geology, medicine, biology, meteorology, and agriculture, have very nearly covered the field.

In addition to their more evident practical field, the Extra interests of the instinct also work toward an increase in knowledge. For with the enormous increase in memory and mental flexibility comes an enormous increase in the range of the home interest. All phenomena come to be included in it, and the mind cannot rest until it is able to put itself in some definite relation to every detail. Any mystery thus comes to weigh on the Material impulse as though some danger were hidden in it. It cannot rest until it knows all about the heart of Africa; it must know every plant and animal in the world; it must invent ways of discovering the movements and materials of the most remote star; it can have no peace until it knows how the world began and how it came to be what it is. Even the abstractions of the higher mathematics and logic tempt it irresistibly—and it may be sleepless over a chess-problem. It must

relate everything to itself in some clear way. The Material instinct is thus in a very special sense the love of truth and knowledge.

On the other hand, any thought that throws it into actual confusion, arouses the sense of repugnance or fear. In Social life the most common cases of this are when some other mind moves too rapidly, or makes replies that are quite irrational from the Material point of view (as, *e. g.*, in wit). The Material mind is all at sea in such cases, and shows signs of flight or consternation. It will commonly attempt to get its bearings—*e. g.*, by reasoning over the strange remark and showing its untruthful or insufficient nature.

Again, there is a plain dislike in the Material mind toward what it cannot grasp. This dislike often shows itself in other than Material acts or thoughts, as, for instance, in contempt or rage, which are Personal. Most mature minds refuse to entertain or approach such matters. This phenomenon is a common one. Other more purely Material minds may be irresistibly attracted to them—the helpless condition being sometimes one of awe or reverence, until the mind succeeds in accustoming itself to the thought, or in escaping somehow from it.

Awe-inspiring thoughts are of two general kinds—(1) those phenomena to which the mind has no clue in experience, but which greatly affect life; and (2) those which the mind is not able to grasp. The first class may diminish with experience; the second with increased power in the mind.

Of the first we may mention the many natural events that frighten the ignorant and the savage. The ancients (like some moderns) were awe-inspired by diseases, plagues, insanity, birth, death, eclipses, comets, floods, fires, volcanic eruptions, earthquakes, etc. Of these death is now the most disagreeably puzzling and fearful. Our thought of it deserves a word.

The Material instinct, as it is satisfied (with consequent pleasure) by robust health and strength, may be called the love of life. It may also show itself as a fear of pain. There is no such elemental feeling, however, as a fear of death. This feeling is acquired partly through the puzzling nature of death and our helplessness to combat it—the mind being entirely baffled by it and yet forced to face it; and partly through the sympathetic (Social) fear inspired in many cases by the pain of those who approach it. Other influences doubtless enter in—the appearance and history of the dead body, with its stiffness, helplessness, and decay; the immense losses occasioned by it; etc. But the essence of the fear and dislike is doubtless the inability of the mind to get hold of it. What it is, we have no clue to, unless it be in the experience of falling asleep.

Of the second class of phenomena—those beyond our grasp—we may mention such sensations as those produced by large mountains, great heights and distances, great lengths of time, and the various infinities made by constant addition. These cause feelings that verge on, or may actually be, fear.

If the mind has some pleasure in them, they may be called sublime. The unimaginative mind does not feel them at all, but the feeling is sure to arise whenever the attempt is made to realize such large or infinite extensions. The mind begins the measurement, using its accustomed, thoroughly grasped units—and, more or less suddenly, finds itself unable to grasp the object to be measured. The result may be fear or a sense of oppression. If, by a tremendous effort, one can grasp the immense thought—why, the pleasure is great in proportion to the effort.

It is thus possible to escape from the sense of fear in large objects; and there is little doubt that every mature person has outgrown some of the sublimities of his youth. In the cases of infinite time and space, however, the sense of oppression cannot be thrown off by any power of grasp.

We may, finally, say a word concerning the nature of the Material instinct as it appears in Society. It has, as we have noted, no interest in other beings like itself, as such. It is therefore not to be distracted from its ends by any influence from them. Its notable traits are thus mental honesty, consistency, and thoroughness. It is essentially orderly, earnest, genuine, serious, sincere, natural, simple, grave, straightforward, open, and direct. If it is ever cautious or cunning (and it may be so, since it has no Personal or Social restraints, but may adopt any information it has of them), these are compound states of mind, deliberately invented for certain purposes.

Compound Mind

On the other hand, this instinct may be said to be the essence of such qualities of mind as selfishness, egotism, self-love, self-seeking, self-satisfaction, self-confidence. From an economic point of view it is the instinct of self-preservation. Some of these last words are used in another sense, *i. e.*, as implying and including vanity. They may exist, however, and often do exist, without a thought of self as opposed to others. They are the natural forms of the Material instinct, whose impulses are satisfied by the gain of the individual, and they act without reference to or thought of any other individual, whether better or worse. In so far as they are Material, there can be no trace of vanity or glorying in them. They may well be used with the word "higher," *e. g.*, the higher selfishness, the higher egotism, etc., as opposed to those in which vanity is the leading element. These traits are part of the make-up of every strong and efficient man—and evidently must be and should be.

Of the pleasures of the Thought-Material instinct we may here mention, in addition to those already noted—freshness, gladness, cheerfulness, sanguineness, and blithesomeness. These are to the mind what the feeling of good health is to the body. Of overflow actions of pleasure—vivacity, exuberance, exhilaration, and briskness in thought—which may be compared to animal spirits.

Of the pains we may notice—discouragement, moodiness, melancholy, and the like, with such acts as are connected with fretfulness, and feverishness of

thought, and running off in the directions of insanity, obsession, and the like.

THE IDEAL-MATERIAL INSTINCT

Emerson

The Ideal-Material instinct is the Material instinct seeking its complete satisfaction in thought. This can be attempted either in the world as it is; or by imagining it as improved; or by believing in a different world.

The attempt to satisfy the Material instinct in the actual world has been the labor of philosophy and is the end of science. It would occur if the mind itself and the external world (as a home) were thoroughly understood, *i. e.*, made orderly in thought, and freed from what cannot be grasped or thought of with satisfaction. Evidently the great problems have been (1) the discovery of order in the world, and (2) the finding of a true point of view from which we may be satisfied with the various thoughts of pain and death, and of the infinities of time and space.

It is to the first of these questions that science has so far addressed itself, meanwhile, however limiting the number of cases under the second, though without any present thought of getting rid of them all. This it has accomplished by a most careful and elaborate study of facts. Philosophy, on the other hand, has set out with the premise that the facts must be satisfactory, and has endeavored to discover merely an interpretation of whatever facts it cared to observe. It is needless to remind the reader of the curious results of this method.

As to the second question, the methods of philosophy and of vulgar belief have both been the opposite of the scientific. They have consisted, in a word, in denying the necessity or actuality of what was disagreeable and baffling.

Hence the belief in panaceas, to cure all sicknesses; in the philosopher's stone, so that none need be poor; in Edens and Golden Ages where no one was sick or suffering or had to fight or till the earth. Hence, again, the refusal to class death among the inevitable things, and the yearning stories (in all semi-civilized countries) of men who have not died—of Enochs, King Arthurs, and Wandering Jews; or of Edens, again, where there was no death; or the belief in elixirs of life and fountains of youth, to keep off even old age.

Or, on the other side, the mind has classified death among the illusions. Death is, thus, only a sleep, which it resembles. Men wake again in some land in the far West. Ulysses sailed out and found his dead friends there. Or else they live down under the earth somewhere. It is true that their bodies remain and decay, but their shades (bodily things that have often been seen), these wake and go. Or else there is to be a time when the bodies themselves (now sleeping) shall rise again. The graves shall be opened then and the sea shall give up her dead.

The mystery of birth has been treated as an illusion also. Souls existed before birth. They may have been born in this or other worlds many times. They may have been in animals formerly; and the

Reincarnation

soul, now in any animal, may formerly have been the soul of a man.

As for time and space, Kant, as we know, denied their existence, to the relief of many excellent minds.

All such beliefs are able to exist and be perpetuated (and they are ineradicable) without an atom of scientific evidence or probability, and merely through the favor of the Material instinct to which they give satisfaction.

Many philosophic systems, however, are not theoretical but practical, *i. e.*, they attempt to show how to make the most of life and gain the greatest satisfaction with the least pain. These are certain of the isms, *e. g.*, Stoicism, Epicureanism, Optimism, Pessimism, Fatalism, and so on to Vegetarianism. These make the worth of life depend upon the manner of meeting it in thought or habits.

We now turn to the dreams of our own world in a better condition.

We may mention here that realized dream of many minds, the modern comforts of civilization.

More important, however, because free from practical ideas, are the lovely dreams of the artists, shaping the world to their hearts' desires, putting into music, painting, or words the light that never was on sea or land. These, so far as they are representations of nature, more characteristic than nature herself, and giving us an idea of her homelikeness and quietness and security and fulness of life beyond what facts can give, are to be ascribed to the

Ideal-Material instinct, which, as it is the love of home, so is also the love of nature.

Finally, we have to consider the satisfaction of the Material instinct through religion, *i. e.*, the belief in a different world from the scientific one. We shall discuss Christianity only.

In the first place, it satisfies the Material desire for causation by supposing the world to have been created by a God, to satisfy some desire of his. This belief is not Material except in so far as it makes God a cause. Some of his endowments, however, are Material. The perfections or lack of hinderances that man desires are imputed to him, *e. g.*, omniscience, omnipotence, omnipresence, infinity, immutability, immortality (or rather sempiternity). He is not subject to the laws of nature, but is supernatural. The supposed unity of nature is due to him. It contains an orderly purpose of his. We do not, therefore, have to fathom nature in detail. We trust, and feel at home in it.

The difficulties of infinite space and time have the edge taken from them by the equal infinity in space and time, of God. The problem of death is met by the faith in the resurrection of the body. That of birth is not specifically met.

The problem of sufferings, disappointments, etc., is met by the conception of the other world into which man shall be ushered hereafter, *i. e.*, at the resurrection. It is to have none of the drawbacks of the present world. "They shall hunger no more, neither thirst any more, neither shall the sun light on them,

nor any heat. . . . And there shall be no more death, etc." It is to be our home.

This present life is admitted to be bad; but it is balanced off by the other life in some definite way, *e. g.*, the more suffering in this world, the more joy in that. Besides, the mystery of suffering and pain has a solution which we shall know; and not only that mystery, but all knowledge will be open to us there.

It will be noticed that in the Christian system all the simple impulses of the Material instinct are met and satisfied (though not always clearly) in thought. Its appeal to that side of our nature is almost complete, and men's belief in this part of the Christian religious system rests undoubtedly in part upon that fact.

CHAPTER VIII

THE PERSONAL INSTINCT

THE Personal instinct is the impulse and influence and power of a mind as related to one other mind of the same species as itself. It would be satisfied by a union with the other, part for part, the individuality of each unit being lost in the union. From the nature of such a union, it is clear that the Personal impulse can be made definite only by an influence that affects ultimately every part of the organism, each part being influenced to leave the unit in which it is, and to seek out and unite with a corresponding part in some other unit. It stands in an essential hostility to the Material impulse, for the Material impulse creates and perfects the organism, while the Personal tends to destroy the organism.

THE CELL-PERSONAL INSTINCT

The Cell-Personal instinct is the Personal instinct as found in the single cell. Each cell of the human body thus feels the Personal impulse. The body, however, has become so specialized that in most cells the impulse is comparatively weak, with the

result that the Material body-fusion is not destroyed, and the Personal satisfaction of the cells remains forever unsatisfied. In certain cells, however, the Personal impulse at maturity is stronger than the Material. These accordingly are not held or controlled by the body-fusion, but after multiplying and developing become independent of the Material body, and finally are expelled from it and go off in search of their Personal mates. When such mates find each other, they unite part for part—*i. e.*, the nucleus of the one with the nucleus of the other and the cell-body of the one with the cell-body of the other—the result being thus a single large cell with one nucleus and one cell-body. Cells thus leaving the body may be called sex cells. More specifically they are the spermatozoa and the ova.

Of what occurs psychologically in these cases, the human mind can of course know nothing directly, since the uniting cells have ceased to be part of it. It seems clear, however, that the wandering of the cells is caused by the unsatisfied Personal impulse; that the impulse is made definite on the near approach of the mates; that the Personal impulse then quite overpowers the Material in the cells, so that both cells break up, each molecule seeking the corresponding molecule in the mate; and that, finally, a new Material instinct arises and shapes the molecules into a new cell in which the Personal impulse is far more nearly satisfied, and, therefore, weak. Such cells might be—and are—strongly Material and Social.

THE BODY-PERSONAL INSTINCT

The Body-Personal instinct is the Personal instinct as it is influential in the body unit. It must here be considered apart from the relations of the body with the external world.

We have spoken elsewhere of the priority of the Material instinct. It alone creates the body. It is, however, subject to the influences of the other instincts, and the cases in which some bodily detail is a compromise between the Material and one of the other instincts are not rare. Before attempting to distinguish those in which the Personal instinct has been influential, it may be well to say a preliminary word of the nature and sphere of this instinct.

The Personal instinct would be satisfied if the body united, cell by cell, with some other suitable similar body. This act, however, does not occur, nor does anything much like it occur. The tendency merely is present. Thus the Personal instinct is, in the end, fruitless. It is a tremendous influence, for it is very strong; but the Material instinct, being stronger, thwarts its fruition. Moreover, it should be noted that while the Personal impulses (since they tend to a disruption of the body-unit) stand in opposition to the Material, the Social, on the other hand, stand in no opposition, but are a repetition of the Material. The result of this, as we shall see, is that the Material and Social instincts are responsible for everything that is constructive in life; while the Personal has nothing at all of the sort to its credit, but remains a

mere influence, always unsatisfied, and always working more or less at cross-purposes with the Material and Social progress of the world, which on its side is eternally compromising and being influenced along Personal lines. It was therefore a question whether it would not have been best to consider the Social instinct in advance of the Personal, and so to have mapped out the constructive facts before treating of any merely influential forces; and, having finally decided upon the opposite course, we shall have to ask the reader to accept in advance certain conclusions, the evidence for which will not appear in full until later. We shall have to ask him, namely, to accept, provisionally, the statement that reproduction, with which the Personal instinct is so intimately associated, is in all its essential details Social. The production of ova and spermatozoa, together with all the organs of copulation, gestation, etc., are Social and not Personal phenomena: here, as elsewhere, the Personal instinct is an influence; it is not a creator. With this clearly remembered, however, the nature of the Personal instinct should take definite shape as we proceed.

In general, it may be said that the Body-Personal results in compromise growths or forms that are of no Material or Social use to the organism. The discovery of such growths and forms is not difficult; the complete enumeration of them, however, is probably impossible. If, for instance, we compare young animals with mature ones, it is still to be remembered that although the Personal impulse is

weaker in the young, it is still not entirely absent; and that maturity is not to be thought of as being merely Personal, but quite as much as being also Material and Social. If, on the other hand, we compare males with females, it is still true that the differences between them are quite as often Social as Personal; and, moreover, that the Personal impulse exists in both. If, again, we compare the normal animal with the gelded or splayed one, the result is still not perfect, since the Personal instinct exists in all the cells of the body and not merely in the sex-glands. The test of Material and Social usefulness is also only partially fruitful, since the Personal influence is certainly very often effective without apparent harm to the efficiency of these instincts.

The profound nature of the Personal influence is perhaps best made evident by comparing young or gelded or splayed animals with normal mature ones. The plain differences here observed in size, form, voice, and taste of flesh, are certainly in large part Personal and indicate that the instinct is influential in every detail of organic growth. The difference in taste of flesh seems a peculiarly striking proof of this.

Nevertheless, although the Body-Personal impulse is pretty certainly influential in every detail, it is distinctly weaker within the body than the Material and Social forces, and its tendencies are in almost every part so nearly overruled that it may be said to have affected little else than the size, shape, and taste of the part. Indeed, the only bodily details I have been able to discover which seem to be due to a pre-

ponderance of this impulse are the glands that secrete semen or other odoriferous fluids. These seem clearly Personal, and are not only regularly situated close to the sex-glands (the most strongly Personal parts of the body, although even in them the Social element is strongest), but they are regularly active when the Personal impulse is aroused, either momentarily or, more continuously, during the rutting season.

A similarly characteristic influence is found in plants. The flower—a peculiar growth formed by a shortening of the plant's stem and a changing of the shapes of the leaves until they are hardly recognizable as leaves—is in its essential details of Social origin. The reproductive parts, *i. e.*, the pistil and stamen, are here as elsewhere Social. Nevertheless, here as elsewhere, these parts are strongly Personal, and the adjacent parts often show leaf changes extraordinary in respect of size, shape, and coloring; and there are very commonly, with them, flower-glands that produce nectar and perfume. Fruits, moreover, are often bright-colored or fragrant or sweet. The Personal instinct tends somehow in the direction of special colors, shapes, tastes, and perfumes; and it is curious to note how these are often attractive in what may be called an abstract or general sense, *i. e.*, they seem so to all life.¹ (Among animals the skunk is a striking exception.)

¹ Of course, the economic value of color, size, nectar, and perfume in flowers and fruits is a question of quite a different nature from that under consideration. The birds and insects seem plainly re-

THE EXTRA-PERSONAL INSTINCT

The Extra-Personal instinct is the Body-Personal as influencing the Extra body. Among the animals this influence is very striking and results in curious growths and colorations of unnumbered sorts—all useless Materially and Socially. In man we may notice the bony protuberances over the eyes and at the back of the skull (in males) and the beard. In other animals, there may be horns, manes, beards, dewlaps, gorgeous or large feathers, crests, wattles, spurs, colored skins, brilliant scales, or such curious growths as are found in insects and notably in beetles. Many of these are found only in males (in whom the Personal instinct is usually stronger), but if the females (as in certain birds, *e. g.*, the phalaropes) have an equally strong or a stronger Personal instinct, they may appear only in them. Not infrequently, however, they are found in both sexes. The connection of them with the Personal instinct is seen plainly in those animals in whom sex is strong during only part of the year and who change their Extra parts accordingly. Many animals and birds have special garbs during the mating season, and these are always more brilliant than those worn during the rest of the year. Moreover, there is often a striking difference between the garbs of the males, and those of the comparatively sexless females or young.

sponsible for the survival of many of our flowers and fruits, and they have selected according to developments in color, taste, etc. We are considering, however, the origin of these things—a problem quite different from the economic one.

Not all Extra-Personal parts are formed and cast away with the rutting season. The bull, for instance, keeps his horns. But in cases like that of the moose, with his enormous horns to be remade each year, the cost to the organism must be very great, and it is said that some animals die of the strain.

Of the cases of the influence of the Personal instinct on the home, not many have come to my notice. The bower of the bower-bird is most noticeable, but many birds have peculiarities in nest-building. The use of bright strings and bits of paper, of cast snake-skins (by the great crested fly-catcher), of green twigs and leaves (by some hawks), and of lichens (by a number of birds) may be of Personal origin. Such cases we should call, as in the similar Material ones, repetitions of the cases in the feathers, etc., of these birds.

In man, the repetitions are numerous. The painting and tattooing of the skin, and the wearing of feathers, beads, and other brilliantly colored or curiously shaped clothes are Extra-Personal. These often entail serious Material pain or inconvenience, as, for instance, in the tattooing mentioned, in piercing the ears, lips, or nose, in wearing corsets, high-heeled or small shoes, and the like. Again, there are the adorning of tools—of arrows, bows, pipes, etc.; the decoration of houses, with all the beauty and gaudiness of architecture; and the adorning of gardens with flowers, lawns, ornamental walks, bowers, trees, and, it may be, statuary. All these are Personal repetitions—or may be, for they are often Personally

characterless, and the product of mere Social imitation.¹ All are Materially useless and costly, but give keen pleasure, often (as in the cases of gems and gold and laces) in direct proportion to the Material sacrifices they demand.

We notice here, also, in man, the ornamentation, perfuming, and care of hair and dress, that occur during the time of courtship and not otherwise. This is a precise repetition of the special garbs of some of the lower animals.

THE PRACTICAL-PERSONAL INSTINCT

The Practical-Personal instinct is the Body-Personal instinct in its relations to external objects. The external object of the Personal instinct is some other organism like its own. Its satisfaction would be a union with the other organism, part for part, to the loss of both individualities. Such unions do not take place in organisms of more than one cell. The Personal instinct is thus never completely satisfied in the multicellular organisms. Partial satisfaction, however, is possible, and the instinct is plainly present, and shows itself in actions tending to this.

It may be well to mark out more definitely the field of this instinct.

In the first place, the Practical-Personal instinct is an impulse in one multicellular organism toward or from another organism of the same degree of

¹ Traces of this impulse may be found in animals, as when the dog or cat likes a collar or bright ribbon, or when a horse likes a new or bright harness.

complexity. It thus decides some of the relationships of animals to each other, and is sharply differentiated from the Material instinct, which is an impulse in one grade toward or away from units of a lower grade. Thus, from the Material point of view, a man regards his fellow-men as prey, or as a part of the environment; from the Personal point of view, on the other hand, they are liked or disliked as persons.

Secondly, the Practical-Personal instinct is marked by its absolutely narrow range. It exists between two individuals and no more. The man who desires from this instinct desires one man or woman for his or her self. No one else and no thing else is in any way concerned. This does not mean that the impulse is not felt toward, and the influence from, all men and women; it is felt with regard to all, but they are and must be taken one at a time. It is thus sharply differentiated from the Social instinct, which regards groups, and makes no personal distinctions.

Thirdly, if the Practical-Personal instinct could be satisfied, the result would be a union of two individuals into a single individual of twice the normal size but otherwise like the original individuals. The Social instinct, on the other hand, tends toward a unit of a higher grade—one, namely, in which the uniting individuals should preserve their individuality and be the component parts of the new and larger unit. The Social instinct is thus a tendency to commonness and unitedness of impulses and actions. Its characteristic psychological phenomena are co-

operation and sympathy. It should be kept quite clear that the Personal instinct is an impulse to a direct and complete union; that it is not sympathy and that it knows nothing of sympathy. It has no care whatever about its object's condition or frame of mind. Thus, when a lover sympathizes with his lady, he is exhibiting, for the moment, not love but self-restraint and goodness. The unadulterated Personal instinct considers absolutely nothing but its own gratification, and that gratification in no way implies a sympathy with others. This point must be made with some emphasis, because the element of sympathy enters into almost all actual human relations and therefore into the thought we have when these relations are named. When, therefore, we shall call the Personal impulse the impulse of friendliness, the reader must be on his guard against the implication of sympathy in that word. In so far as friendship is sympathy, it is Social; in so far as it is affection between two distinct individuals, it is Personal. If this distinction is not clearly made out and kept in mind, serious confusion is sure to follow. Attention will not be called to it, however, at every point; the reader must himself make the necessary reservations.

The Personal instinct in its positive forms may have the names attachment, affection, fondness, friendliness, amicableness, amorousness, concupiscence, love, lust, and the like.

Its negative forms may be antipathy, repugnance, dislike, detestation, hate, enmity, and the like.

In its broadest sense the Personal instinct is often called sex, though this word includes both more and less than what we mean by Personality. It is also the gift or talent for friendship. And as the Material instinct is roughly and inaccurately what in common parlance is called the mind, so the Personal is in common parlance the heart, or the human side of character.

Men possessing it to a large extent are called masculine, manly, virile, and the like; to a less extent, cold, emasculate, effeminate, and the like. Women, from this point of view, may be womanly, feminine, maidenly, etc.; or they may be cold, masculine, etc. (These words, however, commonly imply reproductive capacities, and in so far are Social.) Such adjectives also as susceptible, warm, voluptuous, and the like are used of it.

The Personal impulse has as its locus all the cells of the body. It is aroused to interest and curiosity, and is finally made definite, by influences received from another individual. These influences may be through light, heat, sound, pressure, or odor, and are received through the ordinary senses, to be fused later into percepts.

Bright colors and strange shapes may also arouse its attention and curiosity, even though the influential object is inanimate—as when a butterfly is attracted by a bright-colored paper or rag.

The influential qualities in the object of desire or dislike are regularly those caused or influenced by the Personal instinct. Thus horns, manes, beards, high-

ly colored skin, hair, feathers, and the like, are all Personally influential. So are all Personal acts, *i. e.*, actions affected or caused by the Personal instinct. This is according to our axiom that the influence of an impulse is such as to make definite the corresponding impulse in a suitable other unit. It is to be noted, here as elsewhere, that this axiom works directly and immediately, and not through reasoning or definite desire. Personal characteristics arouse liking and dislike whether their possessor wills it or not, and whether the influenced individual reasons or not.

All the higher species of multicellular animals have separated into two distinct sorts (called sexes), partly according to their difference in Personal traits; and as the Personal impulse is, as we have seen elsewhere, a sort of general hunger of the body, it turns out that this unlikeness of the sexes is the field of the most striking display of the instinct. Indeed, in the lower animals there seems to be no other evidence of its existence than this attraction between the sexes, which seems to take place regularly, *i. e.*, any male will be attracted to any female. In these cases, it may be said, simply, that the Personal instinct of the male is made definite by the Personal traits of the female and vice versa.

But in the higher animals, although the same rule remains, in general, true, the situation becomes much more complex. Not all females will accept all males, nor are all males attracted by all females. Moreover, the attraction appears also as taking place

between individuals of the same sex. It is then no longer easy to make a satisfactory classification of those who shall be mutually attractive, though there is doubtless some fairly constant basis for attractiveness, and this may some day be discovered.

It has already been stated that the Personal impulse is an attraction of every part of one individual to the corresponding part of another individual. The mental condition corresponding to this cannot be observed except in reasoning man, but there it is striking. The mind itself is, of course, conscious of no parts, for it fuses the sensations into a percept. Nevertheless its consciousness of attractiveness in its object, part by part, is clearly evident. Thus the lover feels affection for every detail of the beloved, and it is one of the regular delights of such a one to go over these amiable perfections.

No other human being, for instance, has such lovable hair, eyes, cheeks, ears, arms, hands, feet, ankles; such a nose, mouth, chin, or neck, such dimples; such a warmth and fragrance of body; such texture of hair and skin; such beauty or attractiveness of shoes, hats, gowns, etc.; such modulations of voice; such grace of motion. There may be no detail, bodily or Extra bodily or of thought, that is not found to be lovable and unique. Ordinarily, friendship does not trouble itself to make the lover's analysis, nevertheless the situation is essentially the same. The friend likes his friend as he is, and does not for an instant confuse him with any one else, and this implies the attractiveness in

the details. It is this keenly Personal nature of the instinct that is its psychological essence, and it marks it off absolutely from the Social instinct, which regards its object specifically, *i. e.*, as one of many similarly attractive individuals. The Personal lover says as the height of his protestation, "There is nobody else in the world like you;" the Social says, "Write me as one who loves his fellow men."

In human beings this entire attractiveness of the Personal object, if it occurs, is likely to be in part a deceived satisfaction. The attractiveness of certain traits makes definite the Personal impulse, whereupon every detail of the object seems charming. If, however, the impulse is not too strong, as often in friendship and not infrequently in love, the imperfections may be fairly admitted and the Personal impulse still remain. The special traits chiefly arousing the Personal impulse in man are said to vary much in different individuals. Some men seem to fall in love chiefly with hair, others with lips, others with eyes; or it may be a movement of neck or of hip or of ankle; or, like Cinderella's prince, men may be attracted by a cast-off shoe or glove. In short, the instinct in man seems decidedly freakish in what it finds inspiring. This is perhaps to be explained as caused by the concealment (by human clothing) of the more essentially Personal parts.

Finally, the Personal instinct is not strictly limited to the relations of individuals of one species. Dogs and cats and horses and chickens often feel friendship toward one another, and cases of actual sex relations

between animals of different species are not rare. This latter relation, however, is regularly a case of what we have called deceived satisfaction, and takes place in the absence of a suitable mate. It may be noted, under this general head, that men of Personal force regularly arouse friendship in the lower animals, and are attracted toward them in turn.

We now turn to the actions of the Personal instinct. The special actions of the Personal instinct are brought about by the influence of that instinct upon the Material movements of the body. (Compare the Personal influence on the form of the body.) The Material movements are thus checked or changed and the resultant actions often resemble very little any purely Material acts. They are, besides, of no possible Material advantage to the organism, but tend to bring about the satisfaction of the Personal.

The Personal instinct exists, of course, like the others, in advance of all experience. If it grows to a sufficient strength of impulse, the result may be restlessness and aimless wandering. It brings about, however, at the same time, many special acts, differing in different species. Such are pawing or scraping the ground or rolling upon it; walking or strutting or flying in characteristic and eccentric ways; shaking the head, waving the tail; urinating against or scratching landmarks; singing, barking, bellowing, or the making of such sounds as we hear from the insects. From the Material point of view, the animals seem oftentimes stark mad; but, as in the case of the phenomena of the Body-Personal impulse, a

real attractiveness in these acts is most commonly felt by man's Personal side.

If the Personal impulse be very strong, whether in the presence of its object or not, the inherent conflict between it and the Material instinct may be even more strikingly evident, and the resultant state may have a plain resemblance to the negative Material state of fear. The heart beats wildly or irregularly; the skin flushes or grows "pale and wan;" the lungs work convulsively (called panting or sighing); the brain is confused and fails to act as a unit; the muscles grow weak; the body trembles and experiences shivers or thrills; fainting or even death may result. Faintness, languor, lassitude, and the like, together with hysteria and nervous yawning, are also some of the characteristic phenomena, and may show the greater or less force of the instinct. These, it will be noted, are all signs of partial disintegrations of the Material fusion of the body, and they may annul all the ordinary Personal movements. They differ from the corresponding states of Material fear in that they are eager, and may be accompanied by a feeling of partial pleasure rather than by one of unmixed pain. The situation is plainly comparable to that of the unicellular sex cells when they give up their individual existences and join to form a single larger cell. In both cases the Personal tends to work the disintegration of the Material.

The Personal instinct, as we have said, may be made definite by influences from a suitable other individual. The resultant action is then an approach

and an attempt to unite part for part with the desired mate. This attempted union is chiefly between the more sensitive parts of the body. It commonly begins with the touching of heads, or of mouths (kissing or licking), the pressing together of cheeks (in man, also the holding of hands). This is regularly followed by a pressing together of the bodies (in man, a hug or embrace). The final and highest degree of the impulse is accompanied by a meeting of the specially sexual parts. There may then follow an emission of free sex-cells with a feeling of Personal satisfaction and a lessening of the Personal impulse or desire. All these actions are characteristically different in different species of animals, and are regularly performed without the necessity of previous experience or practice. They require, in many cases, the use of special muscles almost or quite out of the influence of the ordinary Material control, though the expulsion of free sex-cells is distinctly Material in nature.

It is now our duty to attempt an analysis of the Personal instinct where it touches reproduction. Reproduction is distinctly not Personal but is Social. Even the emission of free sex-cells is not Personal, but is (perhaps) wholly Material. It is for this reason that it is not wise to call the Personal instinct the sexual. The division of animals into sexes is quite as much a reproductive arrangement as it is a love arrangement, as Darwin, by the way, found when he came to discuss sexual selection. If the situation is to be cleared up, the elements that are Personal must be kept clearly distinct from those that

are Material and Social, though, at the same time, it must not be supposed that several instincts may not join in one act. That they may and do, is one of the axioms of character. Nevertheless, although they join, each one produces its own characteristic effects and no others.

We propose, then, a theory of the psychological side of coition.

The type form of Personal action is, as we have seen, the mutual seeking and uniting of the two sex-cells, as in unicellular animals and plants, and, in the course of reproduction, in all higher animals and plants. There is, therefore, nothing creative in the Personal instinct. It is a seeking out and a uniting with, and nothing more.

The production of sex-cells (ova and spermatozoa) is therefore not Personal but Material-Social, for it is the Material instinct that produces the cells of the body, and the Social, as we shall see, that influences to the overproduction of them. These cells, however, being superfluous and also overwhelmingly Personal, are not and cannot be contained in the body unit, but at maturity are cast forth (Materially) and wander to find their mates.

We suppose, then, that, at the moment of leaving, their Personal impulse (the cells being at last mature) would be at its very strongest, and that, through the body sympathy, it would arouse the Personal impulse in all the other cells of the body. It is plain that in this way it might come about that, in proportion as the sex-cells matured, the whole body would

be increasingly aroused Personally, and that at the approach of the actual moment of the departure, the cells of the body might rise to a sort of spasm of Personal excitation. After the departure, however, there would be a distinct collapse of the Personal impulse and thus also of those conditions caused by their Personal influence on the Material conditions of the body.¹

From this point of view the behavior of the higher organisms may be made clear. The organism has, itself, a Personal instinct, which is a repetition of the instinct of its sex-cells, *i. e.*, if the cells are male the organism is male, and, similarly, female sex-cells are found in the female organism. This, indeed, is the result of the influence of these cells in the Body-Personal unit. If, now, the sex-cells are preparing to go free and in search of their mates, their strong Personal impulse will arouse, through sympathy, the Personal impulse of the organism, which, then, will seek a mate for itself and will attempt the fruitless task of uniting with it, part for part. Thus the moment of the emission of the free sex-cells will be the moment of the height of Personal impulse in the body.

On the other hand, the Personal impulse of the body unit may be made definite by influences from a suitable other organism, and may attempt the impossible union, and this strengthening of the Per-

¹ Hence, also, perhaps, the quick fading and falling of the flower-petals (Material with Personal influence) after the partial satisfaction of the Personal impulse in anthers and ovaries.

sonal impulse may induce in the sex-cells a greater vigor and so determine the time of their emission.

Thus the Personal impulse of the sex-cells and that of the body aid each other and determine each other, within limits, mutually. All the while, however, the Personal impulse is the uniting force merely, and not the reproductive one. ✕

The primitive and unmixed form of copulation is, accordingly, that of the fish and the frogs and toads. Here the parents lie close to each other and both emit sex-cells (ova and sperm) which then find each other and unite Personally (a real union) in the neighboring water. In this and all other unions (according to our position), it is to be kept clear that the only interest of the parents is in each other. The emission of sex-cells, though causing or determined by Personal excitation, is not in any way an essential part of the Personal act, and as for the union of such emitted sex-cells with each other, the Personal instinct of the parents has no interest in it of any sort. If the parents (one or both of them) have an interest in the offspring—as some frogs and fish have—this is no longer the Personal instinct, but the Social, and is a very different matter. Hence we defer to our next chapter the consideration of all the arrangements made to insure the meeting of the sex-cells and their preservation thereafter until maturity.

The influence of the sex-glands upon the Personal instinct is, as appears above, very considerable. It may fairly be called the focus of the instinct. If this focus is strong, as in most male animals, the impulse

of the body as a whole is likely to be strong, and may be made definite by even a slight influence from another individual. If the focus is weaker, as in most females, the impulse is less easily made definite and the influence must be more powerful. Hence males are in general satisfied with any mate, and if the suitable mate is not forthcoming, may attempt a deceived satisfaction even with mates of another species. Females, on the other hand, are commonly more reluctant—though it must be noted that the Social reproductive impulses of the female are in no way essentially inconsistent with strong Personal instincts.

It is evident that there may be two sorts of Personal experiences, according to the source of the chief influence. If the instinct is strongly aroused by the sex focus, a very slightly attractive influence may make it definite. If, then, the power of the sex focus falls (after coition), the lack of attractiveness in the object of desire may become evident, and the feeling toward it may be even that of repulsion. This form of the instinct, as dependent almost entirely on the sex focus, is called lust.

If, on the other hand, the body instinct is first made definite, and is made so by the influence of an external object, and that definite impulse spread to and arouse the sex-glands to sympathetic vigor, the situation is quite different. For, then, if the power of the sex focus falls through coition, the desire of the body as a whole will not grow much less, since the whole body was much aroused by the sex focus

and much of this remains. This form of the instinct is called love. It evidently cannot be satisfied so long as its object continues to be attractive.

Lust and love are thus hardly to be distinguished before sexual gratification. For impulses, as we have frequently noticed, are quite unconscious and impossible of analysis or examination except through experiences. It is the confusion of these two forms of the Personal impulse, together with an utterly erroneous conception of marriage, that, as much as anything, has brought about so many mistaken human alliances.

Friendship, attachment, liking, and the like, being cases in which sex is out of the question, either because of the bars of society, or because of the identity in sex of the two individuals, or for any other cause, are plainly related more closely to love than to lust. They may exist when the sex-glands are quite absent, as between oxen or gelded horses. Nevertheless, they may and do take on a sexual cast even between individuals of the same sex. Hence certain vices, found both in the lower animals and in man. The negative forms may be called dislike, repugnance, and the like.

Personal fear, with its behavior like a negative Personal impulse, takes place in situations analogous to those in which Material fear is seen to occur. It arises, namely, when the Personal impulse is overwhelmed by the Personal influence from some other individual, and is therefore unable to fuse the sensation or to respond without confusion. This over-

whelming may be of two sorts: either a positive impulse may overwhelm a positive or negative one (as in coyness, shyness, bashfulness, diffidence, sheepishness, embarrassment, and the like, with such actions as blushing, flushing, simpering, giggling, and other marks of confusion); or a negative may overwhelm a negative or a positive one (as in Personal timidity, cowardice, pusillanimity, and the like with such actions, perhaps, as whining, cringing, and the like). In either case the inability to respond may finally result in a state of panic or fear (Material) with the ordinary acts of flight or wild attack.

We turn now to the acts of the negative impulse.

The negative Personal impulse may take the forms of antipathy, dislike, repulsion, and the like, and may result in a mere avoidance and retreat from its object.

Frequently, however, the feeling is much stronger, when it may be called detestation, enmity, hate, antagonism, hostility, and the like. In these cases the negative impulse may be, and very often is, so strong as to result in an advance upon the object of dislike, the actions being, in general, those of the positive Personal impulse. We take the same position here as in the case of the strong negative Material impulse, namely, that negative acts of attack must be explained as derived from positive acts, the extreme negative behaving like the positive.

It may be well to consider this matter more fully.

In the first place, when an animal attacks another from Personal rage, it is not to be supposed that he has any distinct idea or thought of doing harm. It

is not to be believed that he has any thought of what harm or pain or death are. What he does is to make a wild rush at the object of his negative impulse. The harm done is, in a sense, accidental.

In the next place, it is to be noticed that the actions of animals in attack are not calculated, but are characteristic of the animal in question. We note, for instance, that animals that lock horns and hook with the horns seem to have little knowledge of the use they are making or might make of these apparent weapons. Their attacks are not to be thought of as in any way comparable to the trained fighting of duellists, though our nature-writers like to make them seem so. There is a regular, definite, stupid method of attack, for it is not really an attack but is a rush toward an object from which retreat would be the normal course.

It may be well to notice at this point that the purpose of horns (undoubtedly Personal in origin) has never been satisfactorily explained from the point of view that they are efficient weapons. All animals attack head first, and their horns, if they have any, thus come into play, but the economy of the horns is not therefore made clear. In goats, for instance, and rams, they are of no real use, and these are not uncommon cases. In the moose and most deer they are often as bad as useless, being cumbersome and in the way; these animals are, indeed, some of them, said to be more dangerous with their feet than with their horns. The case of the barn-yard bull where the horns are really fit and dangerous, is an uncom-

mon one. If natural selection had taken place according to the efficiency of horns as weapons, this would not be the case. It is to be recollected also, that Personal fear is caused by Personal influences and not by bodily harm done; the latter causes Material fear, not Personal. So far as sexual selection enters into the question of the forms of horns, spurs, and the like, it probably enters in, at least in considerable part, upon a Personal basis, *i. e.*, these so-called weapons are chosen according to the influence they exert, *i. e.*, according to the strength of Personal instinct they exhibit to rivals and to females. Such strength, however, is in no way connected with mere physical strength or skill; though, when put to the test, the physical side, of course, enters in. In a word, horns, spurs, and the like, are probably to be considered as primarily sexual ornaments and influences, and only secondarily and through natural selection, as weapons. It is thus by a kind of chance that they become weapons, although, being used so, they come, of course, more or less within the range of Material selection.

It is to be noticed further that the attacks of animals are all essentially alike and all essentially the acts of the positive Personal instinct. There is, namely, first a union of heads, then of the whole body, part for part. Dogs, for instance, regularly seize their opponents by the neck, and do not attempt to bite them in other parts even though the opportunity is open and evident. (When a dog bites another in the foot, as happens not infrequently, it is an acci-

dent.) After rushing his opponent, the dog, if successful, regularly stands over him, worrying him about the head and neck. So, also, the horned animals stand over the defeated adversaries, stamp on them and worry or horn them, head to head. Notice, on the other hand, the behavior of the fighting cock, which regularly seizes its opponent by the comb and then jumps up at it with its feet. The act is essentially the act of the cock toward the hen. Moreover, the attacks of the negative impulse are regularly preceded by evolutions comparable to the evolutions of the positive impulse, the voice being also regularly used.

The differences between the attack and the sexual approach, however, are apparent, and must be explained. This can hardly be attempted now for lack of suitable material, but certain considerations may be offered. In the first place, the negative attack is commonly complicated by a relation of the opponents to each other as obstacles. Each may be an obstacle to the other. The advance upon an obstacle, however, may be not negative but positive, for it may be directed really to something behind the obstacle. The human mind in its fighting almost always has this thought as part of its contents. In the second place, the excitement of the negative impulse when it reaches the point of attack is very great, probably far greater than in any ordinary positive excitement of sex. The harm done in an attack is no doubt due in part to this convulsive nervous state. In the third place, there can be little doubt that, in

the actual clinch, Material fear comes in as a strong factor and often causes much of the harm done by one antagonist to the other. The fighting of cats, for instance, is apparently in large part Material panic. In the higher animals also, where memory is lively, the Material element may be important and may determine certain actions even before the clinch. One of the antagonists may be Materially cautious or may even run away because of Material fear aroused by memory.

It is evident that the state of mind in the Personal attack is not a simple matter. The above considerations are therefore to be taken at their value as suggestions. A much more elaborate examination of the phenomena (and they are not easy of examination) must be made before any definite settlement of the cases can be made.

It may now be well to run over the ordinary cases of Personal relation arising between individuals. There are six of these.

1. If the Personal impulse is mutual and positive, the course of events is clear of obstacles. Love and friendship proceed simply and regularly—unless the impulse is so strong as to result in mutual avoidance (shyness), as sometimes occurs in man.

2. More commonly a positive impulse in the suitor finds a weaker positive in the mate. In this case the stronger impulse overwhelms the weaker and so causes the form of fear called coyness or embarrassment. The mate therefore flees, or at least resists, resistance being a form of flight in that

it is an attempt to put space between mate and suitor; the mate may even attack the suitor.

In this case the suitor may act in either of two ways: On the one hand, he may attempt to overcome the resistance of the mate by sheer force. This method is a common one among the animals, especially among those that are polygamous. The suitor in such cases advances upon the mate, pushes and beats her about, if necessary, until he secures his desire. Thus the cock stands upon no ceremony with an unwilling hen, and similar treatment, apparently, is not infrequent among our English sparrows. Such actions, being positively Personal in origin, are commonly influential in arousing the positive Personal impulse in the mate to the point where she yields willingly. If, for some reason, she fails to yield, serious harm may be done her. Darwin¹ quotes the following as to seals: "Frequently a struggle ensues between two males for the possession of the same female, and both, seizing her at once, pull her in two or terribly lacerate her with their teeth." That is rough wooing, and a hard penalty to be paid (apparently) for seeming reluctance in the female. In man, as is well known, one of the common methods of wooing is the violent one, and it undoubtedly succeeds in many cases in arousing stronger affection in the mate.

It is to be noted that the same method may exist also in the case of friendship. A man may be intrusive, pushing, hectoring, or bullying, toward a

¹ "Descent of Man," Vol. II, p. 258.

friend whom he likes but who likes him less, and this treatment may strengthen friendship.

The other method of behavior occurs in those cases in which the suitor is less fierce. The suitor then retreats for the moment but soon attempts another approach. In these cases the suitor, while at a distance from the mate, goes through the various preliminary Personal actions, commonly called courtship. These acts have already been noted. They are such acts as pawing or scraping the ground, walking or strutting or flying in characteristic ways, shaking the head, waving the tail, bellowing, singing, and the like. They are sometimes explained as arising out of an intent to persuade the reluctant mate, but such an explanation goes beyond the evidence. The male may perform the same acts whenever the Personal impulse is aroused, even though the desired object is quite absent. Birds, for instance, will sing when they have no mates nor any prospect or remembrance of any, and a similar statement may be made of most other animals. Hence we have put the acts of courtship among the preliminary acts of the Personal instinct.

The more serious objection to the courtship theory, however, is the one against the introduction of purpose into the minds of the lower animals. Purpose implies memory and reason, and if we are to advance to a secure position, must be rigidly and absolutely excluded where those mental powers are not proved in the actual case under discussion. Now the courting of the lower animals requires no experience.

Therefore it includes no memory or reason; it is therefore without purpose. It is the inevitable act of the mind under the stress of the Personal impulse.

Nevertheless, the acts of courtship, since they are Personal in origin, have a Personal influence, and undoubtedly have weight in persuading the reluctant mate. It may be noted, in this connection, also, that even in the case of man, the winning of love and friendship depends very little upon purpose and reason. The strongly Personal type of man arouses love and hate, and makes friends and enemies, quite unconsciously and inevitably, wherever he goes; and similarly the strongly Personal woman, girl, or child.

While the movements of courtship are proceeding, the suitor constantly approaches the mate, and if the impulse grows stronger may make an attempt to overcome reluctance by a physical attack.

In man courtship shows itself in such acts as smiling, ogling (or at least a characteristic glance), and in distinct changes from the Material forms of the general bodily movements and the tones of the voice. Much the same phenomena are visible between friends and between lovers.

On the side of the reluctant mate there are also distinct phenomena. The stronger influence of the mate arouses fear in her and she retreats or resists. When, however, she has retreated to a certain distance, the influence of the suitor becomes so much less that her weaker positive impulse may come into play again, and she may stop or even advance, especially if the suitor seems less insistent, *i. e.*, if his

impulse and, therefore, his Personal influence grows less. This is the characteristic behavior of what is called coyness. It exists both in friendship and in love, and, though we have spoken of the pair as male and female, is found in both sexes. It is partly unpleasant (fear) and partly pleasant (the satisfied positive Personal impulse).

3. When a positive Personal impulse in the suitor finds a weak negative Personal in the mate, the behavior of the suitor is as above. The negative Personal of the mate may change as the result of bullying or courtship, in which case the situation would fall under our second head; or it may grow stronger, in which case it would fall under our fourth. It cannot, however, show signs of coyness unless it is partially positive. The negative Personal on escaping from the suitor will not look back.

It may be well to notice here that the positive Personal influence will not always arouse or make definite a positive Personal impulse in another individual, nor a negative Personal influence a negative Personal impulse. In the majority of cases our regular position as to such influence is doubtless true, but our axiom as to the matter holds that the influence works regularly upon *suitable* individuals. It is individual variation that breaks the regularity of the rule. In the atoms every influence and action may be expected, for one atom is like another of the same sort. Similarly, in the lowest animals the actions and influences are apparently simple and regular. But in the higher animals and in man individual differences

are considerable and important, and in actual cases it is not at all certain that because a bird or a butterfly will mate with a certain individual, it will therefore mate with any other individual. So, also, a very amorous suitor may fail with a mate, when another will succeed at once, and certain suitors may find no mates at all. If our axiom is to hold good, however, all cases of really unsuccessful wooing must be put under the head of deceived satisfactions. True love is mutual and often "at first sight"—which, by the way, does not mean that it can happen only once. It will probably happen often to normal individuals, unless there is something to hinder it.

4. When the positive Personal impulse meets with a strong negative Personal in the mate, there are two plain possibilities. Most commonly, perhaps, the positive Personal changes to a negative, and the result is then either avoidance or an attack.

If, however, the positive Personal persists in the face of the strong negative, the result is regularly an attack by the negative, which attack the positive Personal may avoid but does not answer. This is called meekness or humility in the suitor. It is shown regularly, also, in the cases where coyness reaches the point of attack upon the suitor. This state may be observed in many of the higher animals, noticeably in our domestic animals, except the fowls. It is plain also in man. A woman who yields to an overbearing man may show meekness (*cf.* "The Taming of the Shrew"); or a man may take rebuffs from a woman or a friend with meekness. The

same state is undoubtedly also part of the relationship of a dog to his master.

5. When a negative Personal meets an equal negative, the result plainly must be either an avoidance or an approach that may end in an attack.

Not all the actions of animals in this relation are well described or understood, but it is pretty certain that many animals never or rarely attack, but are content to go through evolutions that result in nothing. Thus, in some species of birds the males in mating season will meet and dance about by the hour together with no harm done. Similarly, domestic cats will sometimes caterwaul and walk about each other half the night without coming to an actual contest of physical strength. It may be well to note that the same thing exists among human beings, who will often roar and make faces at each other rather than fight, and it is to be noticed, also, that these things actually are *the* effective means of the Personal instinct. The American Indian with his paint and his feathers and his war-whoop, or the Asiatic with his war-mask and his noise, is Personally a terrible figure. The man with the gun, on the other hand, is Materially terrible, and the Personal force may wilt with the failure of the Material to support it. Note, too, that the most commanding and fear-inspiring men, even in civilized life, are not by any means the men of greatest physical strength. It is the strong Personal force that accomplishes the result, directly, and arouses Personal respect or fear in others.

The negative Personal impulse when strong and when it leads to a disregard of physical (Material) danger is called courage, bravery, heroism, and the like. It is not in itself attractive (Personal admiration requires sympathy and imagination and is thus partially Social), but as it is a sign of a strong Personal instinct its possessors usually are attractive. Lack of sufficient strength in the Personal impulse is called cowardice. Cowardice is, of course, not Personally attractive since it implies the weakness or absence of the Personal impulse. If, however, the lack was due to a failure of the Personal to control the Material, *i. e.*, if the cowardice was due to physical weakness, the individual may be found under other circumstances to be exceedingly attractive Personally—and this is not infrequently the case.

6. When a negative Personal meets a weaker negative Personal, the stronger inspires fear in the weaker with a resultant retreat, flight, or mad attack. All this occurs without the need of physical violence.

We have so far considered only the cases in which two individuals are involved. Most commonly, perhaps—certainly most notoriously—there are three or more, namely, several suitors for one mate. The essential considerations in this position are the following: (1) Since a Personal union takes place between two individuals and no more, any third individual must be viewed as outside of the case, *i. e.*, as an impurity in the union. But all unions in nature tend to be pure. Hence there will be a tendency to expel the third individual. (2) As the

Personal instinct is the one that recognizes the impurity, the recognition must be Personal. Hence the expulsion of the superfluous individual must be the work of the negative Personal impulse, and we may expect a show of the negative Personal actions toward such an individual. (3) As the Personal instinct regularly recognizes only individuals of its own sort, the Personal feeling will not regularly be exhibited toward other (*e. g.*, inanimate) obstructions.

The feeling of several suitors toward each other is called rivalry, jealousy, and the like. This negative Personal impulse produces no special acts in the lowest animals, where it is merely a question, apparently, of who arrives first; but in the higher animals rivalry is a very conspicuous situation. Sometimes, as in the goldfinch, the rivals seem to pay little attention to each other, each devoting his attention exclusively to the mate; in other cases, as in the flickers, or the quails, the rivals pay attentions exclusively to each other, but without fighting; most commonly the rivals fight, and the winner ordinarily wins the mate.

The condition of rivalry and jealousy is such an important one in life that it may almost be said to be the chief phenomenon of the Personal instinct. Its full development takes place only after memory, or at least recognition, comes in, and we will content ourselves, therefore, for the present, with the above mere outline of its essential points. It may be noted here, however, that rivalry and jealousy may go beyond the ordinary bounds of Personal recognition,

as when dogs are jealous of their master's affection and become rivals of each other in it.

The pleasures and pains of the Personal instinct are the most demonstrative the mind has. Some of our strongest words are used of them.

The pleasures may be called delight, delectation, joy, ecstasy, ravishment, rapture, and the like.

Overflow actions and states in pleasure may be lightness, breeziness, animation, gayety, sprightliness, frolicsomeness, glee, merriment, radiance, smiling, grinning, laughter, shouting, and the like, culminating in languidness, tears, and the like. In the lower animals there are singing, crowing, bellowing, trumpeting, and various other demonstrations.

The overflow actions of displeasure (called grief, sorrow, agony, and the like) are correspondingly violent and may take the forms of crying, weeping, wailing, howling, lamentation, frenzy, and the like, not rarely ending in (Material) fainting, pining away, or even death. In civilized, reasoning, remembering man, no feeling so often results in suicide as Personal grief. Many prefer not to live rather than endure it, constantly recurring as it does through memory of the facts and circumstances that accompanied its causing.

THE RECOGNITION-PERSONAL INSTINCT

The Recognition-Personal instinct is the Personal instinct with recognition memory. This memory may be both Material and Personal, but it is the Personal that is at the recognition stage; the Material

memory may have gone farther, or (theoretically) not so far.

No doubt a great deal of what has been considered under the head of the Practical-Personal might well have been treated here. It is certain that the phenomena of sex and especially of friendship are little or not at all developed in animals without recognition. Nevertheless, the fundamental likes and dislikes underlying these situations demand no experience, and it is well to keep that clear if possible.

It remains to be said now that friendship, in so far as it is a lasting state, of course demands recognition. The Personal liking aroused at one meeting with the friend must be and is increased and made sure by subsequent meetings, and a settled relation arises. Thus, the Personal impulse in friendship comes to be satisfied by intimacy or association, with or without more distinctly sexual details, and this habit of seeking and being intimate becomes the most characteristic phenomenon of the state.

Similarly, love is joined with recognition and, thence, a constant repetition of meeting and intimacy. A rebuffed state in the suitor, also, may last much longer than is possible without memory, and thence arise the more elaborate forms of courtship, as it is called, found among many of the higher animals.

Rivalry, on the other hand, though arising out of an elemental impulse, depends for its development much more largely upon recognition memory; since the suitors pay attention to each other often to the exclusion of the mate who is the cause of the rivalry.

We will therefore run over that situation somewhat more in detail at this point.

The relation of the rivals may have such names as antagonism, hostility, enmity, or hatred.

The most general words for the unsatisfied impulse in both are envy and jealousy.

The growing negative impulse of one rival toward the other may be called impatience, vexation, exasperation, temper, anger, rage, fury, and the like. These precede actual violence and also accompany it.

The aptitude for Personal fighting may be called combativeness, pugnacity, and the like. Individuals in whom the instinct is thus strong may be said to possess bravery, courage, valor, daring, rashness, impetuosity, intrepidity, temerity, venturesomeness, dauntlessness, indomitableness, or the like.

In animals that do not fight, the evolutions gone through with by rivals are for the most part without name but are in some cases called dances. Among fighting animals there is usually a certain amount of preliminary flourish (really the most purely Personal part of the affair) which may be called challenge, defiance, or, if successful, intimidation.

Some names for contestants of the Personal type are (for the winner) victor, conqueror, champion, hero, bully; (for the loser) coward, craven, skulker, and the like.

The action in defeat may be either flight or cringing, or, as in man, lying down, prostrating oneself, or (symbolically) kneeling. (All these are done because the defeated individual has the opposite impulse

from that of standing over his opponent.) The voice may be affected to whining.

One conflict does not always settle the dispute. If the vanquished rival begins a second fight, the state of his mind, being impulse plus recognition-memory and pain, may be called a spirit of revenge, retaliation, spite, vindictiveness, and the like.

On the other hand, the attacks of the victor may be renewed as often as the vanquished comes within range, or may be continued until the result is the death of the vanquished, after which the victor may even worry the remains until he tires or the remains are unrecognizable as a Personality. The Social instinct looks upon such acts with disapproval, and this form of the Personal impulse (and it is perhaps the only unmixed form) is called by such names as harshness, cruelty, venomousness, and vindictiveness.

If, however (the fight having been fought and the Personal impulse of the victor having been partially satisfied), the Social impulse becomes strong enough to have its influence, the victor may cease his attacks upon the vanquished, if the vanquished keeps his humble position. In such a case the behavior and feeling of the victor is called mercy, generosity, pity, forbearance, magnanimity, and the like. Evidently this state is easier for the victor than for the vanquished, whose Personal impulse is still unsatisfied and usually rankles more or less in memory.

It is to be held in mind that the situation we call rivalry may arise not only between males, but quite as well between females; and not only in cases of sex

but quite as well in cases of friendship. Nevertheless the most common cases are those between males, and have to do with the Personal instinct of sex.

An important broadening of the situation occurs in many animals during the rutting season. Any opposition, or show of opposition at this time—and sometimes throughout the year—is likely to be taken by these animals as a Personal interference, and the situation of rivalry takes place. This may happen between males when the females are not present; it may happen between females when the males are not present; it may happen between males and females, as when a cow fights the bull for leadership in the herd; it may happen between animals of different species, as when bulls attack man. In such cases the Personal instinct may be called the domineering or bullying impulse. Men of the strongly Personal type ordinarily show this side clearly, and will stand no interference of any sort on any subject. They will even kick the stone they have stumbled over.

The pleasure after success, whether in a positive Personal approach or in a strife of rivalry, is called by names already given, but we may note here the special element, coming through memory, of pride or vanity. This is regularly accompanied by such overflow actions as may fall under the general terms glorying or triumphing. Cocks crow, elephants trumpet, many animals bellow or roar, men shout or laugh. Other words used are exultation, gloating, pluming, swaggering, flaunting, flourishing, and the like.

The pain after defeat may be chagrin, shame, mortification, humiliation, discomfiture, sting, and the like. In memory there may be the additional words sulkiness, or spite, grudge-bearing, and the like. If there be a clear memory, the memory is said to rankle. A hopeless defeat may give the pain called discouragement. All these are Personal states.

THE THOUGHT-PERSONAL INSTINCT

The Thought-Personal instinct is the Personal instinct carrying on trains of thought independently of actual sensations, though often or even regularly at the suggestion of such sensations. This grade of the instinct may be regarded, for our purposes, as confined to man. Some degree of it, however, probably exists also among the higher animals.

As in the case of the other grades of the Personal, so here, the Thought-Personal rests to a large extent upon the Thought-Material, affecting it and using it and apparently adding to it, in characteristic ways. This may be taken for granted.

The simplest forms of the Thought-Personal instinct will evidently result in memories of actual past experiences. These, however, result at once in definite Personal desires, likes, dislikes, loves, and hates. The field of human Personal passion is thus made firm and definite.

Experience will accumulate, also, with resultant definite plans and methods of action. Courtship becomes definitely reasonable in part, and the contests of antagonists result in the elaborately skilful

phenomena of duelling and single combats, with various arms.

In these, as in other reasoned combats, it is to be noticed that there is a contest not merely of Personal influence and physical strength, but also of skill and wits. Hence it becomes a distinctly Personal triumph to outwit an opponent or rival, and such a mental victory may result in as much satisfaction as any other kind. Outwitting may be merely skill, or it may take the forms of artifice, strategy, ruse, trickery, treachery, wiliness, unfairness, and the like. Poisoning and assassination may come under this general head. It is to be recollected, here as elsewhere, that the Personal instinct knows nothing of morals or sympathy; it seeks merely a victory, and uses all means freely. Hence its dictum that, "All's fair in love and war."

The inventions of the Personal instinct are numerous. It likes to try its wits against all sorts of obstacles, and finds a keen pleasure in every sort of outwitting, whether of an actual Personal rival or of any other opponent. Thus, it is the motive power in hunting, fishing, and the like, when these are pursued as sport; and it is regularly found in men who explore new countries or the frozen regions about the poles. The difficulties in such occupations or diversions appeal to their imagination. Similarly, inventors are not infrequently of the Personal type—men with no great Material (scientific) sense or conception of laws or facts, but with a fiery desire to do some striking or difficult or impossible thing.

Experience and thought along Personal lines results in Personal prudence, self-restraint, self-control, and the like.

It should be noted, however, that Personal prudence and self-control are very different from the Material and Social forms. The Personal instinct, like the others, regards only its own ends, and has no care or interest for the other instincts, which it often goes against—though it may, for its own purposes, use them reasonably. It thus often incurs their positive disapproval. Thus, those in whom the Personal instinct is strong and in whom the other instincts are weak may be called idle and loafing, though they are active enough in their own Personal way; or they may be frivolous, capricious, or trivial, though good thinkers in Personal matters; or, in their manner of spending, for Personal ends, which seems to the other instincts useless, they may be extravagant, wasteful, and squandering. Moreover, as they have no interest in property except as a show (*i. e.*, for Personal ends), they are regularly careless and improvident. So, also, with no sense of home, they may be adventurers (in search, more or less consciously, of Personal satisfactions), tramps, vagabonds, bohemians, rovers, and the like.

If not regulated by the Social instinct, or by prudence, such characters are often morally (Socially) objectionable. They are not only deserving of the above epithets, which are also Social in part, but they are licentious, lascivious, lewd, wanton, obscene, prurient, and the like.

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As the Personal lacks Material and Social self-control, and the Social sense of responsibility and decency, it may yield freely to all habits which civilized man has discovered to be bad and unwise. It is thus almost regularly the one given to strong drink, tobacco, and sexual vices. Those in whom the instinct prevails only occasionally are said to go on sprees. Some of this addiction to bad habits lies in the positive Personal attractiveness of the habits, but there is not infrequently also a real hostility felt by the Personal individual toward the attempted control of the other instincts—which he feels little or no sympathy or interest toward. He considers it humiliating to endure any sort of control—unless for Personal reasons, as when a man will stop drinking to please and win the affections of some girl or woman. (It may be well to note here that gambling is even more Personal than drink. The consideration of it, however, will come in more suitably at a future point.)

The feeling of the Personal toward the other instincts may be expressed in such words as boring, dry, flat, stale, tame, tiresome, trite, cold, bloodless, and the like, all of which usually denote merely the lack of Personal interest and charm.

Certain important details and qualities of Personal thought still remain to be considered. To consider them, however, we begin somewhat elementally.

The Personal instinct regards (and therefore remembers and classifies) everything as either attractive or unattractive, useful or useless, to it. It is inter-

ested, as we have said, exclusively in its own satisfaction, and its thought and invention and ingenuity are all directed to this one end. Evidently its point of view differs fundamentally from that of the Material and Social instincts, and its classification of phenomena in memory as well as its use of the memories so classified must be characteristic and quite different. And this is the case. From the Material and Social points of view, the Personal is often as crazy in thought as it is in action.

It is important to notice, also, that the world is not constructed and does not advance along the lines of the Personal idea. It is the Material and the Social that build and advance the world, the Personal being a sort of by-play. It follows, therefore, and it is so in fact, that the classifications and reasonings of the Personal mind are of no Social or scientific (Material) value. They shed no light on the world's laws, except in so far as they explain the behavior of animals having the Personal instinct. Thus, men of the strongly Personal type are not intellectually constructive in the ordinary sense. The facts of science and of society do not fit with their style of classification, and they are quite at sea in any novel situation in practical affairs.

It may not be amiss to illustrate this in part. Falstaff in telling his famous lying story says, at one time or another, "If this is not true I am a shotten herring—a rogue—an Ebrew Jew—a bunch of radish—a horse ('call me horse')—a villain." In his memory these persons and objects are classified

together as Personally disagreeable. When he wishes to make a "low comparison" these are the things that occur to him successively. From the Material or Social point of view nothing could be more disorderly and wild.

Thus, also, the positive Personal will find that a rose or a carnation brings up the thought of a beautiful woman; the oak of a strong man; the brook, dancing and sparkling, of a girl; and the mountain of a frowning giant. This way of looking at things can lead to nothing useful or constructive. Similarly, the man who lets his Personal likes and dislikes determine his Social acts—who will vote for one man merely because he likes him, or against another merely to harm him, or who can ask, "What's the Constitution between friends?"—such a man thinks and talks nonsense from the Social point of view. His classifications and reasonings cannot be Socially useful or constructive.

But, although the Thought-Personal instinct results in classifications and inventions that are of no value as clues to the Material world or to Social relations, these classifications and inventions are useful and valid in the field of Personal relations, and we will now consider them somewhat.

The simplest classification is probably into the attractive and the unattractive objects, but this, in man, becomes far more complex. We may notice, for instance, the various names it has for the impulse itself—love, lust, lasciviousness, concupiscence, amorousness—friendliness, amicableness, affection, fond-

ness, attachment—esteem, regard, admiration, devotion, infatuation, adoration.

So, also, the Thought-Personal sorts out the various attractive influences and names them, as, *e. g.*, charm, personality, magnetism, geniality, fascination, attractiveness, allurement, amiability, beauty, sweetness, prettiness, handsomeness; and, as more distinctly active, grace, archness, winsomeness, daintiness, piquancy. Individuals may be pleasing, fair, exquisite, captivating, demure, provoking, appealing, and the like. These are in addition to the many words already given. Most of them can be made negative, and there are also negative words, as ugly, repellent, and the like.

Moreover, besides these simpler classifications, the reasoning about matters of love and friendship and about the Personal situations in life—and they are very numerous—is all under the guiding interest of the Personal instinct. Evidently such thought, however abstract, can cover no such range and result in no such elaborate systems and theories as the thought of the other two instincts; nevertheless, within its range, it may be extraordinarily keen and complex, and it is undoubtedly of immense value—and is perhaps indispensable—in successful practical life.

Before considering the further forms of our instinct, we must give a word to the consideration of language. The relationships of one mind to another in actual life are very largely carried on through speech. Speech, however, demands sympathy, which is

Social. Thus the Personal relations of men to each other come to depend upon this Social instrument. Nevertheless, certain resulting situations may well have a place in this chapter, since, except for their dependence upon language, they belong purely to the Personal instinct.

The instinct in these cases is satisfied by winning liking or conquering rivals, wholly or in part without the ordinary physical means. Language is made to take the place of actions of courtship or of violence, and the loved one (mate or friend), or the rival, through sympathy, takes the word for the action.

The most general effect of the Personal impulse upon speech is, of course, physical in part, namely, its effect upon tones. Nothing is more noticeable than the tones of those in love, whether it be of a man or of a woman or of certain mothers toward their children (crooning). It is usually wonderfully sweet and attractive even in individuals who have ordinarily voices that are harsh. On the other hand, the voice of the obstructed instinct, harsh and rough and commonly loud, is equally pronounced and characteristic. Other tones are also recognizable, *e. g.*, those of pride, glorying, envy, or defeat; and it may fairly be questioned whether the tone of voice in any purely Personal conversation is not of far more value than anything that may be said.

Showiness of speech and thought is also distinctly Personal, and is a repetition of what was noticed in the Extra-Personal instinct. This tendency may take the simple forms of swearing, bombast, pro-

fusion, turgidity, floweriness, rhapsody, and the like, but it may also be far more subtle and elaborate, as in some of the great poets. Not only so, but all the arts are affected by it in their modes of expression, whether these be through words, sounds, colors, forms, or tastes. Signs of it are to found in the style of almost, if not quite every, artist, great or small. Of course, such showiness may be largely a matter of fashion or imitation, but it may also be thoroughly sincere, and the result of years of selection and invention.

The approach of a suitor to a mate may be accompanied by language, the words expressing the feelings of the suitor or the acts he would like to perform. These mental kisses are called by such words as flattery, compliment, adulation, blandishment, cajoling, enticement, entreaty, gallantry, and the like. Experience and reason may bring them to the condition of carefully calculated means for arousing the desired Personal feeling. Approaches of the merely reasoning sort may be called coquetting or flirting. Not infrequently such wooing is carried on out of mere Personal curiosity or as a pastime, *i. e.*, for lack of something Personally better or more serious. In these cases, and also in cases of mere reason and coyness, the behavior of the one wooed may become impossible to interpret. The hostile or coy or reasoned acts may be named capriciousness, freakishness, waywardness, wilfulness, roguishness, tantalization, teasing, artfulness, changeableness, and the like. As the impulses are in themselves uncon-

scious, and as women often make no real attempt to solve their own states of mind, it is often quite impossible for even the capricious and teasing woman herself to say why she is so—whether she dislikes, is coy, is seeking excitement, or is curious. To the suitor the behavior is likely to be entirely baffling, though he may discover the lady's frame of mind before she does herself. This field is a constant and unfailing mine for the novelist and playwright.

The positive Personal quality in speech may take the forms of cordiality, joviality, effusiveness, gush, volubility, garrulity, loquacity, and the like, corresponding to the physical acts of smiling, radiance, or laughter, and usually accompanied by them. If the Personal impulse is stronger, the Material and Social factors are thrown into confusion and we have incoherence, stammering, speechlessness, and the like. These confused states may also be brought about by fear, and the form of fear called coyness. In the latter case they may be accompanied by blushing, giggling, and the like.

The negative Thought-Personal impulse may take the forms of active attack, but it may behave in special ways, and it has certain special names. The impulse itself may be called unfriendliness, etc., but also may be contempt, disdain, despising, and the like. Its simplest acts may be called avoidance, or ignoring, with such partial forms of these as chilliness, superciliousness, and haughtiness.

If rivals fight it out with language, the language often differs in only slight respects from ordinary

speech, and represents action and may easily turn into it. Such a wordy fight may be called by such names as quarrel, altercation, wrangle, brawl, or dispute.

The acts in the struggle may be abuse, insult, affront, threat, railing, bluster, slur, snub, sneer, scorn, flout, and the like, all of which are intended to beat down the opponent and force him to retire in confusion and speechlessness. Their force may rest on their references to past or to future actions, or on the display they make of strong negative Personal impulse. The tones of voice and gesticulations, and the Personally disagreeable comparisons in them, are the ordinary means of producing the latter impression. Individuals of the Personal type often have a considerable fluency in Personal words and thoughts, and there are many men and women who are utterly discomfited and put to flight by them.

A very characteristically Personal occurrence in angry speech is the use of exclamations and words that have no meaning, but convey the force and influence of the negative impulse. Such are the various so-called oaths and curses, together with swearing, obscenity, and the like. The Personal impulse is too hot and impatient oftentimes in these cases to wait for Material or Social mental help, and makes itself understood chiefly by tones.

Personal verbal attacks are not infrequently unfair, etc. Some of the special forms of this sort of fighting may be exaggeration, speciousness, impertinence, casuistry, sophistry, dogmatism, and the like,

—all used by those who wish to win, regardless of Social or Material considerations.

If there is no real strength or proved strength in one of the opponents, the other may slur his resistance by calling it audacity, insolence, pertness, presumption, sauciness, smartness, impertinence, and the like. These words all contain a negative Personal force, and may be used effectively in abuse.

Joined with a considerable flexibility of mind, slurs may take the form of airiness, capriciousness, flightiness, waywardness, and the like, by which lighter, disdainful minds may fairly put to confusion those that are more cumbersome.

Many Personal adjectives are used of individuals and of verbal attacks coming under this general head. Some of them are as follows: imperious, arrogant, aggressive, domineering, captious, choleric, contentious, cross, crusty, carping, brusque, harsh, gruff, peremptory, truculent, disputatious, dogmatic, positive, opinionated, abrupt, tart, stormy, cavalier (adj.), hectoring, irascible, irritable, testy, touchy, acid, bitter, virulent, peevish, pettish, querulous, self-willed, selfish (this is its most ordinary sense), shrewish, vixenish, termagant, and no doubt many more. All are, or may be, strictly Personal. It may be noted that some of these adjectives carry with them distinctly the implication of ill-health. This may be due to the lessening of Social responsibility which usually occurs in those in Material suffering. Without the Social sense, the Personal would keep us all at swords' points, even (most of the time) lovers. Men

and women who are very strongly of the Personal type exemplify this to us every day.

In case of victory the pleased state of mind may be vanity, or complacency, or, as a mood, conceit, self-esteem, and what is usually called self-respect.

The overflow acts of glorying are, as in physical victory, laughter, shouting, hooting, and the like, but with the added language-element of jeers, gibes, derision, taunting, mockery, and the like; and, in memory, bragging, bravado, boastfulness, vaunting, and the like.

The defeated states may be moroseness, moodiness, sulkiness, bile, and the ordinary ones of humiliation, shame, and the like. The commonest action in defeat is keeping silence.

We note, finally, a slighter case in which the Personal instinct influences thought. In thinking, namely, this impulse may be active, and the thinker may be restive and impatient at the obstacles in his thought. This rebelliousness at restraint (which is always characteristic of the Personal type) if not too strong may result well and be called initiative. The solid strength of the other instincts would doubtless be better and surer, but the Personal often gives a helpful push. The general situation may perhaps be compared with the kicking of a physical obstruction, mentioned under the Recognition-Personal.

We note once more, in closing, that the Personal instinct is neither moral nor immoral (Social) in itself. Nevertheless, as it exists between and con-

cerns two individuals who are commonly members of society, it cannot but have abundant moral relations. These relations it is quite as apt to disregard as to regard, so that (as the Personal instinct is the most demonstrative we have, and the source of all the charm and grace and love and laughter of life) it is, Socially, the most treacherous part of our nature. Most of the strictures of the moralists are directed against it, and there is a constant inclination in religions and morals to crush it altogether as a distinct 'enemy of goodness. It is found to be as seductive as it is non-moral. Few in actual life can refuse to pardon—or condone with—or can even resist the fascinations of—the charming sinner. Even the saints will often say, "He (or she) is so charming, so gentle, so lovable, so generous, so brave—when he wishes to be—that there must be some good in him"; whereas there is not the faintest reason in the world why there must, but often every presumption to the contrary.

On the other hand, there is no essential contradiction between a strong Personal and a strong Social or Material impulse, and a man or woman may be grossly unchaste and intemperate and at the same time not only very charming but also an invaluable member of society—a great and good statesman or novelist or scientist or ruler. In these cases the Social or Material is often still strong enough to be effective at nearly all times in the Thought and Ideal realms, though less so in the lower ones; and no doubt such individuals grow to increased usefulness

as age succeeds in dulling somewhat the imperiousness of the Personal side. Nevertheless, instances are not lacking in which this was not at all the case.

THE IDEAL-PERSONAL INSTINCT

The Ideal-Personal instinct is concerned with the entire satisfaction of the Personal impulse. Since such satisfaction could occur only by a union, part with part, of two suitable individuals, to the destruction of each individual, and since this union does not take place among multicellular animals, it is evident that the satisfaction cannot be complete. In cases of true love, as we have elsewhere shown, the attractiveness of two individuals for each other may continue indefinitely, and this may be considered the best practical solution of the case, supposing that the course of true love be smooth. Nevertheless, the impulse is not entirely satisfied, and many men and women, yielding to the unsatisfied yearning, spend much of their lives seeking satisfaction in other ways, and sometimes in unwise ones. A considerable percentage of the people of the world are doing this more or less intermittently.

As we have noted before, the world is not made according to the Personal idea, nor can Personal ideas long prevail in it without its destruction. Social and Material ideas are the only constructive and useful ones. Hence, strongly Personal pleasures and pains and situations are somewhat apart from the ordinary run of life and are felt so. Those who follow them are often said to break loose. The Personal field is

called pleasure, novelty, adventure, diversion, and the like. The essence of what many newspapers think of as "news" is Personal. It is this that makes men like to read of daring burglaries, murders, rapes, violence, abuse of the rich, advice to the lovelorn, and the like. Yellow journalism is almost entirely Personal in its appeal, and its harm to its readers is in the fundamental fact that the Personal way of looking at things is not and never can be constructive; on the contrary it is always rebellious in tone, and has no real sympathy with the solid virtues through which the Material and Social realms stand.

In the field of art, the Personal element has played the leading role. Art is fundamentally of Social origin, and it demands also some Material aid, but its ruling spirit has been almost exclusively the Personal. Love and intrigue and fighting and glory, beautiful women and brave men, have been its theme in all ages, not only in literature and song, but also in painting, sculpture, and architecture. And not only the subject, but also the style has been Personal. The dreams of men and women artists have, in many respects, surpassed anything actual in their appeal to the Personal impulse.

We come, finally, to the consideration of the Personal instinct in its effects upon religion. This has been far-reaching.

The likes and dislikes of the Personal instinct may be aroused by any sensation or object, and this may take place either (apparently) freakishly, or as may be decided by the obstruction or apparent friendliness

of the object. Thus the savage may like the axe or arrow with which he has done execution, or he may hate the thunder-cloud or like the sun, etc. And these feelings may influence the mind to class such relations as if they were causative, so that the axe or the arrow may be thought of as possessing pleasant or hateful powers in general. Hence this instinct is the believer in talismans, portents, omens, and the like. Such beliefs may precede any definite beliefs in gods.

When the Social instinct has provided the mind with the thought of gods or of spirits in human likeness, it is the Personal instinct, that, through sympathy, gives them Personality. It fills the outer world of nature with spirits, phantoms, hobgoblins, fairies, nymphs, demons, and the like; and, at the present day, the various gods having gone, holds that its one God is Personal.

In all cases it thinks of them as acting wilfully and according to likes and dislikes. If harm comes, it is a sign of a god's dislike, and the Personal type will commonly hate in return; though it may be humble or meek, in a belief that the act was, after all, meant to be loving. If the chances of life favor it, this instinct ascribes it equally to a loving wilfulness that has singled it out for special favors. Moreover, as it believes in Personal spirits, so it believes that their favor can be won like the favor of human minds—hence prayers, prostrations, entreaties, songs, praise, and the like. Those who do harm in the world have also their deities—evil Personalities—to

be roused to action by cursing, witchcraft, sorcery, conjuring, spells, or magic; or to be driven out by exorcisms of various sorts. The facts of nature are thought to reveal these spirits and their characters and intentions through presentiments, dreams, presages, auguries, premonitions, or even through direct revelations and prophecies, sometimes attested by wilful acts called miracles.

In a word, the Personal instinct is by its nature the champion of disorder in our view of things. It sees the world as a field for adventure—as a thing of fortune, luck, mystery, or divine favor—a game, with a favorable or unfavorable power dealing the cards. It is thus that side of us (and most of us have felt some of it) that is eagerly superstitious—eager to get something for nothing—defiant and rebellious against the facts and laws of regularity and of science. It is the consuler of fraudulent doctors, soothsayers, clairvoyants, weather-prophets, and the like. All these things are constantly going on and will go on, probably forever, though science has gradually eliminated in civilized lands the worst beliefs and practices whose description fills some of the most awful pages of history, and whose power hangs like a nightmare even now over the ignorant of Europe, Africa, and Asia.

Christianity, here as in the other instincts, has gone farther in satisfying the human heart, than any other religion. It conceives of God as a divine lover and friend—the perfectly satisfying intimate who cannot be found in earthly experience. Roman and Greek

Christianity

Catholicism have even doubled the sex, and proposed not merely a male, but also a female divine friend, besides saints of both sexes—a refuge for those that are friendless or loveless or disappointed in the Personal needs of life.

CHAPTER IX

THE SOCIAL INSTINCT

THE Social is that instinct of the mind that would be satisfied by a fusion of the individual mind with one or more others, without, however, the loss of the individual existence of each. Such a fusion would result in an organism of a higher grade than its constituent units. The Social union is thus essentially different from the Personal merging, which results in no gain in the grade of the organism. It is, however, to be compared in every detail with the similar fusions among the atoms, molecules, and cells, of which it is a repetition. The last actual fusion of this sort is that of the cells, which fuse without loss of their individual existences to form the multicellular plants and animals. Between the multicellular plants and animals the Social fusion does not take place, but among the animals (and, though less evidently, the plants) the instinct is present, at least temporarily, in all species and results in characteristic influences and actions. Its entire satisfaction, like that of the Personal instinct, is evidently impossible.

The Social instinct is a repetition of the Material instinct. What the Material is to the cell, the Social is to the body. Or, what the Material is to the body (which is created to satisfy it), that the Social instinct is to the collection of individuals that occur to satisfy it. Thus all the coördination and mutual support of the body cells will have its counterpart, its repetition, in the Social collection, and what we there considered from the outside (and therefore without many details) as the Body-Material, will here become the matter of prime importance, to be considered from the point of view of the members of the fusion.

It is to be noted further that the Material and Social instincts work naturally together. Both are constructive and they may be mutually useful. They are, however, absolutely distinct, the Material never interesting itself beyond its own limits, the body, and the Social confining itself to its Social body.

Neither must it be thought that the Social begins after the Material has ended—that the Social is in any sense dependent upon a large or intricate development of the Material, *e. g.*, upon brain development. On the contrary, it exists and is strong in many animals of no apparent brain power or consciousness, and is often almost lacking in those of considerable development in memory and reason. Undoubtedly its highest development takes place with the highest Material development, namely, in man, but it is distinctly independent of consciousness, or reason, whether Material, Personal, or Social. It is also not caused by Material vigor, since many animals of

great vigor are lacking in it. Nevertheless, since the Material has priority over the other instincts, weakness or disease (undermining the Material) very regularly undermine the Social.

Socially caused unions are made up of two or more individuals. If of only two they may be difficult to distinguish from Personal relations. The determining test is whether it would be possible for a perfectly suitable third individual to enter the unit.

Names for some of the Social units are family, herd, tribe, nation, mob, or, more generally, organization. Special names are very numerous. It will be noticed that those here given differ greatly in their Social phenomena. The contrast, for instance, between a family and a mob is likely to be extreme. In considering the Social instinct, we will not, therefore, attempt completeness at once, but in the present chapter will discuss the instinct in general, very much as the Material and Personal have already been discussed. The special traits and relations of some of the Social units will then form matter for another chapter.

THE BODY-SOCIAL INSTINCT

Under the Body-Social instinct we will consider those body-forms which are due to the influence of the Social impulse. It might well be supposed that there would be no Body-Social instinct, since the body is not a Social unit. However, as the Body-Material instinct had effects upon the cells and even upon the lesser units, so the Social instinct is retrogressive in

action and has its influence in all the lesser units. It is this influence that we will here consider.

The Social unit is a group of multicellular organisms. Any Social factor must be one which concerns this group, and is without Material or Personal significance in the individuals taken singly. We shall therefore consider here such body structures as have no meaning except as they are considered in relation to other organisms of the group, which on their side must show complementary structures. Such structures exist only in the family group, and are those of sex and reproduction. In considering these structures and characters, no sense is discovered until the individuals are viewed in groups. Each individual organism is incomplete in itself, and implies others. The members of the group, however, complete each other mutually, and taken together form a complete unit of mutually dependent parts.

Two questions of importance to us arise in considering this phenomenon: The first is as to the origin of the sexes, *i. e.*, as to the force which causes species to split up into two or more kinds. This we shall not be able to answer definitely. The second is as to the reproductive organs and actions of the individuals of the unit. This we shall answer by holding that they are the product of the influence of the Social instinct.

First, then, as to the origin of the sexes.

All the higher animals divide into sexes, and these sexes are mutually complementary, the individuals of the various sexes together forming the family unit.

We shall here use the word sex in a broader sense than is customary, namely, to include all the distinctly different sorts of organisms which imply one another mutually in the family. We exclude, however, the young, who are not to be reckoned a sex in themselves.

In considering questions concerning the sexes, it is to be noted, first of all, that sex is not inherited in the ordinary sense of that word. We may inherit a shape of head or leg, a color of hair or eyes or skin, a temper or a power of memory or of reason; but sex is no such thing. A fertilized ovum, in most animals, carries in it the potentialities of two sexes, and whether it is to develop as a male or as a female may be decided, apparently, late in its development. Moreover, the question as to which it shall be is pretty certainly determined, not by the organism alone, but also by its environment. It seems to be a fact, for instance, that more boys are conceived in times of war and hardship and among the poor, and that more girls are conceived in times of peace and plenty and among the rich. The determination of the sex is pretty certainly made by the condition of the ovum, the environment, or the mother at the critical moment.

Nevertheless, it is to be noted that although the determination may be dependent upon circumstances, the fact of sex in most animals is not so determined. The organism is compelled to take one or the other course, it cannot take both or some strange one. It is as though nature had but two cards to deal. She

Boys
Born
in
War

?

Girls

in

Peace

may deal them "A and B," or "B and A," and something may determine which the order shall be; she must, however, deal either one way or the other, and the two ways are complementary, *i. e.*, the two possible organisms together would form "A B and AB," a symmetrical unit.

That her procedure is really a splitting up of such a symmetrical unit seems to be shown in cases in which she actually seems to split such a unit. Such a case is that of the aphid, or plant lice. Through the summer the symmetrical unit alone exists. It gives birth to its young without the need of any male, and its young give birth to others similarly. It is a perfect animal in itself, and does not imply any other. But in the autumn (the determining cause has been proved to be the cold weather), the young are different from the parent; they are of two sexes, some being males and some females, and both different from the summer aphids. These, now, imply and complete each other, and a family unit is the result. Such a case, as we have said, seems clearly to show that the sexes are an actual splitting up of a perfect unit.

Moreover, the splitting up is along definite lines. The units complete one another. This may perhaps be shown more clearly by a reference to those cases in which there are more than two sexes—for although we are accustomed to think of the sexes as two, this is merely the commonest case. Bees have three sexes, ants have three, but often four, and sometimes five or even six. In all these cases the various sexes

are complementary, and it takes all to make a complete family. Each sex has its place, and each implies all the rest.

It may not be amiss to call attention more definitely at this point to our position as to these divisions. We do not hold that each sex has some special usefulness in the family unit, though this may be the case; we do not pretend to know what relations any division may imply. What we do hold, however, is that each sex in any one of these divisions implies the other sexes—as opposed to the idea that the various sexes were somehow invented, one at a time, to serve some useful purpose. Use in every detail is not at all a necessity, if only the family as a whole can survive.

We have, as we have said, no clew as to what force, if any, has caused the division into sexes. Nevertheless, the phenomenon is not alone nor without precedent. It seems plainly to be the same sort of variation as that which we observed in the cell and in the body. In the simplest forms of the cell and of the body, namely, we found that all the component units (molecules and cells, respectively) were exactly alike. Each would have been capable of existing alone. But in all the higher forms of cells and multicellular units, the component parts were not alike, but had varied off, the *sum* of them being a perfect unit. Each molecule, or cell, in these cases, was of such a sort that it could not exist without the support of the other members of its fusion; each presupposed and implied all the others.

The parallel with what has taken place in the sexes

is perfect. Here, too, we have groups of organisms, no one of which could exist long outside of the unit; here, too, each implies all the others; here, too, the functions of the original simple individual have been analyzed, and individuals have been specialized to perform the separate acts. If we were to compare a bee family with the body of a human being, a considerable number of the different sorts of cells would be found clearly represented by bees. We shall consider this later. We note here, only, that as in the group of cells any change in the one cell was met by a compensating change in the others and the unity of the whole was maintained, so, in the family unit, changes in one sex are to be thought of as taking place with a compensating change in the others. Thus, if there is a specialization along the lines of the Personal instinct, it may be expected, and this is indeed the case, that the Personal gifts of the one sex will be balanced by the Personal gifts of the other. Thus it happens that Personality has its strongest field in the relation of the sexes. Similarly if the sexes are specialized as to reproduction, the reproductive gifts of the one will be exactly complementary to the reproductive gifts of the other. Moreover if two sexes covered fairly the whole of the Personal and reproductive fields, we should expect, and this is the case, that any other sexes would have little of these gifts, and that if the third or fourth sex had other gifts, the first two sexes would be deficient in these. The unity of the sexes, taken together, is not and apparently cannot be broken.

The phenomenon has all the appearance of being under the control of the Social instinct. It certainly is the field of the most striking exhibitions of the instinct, and, given the sexes, the instinct certainly controls their numerical proportions to each other. As to the actual determination of the existence of sexes, however, we have no evidence to give of Social workings other than the striking compensatory character of the actual division. As for the possibility of such working of the Social instinct—we can hardly conceive of its methods.¹

In the case of the reproductive acts and organs, however, the workings of the Social instinct seem plain; and to this question we will now turn our attention.

Under reproductive acts we include the production of free sex-cells and the care for the fertilized ovum. Under reproductive organs we include all those producing the sex-cells, bringing about the surer meeting of the free sex-cells, and accomplishing the protection and nutriment of the fertilized ovum. These we consider to be of Social origin. Some of these organs are: the sex-glands, the introjectory organs of males, the receptive organs of females, the sacs or receptive hollows of certain male frogs, the wombs, ovisacs, and the like of females, the ovipositors, the milk-

¹ It may perhaps be held that sex is caused by the Social instinct of the mother (or by that of the family, *e. g.*, in the bees) under the general influence of the environment. This would agree with the common cases. It has been held (and disputed), on the other hand, that in the case of the frog, at least, sex is determined by the environment after the egg has left the mother.

glands, and any other such physical adaptations. These do not exist for the organism, either Materially or Personally, but are for the other members of the family, namely, the young.

It may be well to state frankly that our positive evidence that these are the product of the Social instinct is not sufficient to convince the reader who insists upon believing otherwise. We shall show in our evidence the possibility of the interpretation rather than its necessity. First of all, however, we will discuss its general reasonableness.

In making a theory for any phenomena, it must be borne in mind that reasonableness and a certain amount of illumination are matters of real importance. If the relation of the phenomena is not altogether plain, we are justified, and indeed do well in taking, at least tentatively, the theory which throws most light upon the situation.

Now, the only instincts possibly concerned in reproduction seem to be the Personal and the Social. If any real light is to be thrown upon the phenomena, it must evidently be by the disentanglement of the influences of these two instincts—granting, of course, that there are two such instincts and that each has a definite character of its own, since, evidently, if we do not take definite conceptions to begin with, we can accomplish nothing. If, now, we have identified and described the Personal instinct correctly, it is clear that it is an interest between two individuals and no more. It cannot be the interest that holds the family together. It cannot be the interest of the mother in

her young. This interest can be, and we hold is, the Social instinct. The interest of the parents in their offspring, however, does not begin with the birth of these offspring. As, after birth, the cow will give down milk at the promptings of her maternal impulse, so, also, before birth she will keep the young and care for it within her, and not eject it as she would a foreign or dead substance. Her relations to it, in short, if they are to be ascribed to any instinct at all, must all be ascribed to one, and that one must be the maternal, *i. e.*, the Social. Similarly, in the last analysis, all organs and acts, whether male or female, which have an evident bearing upon the safety and production of the young, and no other value, must be ascribed to this instinct if we are to bring order out of the chaos of the phenomena. In the last analysis, this can hardly be denied without denying the consistent actions and characters of the instincts.

We begin, then, with our evidence as to the Social nature of the production of ova and spermatozoa. Undoubtedly these cells are strongly Personal and their production is accompanied, and their emission determined, by Personal excitation; nevertheless, we hold that it would be out of character for the Personal to have produced them, while it is clearly in character for the Social to do so. Moreover, we shall show clearly that their production is under Social control.

First, as to the reasonableness of the assumption.

In the case of the Material instinct we noted that it produces the body; it is not satisfied until all the cells are existent and in their places. Now, the Social

stands in the same relation to the Social body or unit, and in the case of the family is not content until the unit is made up of young as well as mature members. It is, after reason comes in, the desire for offspring. But as all the instincts exert power that will tend toward their satisfaction, we suppose that the Social impulse works to the production of germ-cells.

Next, as to the evidence in the facts.

In the case of males, the production of these cells is not evidently connected with the Social impulse. We might well have supposed it to be Personal in origin, although the Social (family) instinct is regularly active at the same time. In females, however, the influence of the Social element seems clear, at least in certain cases. Many animals, for instance, cease to produce ova during the time that they have dependent young. This is strikingly true, to give one instance out of many, in the case of the domestic hen. On the other hand, the production sometimes depends upon the numerical satisfaction received from the eggs laid—the Social unit must be complete before laying will stop. / Thus the flicker, if systematically robbed, may be made to lay as many as *Birds* fifty or even seventy eggs, whereas she would ordinarily cease laying after seven or eight. / Thus, both the inhibition and the production of ova show the control of the Social impulse. It may not be amiss to notice, also, at this point the apparently Social response of queen bees and ants in this relation. These females lay according to the needs of the family (*i. e.*, according to the numerical proportions

of the sexes in it), either or any sort of egg. In the case of the bee, the decision as to the sex of the egg is said certainly to lie with the queen, and it is quite probably so also with the ant. This would fall in exactly with our position.

We pass now to the consideration of those organs whose significance is discovered only upon bringing in the thought of the immature organisms, *i. e.*, the young. Such are: (1) the introjectory organs of certain males and the complementary organs of their females—to insure the meeting and union of sex-cells; (2) the wombs, ovisacs, and the like—in which the fertilized ova are kept until they have reached a certain degree of maturity; (3) the milk-glands—to nourish the young for some time after birth. We mention these three sorts of organs as typical; the details and actual arrangements are numerous, and vary greatly in different kinds of organisms.

In order to clear the ground fully, we note at once that the complementary nature of the impregnating organs in the two sexes of many animals is to be ascribed to the complementary nature of the sexes in general. Reproductive offices having been divided between two sexes, these two sexes somehow must be, and in fact always are, complementary.

We come, then, to the general fact that the body is suited to the young. Upon what grounds is this to be explained?

Our theory holds that it is the Social impulse at work. The essential act of the Social impulse as we shall see, is coöperation, *i. e.*, the mutual support

of the members of a Social unit. In this case, the unit is made up of the two parents and the young. This is the family unit. That in the later stages of the family history the parents coöperate with the young, and the young (according to their power and maturity) with the parents, there can be no doubt. What we hold is that this relation exists also before the young are born, and that the unborn young influence the parents to the elemental bodily details made to help them.

At first blush, such a position may look even worse than the ordinary rabbit-from-a-hat style of reasoning common among our evolutionists, since it is plain that the reproductive organs in any given organism antedate by far the fertilized ovum. The difficulty, however, is not serious, theoretically, and we shall not be compelled, as the evolutionists are, to use inherited memories with retrogressive selection.

It must be remembered, in the first place, that, although we have followed the ordinary custom of using the word "sex-gland," the free sex-cells (the spermatozoa and ova) are not products of a gland in the sense that saliva, bile, and other secretions are. The sex-cells are live cells and are the offspring of other live cells. Their ancestry can be traced directly back to the single cell, the fertilized ovum, from which all the other cells of the body, also, are descended. But it is the belief of biologists that the relation of the sex-cells to the original fertilized cell is much closer than that of any other cells of the body. The others have all become specialized to take part

in the complementary, mutually supporting aggregation of the body, while the sex-cells have done no such thing, but are almost exactly the original fertilized ovum. Moreover, it is believed that this close similarity between the free sex-cells, which the body sends out at maturity, and the original single cell from which the body was made, is to be explained as a case of actual close relationship. When, namely, the original single cell splits into several, one of the first few cells ceases to divide further, and through all the body-building remains unchanged, and, finally, still practically unchanged, is the direct producer, through splitting up, of the sex-cells that the body sends forth. It is said to have been sufficiently proved in certain cases that the reproductive cell is one of the first eight into which the fertilized ovum splits.

Our theory holds that it is this cell (the still unfertilized ovum or spermatozoön of the future) that at all stages of development holds a relation of offspring to the body, and influences it to the formation of the Socially coöperative organs of reproduction.

This influence during the earlier stages of development is comparatively slight. The other needs of the organism are evidently far stronger and more imperative. Nevertheless, even at an early stage the decision of the sex of the organism takes place, and takes place according to the sex of the cells that are hereafter to be sent out. In the mammalia, however, birth, even, takes place before the organs of reproduction are fully mature.

When, however, the body has reached or closely approached its Material perfection, the reproductive parts come to be strongly influential. In the mammalia this is accompanied by many developments, some Personal (since the sex-cells are strongly Personal), but many of the most striking, Social. Almost all the female developments at adolescence are Social, *i. e.*, reproductive.

Nevertheless it is in pregnancy, when the influence of the offspring-to-be is at its strongest, that full development occurs, and it occurs in proportion as the offspring develops. The female body enlarges and changes profoundly, even the head and brain changing and increasing in size; and the milk-glands, at the birth of the offspring, are finally mature and productive.

It may be well to notice the same case among plants. In them, also, the production of the reproductive part (the flower) and the seeds is of profound importance and influence in the whole organism. In most plants all the savings in vigor and nutriment for the year are expended in this act. In some cases the death of the plant follows quickly. Striking instances are found in the biennials, *e. g.*, the cabbage and the turnip or beet. Here the immense head or root shrivels and is quite exhausted, and the plant finally dies, in the production of the flower and fruit. We may note, also, the dandelion which is edible until it blooms, but then becomes bitter, having undergone a change even in its leaves. In all plants, however, the act of blossoming and fruiting is a heavy strain,

and experienced gardeners are careful not to let a bush bloom immediately after transplanting it.

The natural question may here arise whether the plants and animals in these great changes at pregnancy are really influenced by the offspring—whether these changes are due to the influence of the offspring, and are not rather the simple natural development of the parent.

That they take place when the offspring is there, and do not take place if the offspring is not there (*e. g.*, if the buds are clipped off, or the young miscarry) would seem to indicate clearly the source of the influence as being the offspring. There is, however, more indubitable proof. Darwin and a friend of his found, for instance, that if the pollen from a red-podded pea was used to fertilize a green-podded variety, the hybrid fruit sometimes had a red pod or at least red-coated seeds. Now, the pod and the seed coatings are not parts of the seed. Here, then, we have a clear case of a strong influence proceeding from the seed to the neighboring parts. Again, it has been noted by dog fanciers, from Darwin's time to ours, that if a pure-blooded bitch be allowed to cross with a dog not of her breed, she will rarely or never breed true thereafter with those of her own strain. She has been permanently changed by the litter of mongrels, and this change affects the subsequent litters. Darwin's account of the mare whose offspring, after one hybrid foal by a quagga, continued to resemble quaggas, though they were of pure-blooded horse ancestry, is classical and has not been

refuted. Thus the direct evidence of unusual cases seems as clear as the natural interpretation of the ordinary facts.

It may be asked, however, whether the positions taken in these last pages are not, after all, from a scientific point of view, discouraging, mystic, and useless. Is it science at all? These questions, it seems, should be fairly answered before going further, although other facts substantiating our position will be adduced in a future chapter.

If by discouraging is meant that our positions tend to prevent further inquiry and that they are not susceptible of confirmation and disproof, we can honestly deny the charge in toto. The positions are built on actual phenomena which can and should be given every treatment that human ingenuity can devise to make the details clearer. It is not our intention, here or elsewhere, to claim one jot more than the phenomena will fairly allow. Moreover, we hold, both here and elsewhere, that there is always a physical side corresponding to the mental, and we have held at all points that this physical side should be quite as much an object of inquiry as the mental.

If by mystic is meant that we class intricate actions with simple ones, the charge must be admitted. We feel convinced that, for the present at least, this is necessary. We do not pretend to go back of the phenomena that seem elementary. How the animal recognizes its food—how the dog recognizes the female dog—how the cat recognizes another animal as a cat—these are questions we do not pretend to

Explanations

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answer. The resultant actions of eating, mating, and coöperation, we do not pretend to explain either. Undoubtedly these instincts seem more mysterious when they take place in large multicellular organisms; to call them simple is a little as though one were to find an atom as large as a house. Nevertheless, if we stumble at coöperation in the larger animals, it must be held in memory that the coöperation of the body cells among each other is far more wonderful than anything found in the larger organisms. It is the novelty of the conception that makes it seem mystic; it is not in fact one whit more mystic than the similar explanation of the similar acts in the lower units. We observe, again, that we do not, by our position, let down the bars to wild unreason; on the contrary, we intend that every detail of the theory shall be clearly put, and shall stand rigidly upon the facts.

In a word, then, it is upon their usefulness that the positions must stand or fall. They must stand or fall as they agree with the actual phenomena; as they make actualities clearer and more rational; as they promote clear and restrained and definite thought and inquiry. It is to be noted that the size of the units with which we begin is hardly the question, provided those units exist and can be used to advantage. Even though hereafter they may be reduced to simpler terms, such units may be of immense value temporarily. When then we consider man and the atoms both as units, and both as subject to our axioms of mind, the essential question really is whether such a point of view justifies itself in thought.

We hope to show in this chapter, as we attempted to show in the last one, that the point of view is illuminating and helpful.

THE EXTRA-SOCIAL INSTINCT

The Extra-Social instinct is the Social instinct as it shows itself in the formation and arrangement of the Extra parts of the Social unit. It first appears in the family unit, where its phenomena are some of those already described under the Material instinct, viz., house-building, sense of property, and sense of location. Indeed, many of the illustrations given there belong under the Extra-Social heading, and it may be said in general that the building of homes and the development of the sense of property occur infrequently except in mated animals. Some of the most striking family homes are the paper and other nests of wasps, ants, and bees; the nests of birds; the houses of beavers and musk-rats; and, of course, human habitations. Ants and bees also sometimes lay up stores in their family houses.

In most of these cases the relation of the family to the house seems comparatively simple. In the case of bees and ants, however, some illumination is perhaps afforded by our comparison of the family to the multicellular organism. If the family may be considered as such an organism, evidently the members of the family are to be considered as the cells of it. The home, then, is to be compared with the skin or some other such Extra part. In the case of the bees, the comb is, however, not to be compared to any sort

of covering; it is rather an internal Extra part. It is to be noticed, moreover, that the cells of a honeycomb are of just the size of a bee, *i. e.*, of one of the living cells of the family organism. Hence the honeycomb, with its cells, may fairly be compared to those cells of multicellular bodies which store up nutriment and serve no other use. A well-stored hive might fairly be compared with a fat animal. It also brings the bee family into a real class with such ants as *Myrmecocystus*, described by Dr. McCook. In these ants, actual individuals (*i. e.*, according to our view, live cells of the family body) are used as storing cells, and exactly take the place of a honeycomb. The difference in the working of the Extra instinct in these two cases thus becomes slight.

At this point there arise questions very much like those we have already considered. Is, or is not, the nest built for the young? An ordinary evolutionary explanation makes the origin of the nest a parental placing of leaves or straw, or a similar hollowing of the ground, under the birds after their hatching. This chance act through natural selection became fixed and then developed. Then came the bird who chanced to build before the young were hatched. Finally, the bird who anticipated even the laying of the eggs. Thus by retrogressive selection they produce their rabbit from their hat.

Of course, any assumption that the bird (to take a special case) foresees eggs and young when she is building, must be dismissed at once. Birds can have no knowledge that they are to have young—even

Remarkable statement

though they have had them before. Moreover, birds will build though they have never had any, and they will build characteristically, not only as to material and form but also as to situation. It may not be amiss to note, also, that nests are often very ill-suited to the brood; the robin, for instance, lays four or five eggs in a nest that is only large enough for three young. If the eggs hatch, the extra young are invariably crowded out and perish. The nest is suited not to the brood but to the mother bird.

A more tenable assumption, according to our theory, would be that the mother is influenced by her pregnant condition into a preparation for the young that are to come. Undoubtedly she builds when pregnant and undoubtedly that condition influences her, but what is the nature of this influence? It seems impossible that she could be influenced to prepare for a future contingency. Her bodily condition, which we have ascribed to the influence of the unborn young, does not anticipate the young, but goes with them, step by step, and is, in general, exactly ready for them at their birth. Even a preparation for the eggs (let alone the young) would be a long look into the future, considering the length of time necessary to build.

On the whole, then, it seems most plausible to hold that, with the progress of pregnancy, the Social instinct, becoming much stronger than usual, leads to the building of a Social home, which thereafter is the focus of the Social unit of the family. After the nest is made, the eggs would, of course, be laid there,

the premonitory feeling being of such a nature as to arouse a strong Social desire, which would be best satisfied by the nest, the family focus. The reasoning here is similar to that on the bringing home of food, prey, and the like. Oct 28 21

An important consideration is that of the form of the nest. There can be little doubt that the nest is part of the family Social unit. The birds evidently think of it and its environs very much as they think of themselves. They do not stray far from it, and they are affected by anything done or threatened it, as if it were themselves. But after all, it is in many cases hardly what can be called a dwelling place. Some nests of other animals are even less so, *e. g.*, those of the mud-wasps. Other animals build no nest at all, but merely lay their eggs in special or suitable places. All of these, however, we consider variations of the Extra-Social instinct of the family, which evidently may be satisfied in very slight ways. Thus, pregnancy arouses in the bronze butterfly the impulse to have a milkweed or some other special plant as her home, though she builds nothing on it unless it be a web to hold her eggs there. So pregnant flies prefer meat to sugar as a laying spot; some wasps lay eggs in spiders; etc. No doubt the elaborateness of the home corresponds with the elaborateness of the Extra-Social instinct. No doubt, also, natural selection has held its veto ready. We may imagine, for instance, a very different state of things in the birds and insects of prehistoric ages.

It is worthy of notice here that in the case of butter-

flies and certain other insects the influence of the hungry young that are still unborn seems plainly evident in the home instinct. The butterfly hunts out the weed upon which her young will hereafter feed; the wasp hunts out the spider; etc. Such an explanation may also conceivably be used for the lining of nests with softer materials, etc.

If, however, we be asked about the relation of the third party in some of these cases—how, for instance, the fly or its young possess the proper chemical to produce the oak gall—this we frankly give up. The relation of the fly to the oak tree on which it feeds does not seem to fall within the simpler facts of our theory. It may have a long history, and the element of chance, upon which natural selection rests, may perhaps come into it.

THE PRACTICAL-SOCIAL INSTINCT

The Practical-Social instinct is the Social instinct as it exists between the members of a Social unit before memory comes in. It is the Social instinct without thought.

The Social instinct, where it exists, is usually like the Material in that it is notably even and constant and continuously active. It often requires little for its satisfaction, but that little it quietly and constantly endeavors to obtain.

The most evident necessity of the instinct is the physical presence of suitable other individuals. If these are absent, either temporarily or in advance of Social experience, the animal may wander about

constantly in search of them. There is nothing characteristic in such wandering, the movements being apparently the ordinary Material ones. The relation of the Social to the Material is, we may remark in passing, very much the same as that of the Personal to the Material, except that there is harmony rather than conflict between them. The unsatisfied Social feeling or yearning may be called loneliness, and often amounts to fear. It seems often to be a part of the fear of the dark, of the wilderness or desert or woods, and, ordinarily, of being lost—*i. e.*, these are often lessened by companionship. It results in a weakened Material vitality, and may even result in death. / The honey bee, it is said, will die of loneliness, if put in solitary confinement, and the same is sometimes true of man. /

man & Bee

The Social impulse is aroused to interest and curiosity, and is finally made definite by influences received from suitable other individuals. This definite interest in certain individuals, when fused to a percept, is commonly called recognition, though it is not properly recognition at all, but is quite intuitive. Each animal recognizes his own kind, or those with whom he will associate, from the first and without experience. In default of suitable associates, however, many animals of strong Social impulses will take up strangers and so accomplish a deceived satisfaction, as, for instance, when a chicken mothers young ducks.

As in the case of the Personal instinct, the means of influence is not always clear. In many animals

influence seems to be through smell and touch. In the higher animals sight and hearing undoubtedly contribute a large share. Ants recognize each other by touching their antennæ, and the sense used may be smell. Many persons in all ages have claimed that there is a special Social sense, differing and more subtle and far-reaching than the known senses. This sense is now called the telepathic. It is still unproved as to fact and unclassified as to theory, but if existent must, of course, have a physical basis.

In some animals the Social sense seems peculiarly keen. The family instinct of the ants, for instance, distinguishes by some means the members of strange families, even of its own species, almost inerrantly; and this is certainly not done through memory of acquaintanceship, but is apparently quite intuitive. Lubbock's experiments in this direction, though negative, are extremely interesting and valuable.¹ Similarly, bees of the same hive recognize each other as individuals of the same family, though less certainly than the ants.

With recognition the Social unit is regularly existent. This unit, as we have said, is a repetition of the Material body unit. Its essence, therefore, is that the members composing it act as one organism. This essential act is called coöperation. Coöperation, as here used, must be understood in the broadest sense. It must cover such a case as when three men lift one stone, but it must also cover the case where one dog barks because another one does it. This

¹ "Ants, Bees, and Wasps," Lubbock.

latter is also coöperation. It is to be remembered that here, as in the other instincts, conscious purpose does not enter into the impulse. When our animals act together and as one, the act is coöperation, whether anything is accomplished thereby or not. The barking dog may have no thought of any sort; he would certainly have no purpose; he does, however, help the other dog in his barking, and the act, though it may be called imitation, is distinctly more than is implied by that word.

Certain writers of importance, in discussing the Social instinct, have hit upon imitation as the original Social act. This leads to unfortunate complications. Imitation may have any one of several sources and may not be Social at all. It may be mere practice, which is absolutely common to all the instincts, and is quite as often Material and Personal as it is Social. If, for instance, I observe that some other man by certain methods is able to catch fish when I catch none, my imitation of him may be Material, not Social. Or, if I dress and talk and smile in imitation of some one, in the hope of breaking the hearts of the ladies, or if a bird learns its song from its fellows, that imitation is Personal, not Social. And in either case the trick may be practised a long time, and with great patience, and still there is nothing Social in the imitation. It is all a struggle toward a Material or Personal ideal. Even imitation in Social matters is not an essentially Social matter, therefore, but is the same in essence as the struggles toward other ideals. Coöperation, on the other

hand, is essentially Social, and when it looks like imitation is still essentially different. The three men lifting one stone are not really imitating each other, though they may be like reflections of one another; the barking dog is not trying to be as loud-mouthed or brave as the other dog (or if he is, it is not even imitation), but is barking *with* him. Only with such a clear distinction is our advance possible.

The essential law back of coöperation is, of course, our axiom that an impulse in one unit tends to make definite the complementary impulse in a suitable other individual. Here the impulse is toward a fusion of minds and of interests.

Coöperation can apparently take place only through influences conveyed by the ordinary forces of nature, and hence is at first comparatively superficial though very elaborate. Thus, for example, one animal will look round or stand as another does (light); or men will speak or sing in very exact imitation of each other (sound). But this soon goes deeper. When, for instance, we hear a human shriek, we make the movements to join in it, and this position of the physical organs (working apparently like a focus of a fusion) brings the whole mind into a coöperative condition—either of fear, say, or of helpful eagerness. This coöperation of mind is called sympathy. It is intuitive and requires no experience. Thus, the cur will run if yelped at; thus, also, birds give the alarm or some other signal to their mates or young. Similarly, the various expressions of the human face and the move-

ments of trembling, haste, excitement, and the like, are understood (more or less) intuitively. Among some animals the odors given out from the body may differ according to the animals' impulses. In such a case the odors may be a means of sympathy. Thus, friendly dogs are said to put their noses together before starting on a coöperative enterprise, and ants may act similarly.

In order to a Material or Personal sympathy it is necessary that there should be a complementary nature in the individuals of the unit. The Social union is thus a union not according to individual traits, but rather according to generic or specific ones. Hence it results in collections of animals of the same species or habits.

The closest unions are composed of individuals related by birth, as in the family. Sometimes, however, the individuals are merely of one species, as in most large collections of birds, fishes, and quadrupeds. Sometimes, again, they are of more than one species, as in bees or ants of different sorts, that nest together, and birds that flock in the same way. Occasionally the differences are still greater, as when owls and prairie-dogs and snakes nest together. The closeness of such unions must, of course, vary greatly since they depend upon the power of coöperation and sympathy. Some of them are a mere keeping of company, others are elaborate organizations.

It is plain that the effect of the Social instinct is chiefly to lessen individual action as such. Instead

of following the individual impulses, as such, these impulses are altered by the state or behavior of other individuals of the unit. These alterations are of two sorts: Either (1) impulses are aroused or strengthened, or (2) they are lessened or inhibited. As each member of a unit tends to associate with all the other members, this control will be least in the smallest units and will increase (at first rapidly) as the units increase in size. Thus the Social unit tends to bring about a uniformity both of impulse and of action in the collective unit. Nevertheless, two things are to be considered. First, that coöperation may result in very dissimilar actions, if the individuals of the unit differ in nature from one another, and, secondly, that a coöperative or sympathetic impulse is regularly weaker than an original one, and that there is often a considerable difference in the strength of Social impulses in individuals of the same unit. The uniformity in the Social unit is thus a strong tendency merely. It is also most marked in the larger units since in them there are in general no striking individual differences such as the sexes exhibit in the families of, *e. g.*, the ants and the bees.

We will consider first the essentially simpler cases in which the individuals of the unit are practically alike. In this case each contributes or may contribute an individual quota of impulses and acts; each receives a quota of the same from each of the others. The result may be a closely similar state of mind in each individual, and this state may be due not to any one mind, nor even to the mere summing up of the

minds, but may, in the summing up, acquire quite a new character. Such a collective unit would not only be less easily affected, ordinarily, than the individuals of which it is composed, since each is constantly influenced by the others, but the actions and impulses of the individuals might possess characteristics not to be foreseen from the individual behavior of those out of the unit. The mere satisfaction of Social restlessness would make a difference even if there were not the changes that come from mutual aid and sympathy, in the sunshine of which many things come to light. In a word, the actions of animals in a Social unit are not to be foreseen, but will certainly differ from their actions as individuals and out of the unit.

An illustration of this may be found in the ordinary act of coöperative attack or defense. For instance, if one member of the unit perceives an object of fear or hatred, he will, perhaps, turn toward it and utter some cry. The others of the unit will turn coöperatively and utter the same cry. They may thus augment each other's feelings so that those nearest will even advance upon the object of fear. Then all will advance. Those nearest and coming nearer would perhaps, if alone, be overcome by fear and avoid the actual attack, but the sympathy with their fellows who are not so near the actual danger may overcome their individual faltering and hold them firm so that together they may accomplish much that no one of them separately would have attempted. Herds of cattle will thus repel the attacks of dogs, wolves, and even panthers, and will attack in return;

while dogs and wolves hunt in packs and are then afraid of almost nothing. So in a human mob the courage and lack of responsibility in the members individually is notorious.

Coöperation, however, as we have noted, may result in different acts in different individuals, if these individuals are not alike. Ordinarily, there will be groups thus formed, which groups will have Social solidarity. Thus, if a herd of cattle or elephants is alarmed, the more strongly Personal individuals are aroused to advance upon the danger, and in a few moments the whole front of the herd will be composed of the bulls, while the females and young remain further back. Similarly in the human family, the mother will stand before and defend the offspring, her courage coming from the influence of the Social unit behind her.

Or, again, some individuals may, through individual differences, have livelier or more active minds than the others and, thus, regularly act first or in such a way as to be most sympathetically followed. Such individuals become leaders. Canada geese fly in wedge-shaped flocks with a leader at the point of the wedge. (This is all, of course, a repetition of the power of leadership of the nervous cells in the body.)

As an illustration of coöperative division of labor nothing is more wonderful than the families of ants and (especially well studied) of bees. Here there is a division of duties not only according to the three sexes, but far more elaborately. Certain individuals attend the queen, certain others nurse, certain others

do the fighting, certain others keep the home clean; certain bees seem to ventilate the hive, others make wax, others go to fetch honey, pollen, and propolis. That these little animals, almost without memory, certainly without reason in the human sense, certainly without recognition of each other individually, and probably without leaders of any sort, should accomplish these things and more like them is one of the marvellous facts of the world of nature.

We have elsewhere noticed, however, that the comparison of these acts with those performed by the body cells, makes clear their general nature. Each bee is to be thought of as a cell. Thus the queen and the drones are the Personal and reproductive cells; the nurses are the circulatory system; the cleaners are the bowels, bladder, and pores; the ventilators are the lungs; the wax-makers are the cells that produce bone, etc.; the honey-preparers are the digestive tracts; the fighters and foragers are the muscular cells; etc. The specializations are in general much like those of the body. Only the nervous system and brain seem lacking. (In man, however, the parallel is complete.)

In some of such cases the decision as to duty seems to depend wholly or partly upon sex and age. The leaders of the Canada geese and of some other birds are believed to be the old males. The so-called ventilators of the beehive have been said to be the youngest mature workers. It is easy to conceive that the impulses and coöperative actions of individuals at different ages should differ, and it

*Old
Warrior*

seems likely enough that when Social units have divisions of duties regularly carried out through the species, the differences should depend upon some such constant factor. It is probable, also, that there should be a natural physical rotation in certain cases. Making wax, for instance, might take place occasionally as the duty of every working bee. Of course, there may also be constant differences like those of sex, a constant variation less than sex, but there seems to be no observed evidence of this.

In all cases, however, it must not be forgotten that the performance of these various acts is Social and is caused by the Social instinct. The bees of the hive are mutually assisting each other, and the fact that one does one sort of task and another another, must not confuse us as to the impulse. If any one of the different kinds of activities is lacking, the hive family all feel it and are uneasy, though of course they cannot reason out what the matter is. Nevertheless, although they cannot reason, they ordinarily take the proper method to set things right. This is notably so when the queen is lost. She is the only representative of her kind in the hive, and when her loss is felt, the nurses are said to begin shortly to develop a new queen. The lack is felt, and to the nurses an egg is apparently the best that can be done to fill the unsatisfied impulse. It is treated accordingly half as egg and half as queen, and its future is thereby changed from a worker's to a queen's.

There can be little doubt that in certain cases, at least, duties may devolve upon those who ordinarily

would not take them. If the leader of a flock of birds is killed another takes the place. It is fairly certain that some of the ordinary duties about the hive would be performed by others if at any moment the incumbents were taken away. When the office is being well filled, other suitable individuals busy themselves otherwise. One is reminded of the working of the brain, which though temporarily disabled by certain operations of removal of parts, will often recover normality by adapting other parts to the duties required. The cases in the Social unit—the family, flock, or herd (as, for example, in posting sentinels)—we reckon as repetitions of the cases in the brain.

Social units regularly have the power to complete themselves. The impulse is satisfied in definite units and is not to be thought of as uncertain as to its means of satisfaction. Ordinarily, the unit is of fairly definite size. We have already spoken of the production and inhibition of eggs as under the control of the impulse; and the determination of sex may also be controlled.

In certain cases the production of the full family is impossible, the result being the adoption of individuals of other families or even of those of other species. This may occur in any animals as a deceived satisfaction, as when a hen mothers ducks; but it may also be regular, in which case we have a form of parasitism. Thus the cuckoo of Europe and the cow blackbird or bunting of America introduce themselves into other families, in which they are regu-

larly received through a deceived satisfaction. Similarly, the so-called slave-holding ants (who have only three sexes, namely, males, females, and warriors, and who are none of them able to feed themselves) fill the family vacancy by conquest, the larvæ of other ants being brought into the family, which larvæ at maturity (by a deceived satisfaction) take their place in the family and care for the helpless slave-holders. Evidently in the case of the cuckoo the weak home impulse is incapable of self-satisfaction (probably it is felt only just before laying the egg) but is satisfied by the nest of another bird; and in the case of the ants, the lack in the family unit provokes wandering, and is best satisfied, practically, by the larvæ of other species (the mature of other species being impossible to get).

The strictness of the Social impulse as to the numbers in its unit is very variable. Ants and bees, of course, have no way of keeping count of their hordes, though they may feel very distinctly the lack of proportionate numbers in the sexes composing them. Similarly, also, even the birds and many cats and dogs do not miss (or seriously miss) a young one or two, if a couple are left. It is apparently on the numerical side that the family unit is least definite.

On the other hand, Social units, like all other fusions, have the selective power, and are regularly without foreign elements. They have, also, like the lower fusions, a strong tendency and power to eject foreign or impure parts (members).

The stronger Social units are almost absolutely barred to outsiders. Ants and bees regularly kill and eject strangers, even those of their own species, and the same temper is shown by herds of animals and by man.

Outsiders among the ants and bees may be discovered by smell; among cattle by memory; in man by memory or by their strangeness of action. Strangeness of action may in any case lead to hostility and ejection by the unit. Thus, an injured or sick animal is regularly ejected or killed among ants and cattle and some other animals. And the same temper may be exhibited toward the old, even among human beings. Failure to coöperate is the Social crime. Sympathy with the physically incapacitated is hardly found among the lower animals, unless it be in a horror and fear that leads to desertion or attack. Some actions certainly might stand that interpretation.

The Social attack in most cases differs in no way from the ordinary Material-Personal ones. The only striking case to the contrary seems to be the stinging of bees and ants, which is apparently of Social origin. In the consideration of this case, as in previous similar ones, our principle must be remembered, viz., that a negative impulse cannot produce an action of original approach. A use of the sting and poison-sac in positive approach must therefore be discovered. In the case of the ants and bees and wasps the poison seems uniformly to be used as a food preservative. It is comparable to the stinging

and poisoning of the insects who produce the tree galls. These actions seem to be distinctly Social (*i. e.*, they are exerted for the family unit), and the use of the sting as a weapon is to be thought of, therefore, as negative Social—at least in origin. It is notable, and a fact of undoubted significance, if true, that the queen-bee, though provided with a sting, never uses it (this is said to be a fact), except against rival queens, and even then she is not allowed by the onlookers to use it unless she is able to kill without being herself harmed. This battle of the queens, which in descriptions is commonly given a sexual (Personal) tone and explanation (as in the use of the word rival), is doubtless Social and not Personal. Personality is the bee's least fault. Similarly, the slaughter of the drones is a negative Social act and pretty certainly not Personal. In both cases the Social unit is offended by the presence in it of certain individuals. Those individuals must leave or meet the wrath of the Social impulse.

The positive Social impulse is felt toward the members of the Social unit; the negative toward the hindrances to the perfection of that unit; toward objects and individuals outside the unit and not interfering with it, the impulse has commonly no feeling. This indifference is in practice largely a matter of locality. Indeed, the Social impulse itself is largely a matter of locality, and it is found in general that with animals that have little or no memory, there is no apparent recognition, cordial or hostile, at a distance from the nest. Stranger and brother

are apparently alike to the busy bee or ant on an expedition. They seem indifferent to everything except the business or pleasure in hand.

Nevertheless, there are apparent exceptions to the indifference of animals to strangers, and we may perhaps class as Social certain seeming race-antagonisms, such, for example, as that between the dog and the cat, the chicken and the hawk, and the like. These look like hostility of race. They seem to be intuitive and not to rest distinctly upon any danger incurred in experience. In the case of the hawk, however, the element of experience may enter in, for various species of birds have a signal in common for the hawk, and the various species may learn from each other, and even carry the information from year to year and from generation to generation. The fear of man is certainly taught in some such way.

We come now to a consideration of the practical relations of the Material and Personal instincts to the Social. As has been said, the Social instinct acts as a distinct check upon their ordinary working. The parent bird will sit on its eggs though hungry, will bring food to its young instead of eating it, will face danger instead of avoiding it. Similarly, there is no love (Personal) or rivalry between parents and young.

Nevertheless, the individual instincts are not lacking, and they are ordinarily stronger than the Social, *i. e.*, they are influenced but not destroyed, and the influence tending to inhibition is most commonly evident when the instincts have been partially satisfied. There are doubtless exceptions, but few

parents neglect to feed themselves before feeding their young, few are actually slain in defence of their young, and in general it is not at all a difficult thing to split or destroy a Social unit, at least for a time, by forcing the Material and Personal needs to the front. Ordinarily, it is true, the three instincts are satisfied independently and without any actual harm to the Social unit, and without any special interest in details.

The following cases of special interrelation are worth notice.

Many animals, especially the young, engage in what is called play. When there is nothing on hand to satisfy the Material and Personal instincts (and yet the Social instinct prevents wandering) the young will practise upon each other—fighting, chasing, romping, and the like yet always within Social bounds. The claws of the kitten are kept in; the teeth of the puppy do not really bite; and so on. The situation is sometimes described as an overflow, or ebullition of animal spirits. The lack of seriousness is implied in such words as romping, pranks, sport, fun, joking, games, and the like. Sometimes one may suspect that the sporting of young animals is merely the best they can do—*i. e.*, that it is the acting of undeveloped instincts—and this may be so in some cases. Frequently, however, it is not so, and a little experiment makes it clear that even the young can be serious; while the sports of older and mature animals, as when the cat plays with her kittens, or when two mature dogs play, is of

course evidence that immaturity is not the essence of the phenomena.

Animal games seem to be sometimes Material and sometimes Personal. The kitten chasing its tail or a leaf, or playing with a string or ball, is probably exercising Materially. Similarly, when kittens or puppies chase one another, the Material element enters very evidently. So, also, when dogs quarrel over a stick or rag. This is all a Material make-believe, *i. e.*, is controlled by the Social impulse.

Often enough, however, the games are wholly or in part Personal, and there is the attempt of one to get the better of the other. And these playful rivalries may result in exhibitions like real rivalries, in sulkiness on the one hand, glorying on the other, and (with memory) a desire for retaliation in the end. The most notable case of this is perhaps that of the elephants, who are said to play jokes on each other, with loud trumpeting in case of success, and a great patience in getting even. Moreover, in this case the joke is not merely a private affair, but is shared in, through sympathy, by the other elephants who may be of the crowd. This will be considered again.

It is curious to note how the Social instinct of playfulness may pass the lines of mere species. Dogs, and in a less degree cats, feel Social ties to humanity, and they recognize clearly the immaturity and playfulness of children. Thus, a good dog or cat will good-temperedly endure from children an amount of mauling that no mature person, except perhaps the master, could think of inflicting with impunity.

Moreover the dog will often respond. A dog and a gang of street urchins mauling him, is a picture of unalloyed brotherly happiness.

But the Personal instinct in the Social unit has also its serious phases. Among many of the higher animals, no two individuals can meet without some emotions of a Personal nature; and the Social instinct which compels them to come together often acts with the results of a bag compelling two cats to come together. Personal rivalries and fighting are thus far more constant and violent in animals that flock than in those that are not thus drawn together. These rivalries may be either between males or between females, or between males and females.

The results of combats within the community may be of two sorts: First, the males, being violent and often unafraid, may fight until all except one are killed or driven from the flock. It is thus that the condition called polygamy arises in wild nature. Whether animals shall be polygamous or not is thus an indirect and somewhat mechanical matter. Possibly all males are potentially polygamous. The domestic duck and the canary are polygamous in the artificial communities of the barn-yard and cage, though not so in freedom.

Another result occurs when through memory the results of struggles are remembered, and the defeated antagonist avoids the victor, whenever necessary. Thus there may come to be a regular understanding in a herd or flock, each individual knowing its superiors and inferiors in combat. It is said that

when a strange cow enters a herd she may have to fight each of the other cows to some conclusion before she can have peace; and the cows may take the same course with a new bull when he is brought in.

THE RECOGNITION-SOCIAL INSTINCT

Although the Recognition grade of the Social instinct must be of great importance in any practical use of our theory, since Recognition memory enters into the phenomena of all the Social units of the higher animals, yet it offers no details for our special consideration here. Several cases, which it seemed best to note in passing under the head of the Practical-Social, have already been mentioned. Others may be noted under the Thought-Social. Probably no great intelligence will be required to adapt this grade to practice when necessary.

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CHAPTER X

THE SOCIAL INSTINCT (CONTINUED)

THE THOUGHT-SOCIAL INSTINCT

OF all the instincts none takes so many forms with the advent of thought and invention as the Social. The practical world of man is built upon it far more, even, than upon the Material, for it is not only itself the greatest of the instincts, but it has made Material progress possible and it has tempered and adapted the Personal.

Its working is, of course, similar to that of the other instincts. It classifies all memories according to their Social interest; arrives at definite likes, dislikes, wishes, and desires; and proceeds finally to distinctions, finer classifications, inventions, thoughts, and systems. All thoughts having Social bearings are thus wholly or in part its work. So much more has it done than could be illustrated in the discussion of the Body and Practical grades that, at the risk of some repetition, we will run over some of the details.

There can be no doubt that man is a Social animal.

The presence or absence of his fellows are matters of real concern to him. There is in him an undeniable impulse that is satisfied when he is a member of some Social organization. Hence a real discomfort or fear in loneliness, whether actual, or, more remotely, through the neglect or avoidance of his fellows. Some of the words used of this state are: the sense of solitude, desolation, isolation, desertion, abandonment, or exile. Sometimes the feeling connected with the word bereavement is chiefly one of desolation and desertion, when a part of some Social unit is taken away by death. The feeling may have such names also as forlornness, disconsolateness, wretchedness, misery, or the like, though some of these words are frequently used indefinitely as to instinct.

The feeling as one of an organization, on the other hand, is one of pleasure, and may be called: tranquillity, contentment, placidity, serenity, consolation, or even bliss or beatitude. These feelings have a distinct kinship with the Material feeling of physical health and well-being, of which they are a repetition. A common sign of strong Social pleasure, however, seems to be tears.

The influence exerted by individuals of the positive Social type may be described as soothing, agreeable, wholesome, stimulative, restful, restraining, or unexciting. It may be called affability or approachableness. Its air is bland and mild. A common sign in speech is fluency and talkativeness. Individuals strongly of this type are not rare. The classifications in their thoughts may be so exclusively

Social that they may hardly distinguish one Personality from another.

Of course, every human being has influence, and may be affecting, moving, pathetic, and the like.

The negative Social impulse may be called by such names as wrath, or indignation, or, with less activity, disgust, loathing, abhorrence, horror, or if it be a more continued state, malevolence, misanthropy, or an anti-Social desire. Individuals of negative impulse may be described as sinister, crabbed, or hideous (which in this sense is quite different from ugly).

Some of the conditions of the Social unit which give pleasure to the instinct are organization, union, unity, unanimity, mutualness, solidarity, purity (*i. e.*, exclusiveness), and completeness.

The essential acts of the Social instinct are: (1) Social imitation, aping, mimicry, as found among the lower animals and in unreasoning man; (2) co-operation, aid, assistance, helpfulness, obligingness neighborliness, brotherliness, fraternization, obedience (with or without a Personal element, *i. e.*, there may, but need not, be Personal or Material fear seconding the Social impulse), service, and the like; (3) sympathy, congratulation, solicitude, pity, condolence, compassion, commiseration, appreciation, considerateness.

Sympathy with private ills—sickness and the like—is little developed below man. In actual danger assistance is always likely to be at hand, for there is an evident attack upon the organization. But wounds and disease and pain arouse painful sympathy with-

out suggesting any way of meeting the situation. Thence fear and panic. The ants shake to death a wounded companion; cattle gore to death a bleeding member of the herd; men desert the sick and helpless. Helpful sympathy in these cases comes largely through memory. Having deserted the sick or unfortunate, we are not loosed of them if we remember them and imagine their loneliness and pain; and this memory and imagination rouses us again to coöperation and helpfulness, and we return and do what we can. The panicky state, however, is not infrequent even then, and there are those who out of sheer helplessness and Social fear will bully and brow-beat and even shake the sick. Lubbock¹ relates that the Feegeans bury alive their old or sick parents, and this may come under this head. Desertion is ordinarily the worst that is done, and this is not uncommon even among civilized men.²

It should be noted, however, that reason and experiment have given us quite a different conception of diseases from that held by the savage and the ignorant. Sickness is no longer mere mystery; and the means of aiding the sick are in many cases well known. Thus the situation becomes more like other attacks upon individuals, and may even (in infectious cases) be viewed as a real attack upon the whole Social unit. Helpfulness is then much more

¹ Quoted by Darwin, "Descent of Man," Vol. I, p. 74.

² Elsewhere we have suggested another explanation of the ferocity seen among animals in these cases. Both causes may be at work. In the case of old age, the other explanation, *i. e.*, that old age is non-coöperative, seems the true one.

normal and natural, and may require no strong or determined reasoning or memory.

The quality of the Social instinct now demands our attention.

Each of the instincts contains within it a certain imperiousness. We must eat, we must win. We are heartbroken at the loss of a friend or a lover or a sum of money or a home. But the Social instinct differs somewhat from the others. In the first place, helpfulness is of no plain and direct advantage to us, while money and food and women (or men) are. The compulsion that says we must be helpful seems thus, when reasoned upon, different and even "mysterious." Moreover, it is the only one of the instincts that our neighbors can compel us to observe. Our dinners and our loves may be none of their business, but if we transgress or fall short of our Social duties, our neighbors are actively concerned and we admit their right to be so. It is probably from the latter fact that the Social impulses are obligations and duties, and are enforced by the word ought. These words imply that we owe it to others to do certain things.

Consideration, moreover, showed reasoning man that these words might be used not merely of what the community may violently enforce but quite as much of those inner and lesser Social coöperations of which the community may never by any possibility know. Thus we ought or must be sympathetic; thou shalt love thy neighbor; etc. Indeed, with a large number of people, the sympathy and

love are thought to be the whole thing, and helpfulness and coöperation are not thought of as really connected with the duty. Thus duty often ceases to be actively Social.

We shall consider later some of the phases of the effect of reasoning upon Social ideas; but we may note further, at this point, that all instinctive promptings, when carried in memory, tend to become somewhat abstract. Thus the Material becomes a love of truth, and the Personal an ideal love (such as Dante wrote of). In the case of the Social, the abstraction is the love of goodness. Some of its vagueness is doubtless due to the numberlessness and variety of the situations in which it is aroused. (It should be remembered that the thoughts connected with an instinct are derived wholly from experience). An impulse roused by a thousand different individuals separately in many special cases, and by a considerable number of organizations (*e. g.*, family, city, tribe, society, guild, etc.), is sure to remain unidentified (though not less active on that account) for a long time. Socrates is sometimes said to have discovered it for the Greeks. Among the Hebrews it was always somewhat vague, and was supposed to be aroused by the thought of God, rather than by the thought of our fellow-men. This confusion results, moreover, in the unconscious broadening of the Social field, since men often acknowledge Social claims where there are none, *e. g.*, in Material and Personal matters; and this result reacts again upon the Social conception, making it still more vague.

Material

Love of Truth

Personal

Ideal Love

Social

Love of Goodness

There is, however, another question to be faced, namely, that with regard to the superiority of the Social to the two other instincts. The Social indubitably holds this position even among savages. The explanation of this probably lies also in experience and thought

The man who has satisfied his Material or Personal instincts and thereby has worked against the Social, will evidently have a Material or Personal satisfaction and a Social dissatisfaction. In a short time the satisfactions will ordinarily grow dim in memory; the Social dissatisfaction on the other hand may be kept very much alive by all the other members of the community, since their lasting displeasure may have been aroused. Evidently a momentary satisfaction is not worth while at such a price, unless one cares little for Social matters, *i. e.*, unless one has a distinctly weak Social instinct. Hence among savages the superiority of the Social to the other instincts is recognized only in certain matters which the community insists upon; and for most civilized men the same is true. If, however, any individual be Social and thoughtful, the offence may be felt in an exactly similar way even without the blame of the community, for the Social sense is notably constant, and the presence or even the memory of one's fellow-men is always keeping it alive, and with it the dissatisfaction of having offended it and been untrue to it. The superior importance of the Social issues is thus a fact, and experience will teach it even to a child. Goodness pays, both in the external world and in the inner

world of thought. On the other hand, Material and Personal disappointments are ordinarily either not so serious but that they can be forgotten in other matters of the same sort (and in any case the community is not always reminding us of such griefs), or else by ingenuity they may be satisfied without harm to our Social issues.

We hold, then, that the recognition of the comparative value of the instincts, as well as that of the quality of the Social instinct (namely, that we ought to follow it), is the result of experience and thought.

It should be noticed that coöperation and sympathy are native and intuitive in man. They are often spoken of as elaborate states of mind, but this is not regularly so. Social coöperation and sympathy is not imitative imagination; and does not "put itself in their place," *i. e.*, imagine how others must be suffering or rejoicing. It does not ordinarily go outside of itself in any way. It is a difficult feat of imagination to put oneself in another's place, and when we try it, we are conscious that it is an act of reason and imagination and not the common helpful frame of mind at all. Helpfulness and sympathy are originally direct and without thought—which, of course, does not mean that thought on such matters is uncommon or useless, for thought helps all the instincts to clearer and better satisfactions.

Neither is the Social instinct to be evolved out of prudence, though some theorists have wished to have us believe so. It is not, for instance, the result of habitual living up to a contract of mutual defence.

The man who follows certain laws because he knows he will be happier and safer thereby, is not, in so far, good; he is, rather, reasonable, *i. e.*, Material. He is not the man who will spring into the river to save a drowning person, or let himself be persecuted or burned for righteousness' sake. The man who walks into the fire is not the evolution of a prudential past, he is following an irresistible impulse and leading. "There I stand; I can do naught else; God help me."

The irresistibility of the Social impulse depends, of course, upon its strength as compared with the others. The quality of oughtness, however, is not so dependent. It is present in all consciously Social acts, both small and great. It is equally present in men who go against it every time the other instincts lead them so. A considerable percentage of men and women go into evil with perfectly clear feelings that it is wrong and inadvisable; not infrequently they do it rebelliously. They know the good; they follow the bad. The spirit is willing (Social), but the flesh is weak (Material and Personal).

Oughtness is, then, the essential quality of the impulses of the Social instinct. Its acts have the essential quality of rightness; its distinctions are moral. The instinct itself is the sense of duty, right, obligation. Its control over our acts and its distinguishing of what is unsatisfactory and what satisfactory to it, it is called conscience. Dogs are believed by many observers to possess what may fairly be called a conscience.

As the Material instinct is in a general way what is

meant by the word mind or reason, and the Personal instinct what is meant by the heart, so the Social instinct with its superiority is what is often called the will. Much confusion arises from all three of these words. All of the instincts reason, each according to its interests; all of the instincts are strongly impulsive and keenly alive to pleasure and pain, each in its own range; and any one of the three may be determined and strong, and may overcome the others—and action and thought are never performed in any other way. Hence we find, in the mouths of these reasoners, the applications of the words mind, heart, and will, constantly slipping from the doings and thinkings of one instinct to those of another, and, what is worse, carrying their other implications with them. Preachers, for instance, tell us that we must feel a Personal love toward God; when what they might say, and perhaps do mean, is that we must join with God to bring about the moral improvement of the world. The former statement is a self-contradiction; the latter will arouse not rebellion but the immediate and complete assent of every Social believer in a God. Personal love knows no “must”, and can be aroused only by attractive Personal traits, or by sympathy with some one else who loves.

In the same line of misconception is the confusion arising from an indiscriminate use of the words love and hate. Each of these may be used with each instinct, and some interesting discrepancies of customary thought, and perhaps some clarifying and strengthening of convictions, might result if we had

three words instead of one. For instance: "Love (Socially) those that hate (Personally ?) you; love (Socially) and hate (Socially) not." "Thou shalt love (Socially) thine enemy (whom thou hatest Personally ?)." It would assuredly strengthen and purify the church if it could lessen in itself the Personal element that is now so strong, and become more purely and warmly Social.

Social unity is accomplished by the mutual coöperation of the members of the unit. This means a certain averaging up of the members, and a considerable yielding of the individual impulses (Material and Personal and even Social) in so far as they conflict with the impulses of the unit as a whole. Good Social traits along these lines are named as follows: adaptability, tractability, amenableness, compliance, self-denial, self-sacrifice, abnegation, consideration, disinterestedness, willingness, the sense of obligation, obedience, docility, teachableness, mindfulness, unselfishness, moderation, temperance, modesty, and the like. Some of these, as docility and teachableness, belong also to the lower animals, and it may be noted in this connection that all of our domestic animals are gregarious, *i. e.*, Social. The cat is least so of all, and is also least teachable, though by no means least intelligent.

With the entrance of thought, men (and to some degree the lower animals) are Socially influenced, as we have already noted, not only in the sensual presence of the community, but, through memory, at all times. Hence the sense of responsibility, answerable-

ness, dutifulness, scrupulousness, reliability, innocence, honesty, integrity, probity, high-mindedness, self-respect, virtue, purity, goodness, and morality generally.

Through memory and thought and the sense of constant obligation arises the sense of morality as a thing somehow different from the love of and the coöperation with mankind. This arises, in part, as we have said elsewhere, from the lack of evident Material or Personal advantage in most of the Social acts; in part, also, from the vagueness of the motive in all impulses when they become pure thought (and, of course, no instinct contains in it the thought of its object); in part, also, from the observation that in actual life all human relations are mixed with Personal and Material motives and are, therefore, unsatisfactory, whereas the imagined virtue is not so mixed. It arises, finally, also because in thought many matters of no plain Social import may be debated, as for instance, the best means to arrive at peace of conscience. Thus, the curious result has been reached that men of great Social yearnings, feeling that their fellow-men were always leading them astray, and that the world was no place where perfect purity of conscience could be obtained or kept, have often sought entire separation from their fellow-men, and have thus attempted to bring about, through strenuous self-discipline and in the absence of temptations, the utter yielding of the mind and heart to a more or less dimly conceived better world or good God. The fertility of the mind in this position—carried through

with wonderful consistency, considering the probable absence of psychological analysis—was admirable. Anything arousing the lower forms of the Material and especially the Personal instincts, was pretty surely recognized instinctively as evil. Of course, it was early recognized that thoughts might be evil and might weigh on the conscience just as physical actions do.

Such a position is in general an impossible one. The Social instinct cannot be satisfied by solitude, although solitary reflections on an ideal state and a better world undoubtedly strengthen and fortify (by making clear) our Social thoughts, and through them our Social acts. The monastic or hermit life failed also to satisfy the Material and Personal instincts, but in a distinctly less degree, since these instincts require no coöperation. Hence the monks were more apt to turn in those directions. They became in many cases tremendously learned (which, however, along certain lines, may be Social in part as well as Material), or else their thoughts of God became intensely Personal. He (or she, in Mariolatry) became the adored object of beatific visions; and the world was quite forgotten in flagellations and dreams that had often, apparently, not a trace of the Social element in them. It can hardly be doubted that these sides of hermit life are and were the most nearly satisfactory. Even good Thomas à Kempis rises into unwonted ecstasy in the Personal relation toward God, though he believes the same instinct a grievous sin when aroused normally.

For our practical consideration the chief point we wish to make is that not only are we bound, through Social memory, to act Socially and think Socially when the Social unit is not sensually influencing us, *i. e.*, we are bound by it at all times; but we are also able, through Social reason, to conceive of a Society that is better than that about us—unhampered by the natural obstructions and inevitable compromises of the real world. In other words, we perceive that the promptings of helpfulness and coöperation and goodness might go much further than they do. The Social sense itself is thus the highest court of appeal, and may command with its must and ought far beyond what men generally may perceive is best.

The problem of the satisfaction of the Social instinct by means of human organizations is one of extreme difficulty. Human history is full of the wrecks of Social experiments, and human progress has been and is slow and uncertain because of the inevitably enormous number of the practical details in the task. Not only are there certain difficulties arising from the character of man (which difficulties we will presently discuss), but the essential bearings of many acts cannot be made clear without long and perhaps dangerous experiments, which after all, may be of doubtful interpretation at the time of their completion, and indeed forever. Nevertheless, in the course of ages the Social sense, inventing and experimenting and reasoning, gradually sifts much of the good from the bad and accumulates invaluable results, putting its

decisions into the form of customs, usages, regulations, laws, governments, and the like, which facilitate that smooth action of Society that is called order. From this point of view a good Social trait is regularly formality and the love of forms. The Social man of experience is deferential and respectful to constituted Social laws and usages and thoughts. His feeling may even be veneration or reverence.

Formalism in thought has many curious results, since men who accept thoughts because of Social considerations, very commonly accept them quite uncritically, and, as a result, may never really join them vividly with any impulses, or make them of effect in action. For the man who accepts his thoughts Socially, will also accept his manner of daily life Socially; and will fear oddness or queerness in one quite as much as in the other. Consistency has ordinarily nothing to do with the matter. Many striking deceived satisfactions come under this head. Thus, Christianity is rarely a living force except in so far as the community adopts details of it; and no inconsistency is commonly felt. Thus, also, we may notice that the gap between English governmental theory and practice is enormous, but not ordinarily felt by Englishmen. In short, the religious beliefs and governmental theories, and even the school teachings of any nation or community, are not to be taken as trustworthy evidence of the manner of life in the organization. The example of Zeus did not justify the evil of licentiousness among the Greeks, any more than the example of Christ would justify a

modern clergyman in the good but extraordinary act of dining with harlots.

If, now, the Social bearings of certain problems, perhaps ancient ones, becomes clearer; or if some man of keen Social sensitiveness or excellent Social reason looks more deeply and clearly into their significance (some material or historic change may facilitate the matter), the Social sense may view certain old regulations with dissatisfaction. There may even come men who, perceiving clearly the evil of the regulations, and feeling the Social impulse urging them with its "must", will refuse to follow the regulations any more. Such individuals (they may be wrong as well as right), are reformers, martyrs, fanatics, and the like. It is to be noted that in so far as they do not coöperate, they are non-Social or bad; they therefore have, in the beginning, all good people against them. In the end they can reach a position of Social rest if they can make others see that the Social instinct in all men will be better served and more fully satisfied by the proposed new custom. Hence the true reformer is likely to suffer much, for he is keenly Social and the position of outcast is as hard to bear as any suffering can be for him; and meantime the desire to help his fellow-men is quite unsatisfied. Nevertheless "the imperious word ought," as Darwin calls it, will endure no compromise; he must go on though he be imprisoned, mocked, buffeted, hanged, or crucified.

We may well at this point say a word as to leaders and leadership. Leaders are those individuals

who, through special force or quickness of mind or body, or special powers of thought or invention, are followed and coöperated with by the Social unit. Among the lower animals the actions of the Social unit are for the most part limited and unoriginal. In man, however, a great mass of actions (those resulting from memory and invention) are not inevitably performed. These depend, then, upon the peculiar individual gifts of some member of the unit, and regularly cease with his death or absence; though many, through memory, are continued indefinitely, especially if they meet some permanent condition in some formal way. In all such cases leadership depends upon special gifts, which others with less or slower gifts coöperate with. Leadership is thus a form of originality and inventive power or force along those lines of our nature that are common to all or to a considerable number. Such men may be unique, but they must be simple if they are to lead many. They need not be strongly Social, coöperative, or sympathetic, but they must have such gifts that others may coöperate and be sympathetic with them. A curious result from this last fact is that it is no unheard-of thing for the follower of a great leader (after having worked coöperatively and sympathetically with the master) to become an even greater leader than he from whom he drew his inspiration. This is because the second is the stronger in coöperation and sympathy and adaptability. One thinks at once of Socrates and Plato, Marlowe and Shakespeare, Corneille and Racine, Herder and Goethe, and, per-

haps, John the Baptist and Jesus. In each of these cases we find a stubborn and inspiring personality followed by one far more sympathetic while no less great. Regularly, however, the inspiration of a great leader is almost lost with him and what remains is pale.

Social inability in leadership is common. Individuals of inability, if somehow brought to the front, are regularly unable to meet the situation, and are struck with fear or panic. This is the ordinary feeling of one called upon to make a speech, but is often plainly evident in individuals employed in the various departments of public life.

We turn now to the *means* of coöperation and sympathy in the higher Social units. In the lower animals, sympathy, as we have noted, comes about through superficial coöperation. The superficial action brings about a corresponding frame of mind. Thus, in man a human shriek will arouse a sympathetic frame of mind though the hearer may never have heard one before.

It is evident that such native sympathy is strictly limited. Darwin enumerates five different barkings of the dog. Birds often have a number of calls, each with a special feeling attached to it—the alarm for the hawk, for instance, is different in many birds from that for terrestrial marauders. Moreover, both dogs and birds can bring about coöperation in other ways, *e. g.*, by movements or (dogs) by odors or warmth. Ants are able to accomplish in concert excursions for change of residence, plunder, or battle.

The bees know when the queen is gone; when to swarm; when to kill the drones; etc. But in complex minds and lives such as man's, these communications of impulses would be far from sufficient. He has, accordingly, in the course of ages, invented sound-symbols, called language. In every country and tribe of man these sound-symbols are in use. No doubt the earliest ones possessed a meaning known intuitively, but these soon passed into those whose significance had to be learned through experience, and then remembered. It is to be noted that language did not arise through the Personal instinct—the songs of birds or the cries of other rutting animals—but through the Social signals. Of course sex cries might become Social signals. We wish only to emphasize the Social element as the essence.

The difference between an invented signal and a natural one is of course great. The difference between an intentional one and a non-intentional one is perhaps even greater, and of course this step had to be made first.

Many signals of the animals seem simply natural cries, and not intentional. The "signal" cry of the bird is, no doubt, influenced by the fact that she has a nest in the neighborhood, and it is plain that the young are affected by it, for they will crouch and be silent at it, although perfectly fearless of actual danger. Nevertheless, though the cry is Social, it is not clear that she is intentionally signalling to the young, for she will cry similarly when she merely has eggs. Of course, this is not conclusive, for the eggs are also

alive, and are so considered by her, and what she conveys is not in any case to be thought of as advice—"Lie down, my dears, here comes the cat"—but is such a communication as a human shriek is to man, a communication not of a thought but of an impulse, and which each will act upon according to his Social gifts.

True speech must have its origin in the desire to influence. When, for instance, the domestic cock clucks after having found some bit of food, and refrains from eating, waiting for the hens to come, the intention seems evident, though the sound made is natural. It is by remembering and reasoning upon such situations that speech would be invented. It would thus begin with cries or actions caused by restlessness because the unit did not act as the signaller did or wished; and through memory and invention it would result in distinct signals for distinct acts in which the signaller wished the rest of the unit to unite with him. Speech is thus in essence not a desire to coöperate with others, but rather a desire to have others coöperate with us, either in act or in thought. It is, in short, the action of a leader, of one who feels Social loneliness, but for some reason (in most cases probably Personal) calls others to him instead of going to them. The essence of it all is in such a word as "Help!"

Language would thus begin with exclamations that were essentially verbs. Thus "Lions!" "Deer!" or "The enemy!" are verbs and need nothing to give them meaning. These would then be varied, either

internally or by additions, for such relations and differences as are expressed by pronouns and cases and numbers. Normally, such alterations would be either in a change of vowel (to be heard afar), or in an ending (the main syllable being most important and therefore first and clearest). When, then, these originally exclamatory verbs began to be joined with each other in complex ways, the result, though a great gain, was the notorious clumsiness and repetition of the simpler tongues of the world, for each word may express almost the whole thought by itself. Hence the various "agreements," as when a preposition, an adjective, and a noun are required to agree in showing a relation that might have been shown once for all by any one of the three.

The actual system of word-symbols used by man is very elaborate and very cumbersome in all cases, and there is a great difference in the power of individual men in handling it; but the principle of its use is the same as that of the simplest signals. The words (or more frequently the sentences) having been heard by us in certain connections in daily life, we imitate them (perhaps pronouncing them), and each group or each word calls up its proper memories and impulses. Then comes the attempt to coöperate or sympathize with the words as a whole. This may be easy, for the sense conveyed may be very like something which we have experienced before and which is now called up by the words and their impulses. A very little imagination may then suffice to bring us into sympathy with the speaker. It may, on the other

hand, be difficult or impossible to find the clew, for we may never have experienced anything like what the speaker is trying to bring us to, or the words may be strange. Imagination may then be almost or wholly at a loss, or we may give an entirely incorrect sympathy.

This general act is the process of understanding. It is essentially a guess. Out of the funds of our own experience we attempt to reach the position of the speaker—to act mentally with him. All sympathy is at bottom a similar guess, and depends for its worth on the character and experience of the mind that sympathizes. Thus, we all think others are far more like ourselves than they really are. The young man with his first idea is astounded to find so many persons suddenly possessing the same idea. The young Calvinist who is converted, discovers with amazement that the previously dry logic and intellect of St. Paul is the natural form of expression of a heart of passionate fire. Experience of the heart was needed to show him that.

Much might be said about language, but we will content ourselves with two general observations:

Language is a Social invention that has grown to remarkable perfection, so that now, with hundreds of thousands of words at its disposal (in the great languages), it makes possible a most elaborate and fine interchange of thoughts and feelings. Its by-products have been the clearing up and classifying of immense fields of human interest—not only Social but Personal, and especially Material. It has made pos-

sible the thoughts of the modern reasoning man, for words are a kind of algebraic formula and represent the great fusions of the mind, and (having the power to call up those fusions in memory) keep them steadily in mind through most elaborate evolutions. These great fusions are collected about certain impulses or interests (as we saw in a former chapter) with an immense number of slighter and subsidiary impulses or interests. They are thus commonly impossible of clear sensual representation, and the word which represents them may be the only perfectly clear sensual thing about them. Thus, we may carry on a long series of thoughts without a clear sensual image of any kind in the mind—only the words being distinct. And this is our common state in thought. Nevertheless, the impulses or interests of the big fusions are aroused with their words, more or less, and in a good mind will object (be dissatisfied) in a moment if in any way they are used in wrong classifications. Thus, I may talk of “trees” without a clear vision or imagination of any tree, and of course tree in general cannot be clearly imagined. (The word calls up a mass of objects, all of which I look at in general with some one interest or impulse, though in minor matters they may appeal to me very differently—there is, as it were, a core and a fringe.) If, now, some one speaks of a “blue tree,” in a flash the fusion objects and the mind begins searching through the details of the mass of memories to find whether among them there is one that falls in with the interest of the great “blue” fusion. But without

words neither of these fusions, "tree" and "blue," could possibly be managed.

The other line of discussion (on which also much might be written) is the historical. It should be noted that words must be understood and useful to all those who use them. The beginnings of language, therefore, would be the naming of persons and things of consequence to the whole community or to the family. Moreover, since human thought would of necessity go and develop with the words, human development, also, must be along the lines that concern the community and the family. Thus, we find that it is not the private and individual sides of life that develop first, but that, on the contrary, until the invention of printing there was comparatively little individuality in the world. It was printing that enabled unusual men with unusual thoughts to reach and develop one another all over the world. This has gone so far, however, that at the present day he must indeed be a rare person who cannot find in print the bosom friend who will show him things for which he has been groping—who will understand and appreciate and inspire and help and, in a word, complement him. Thus the words and thoughts of all printed languages have increased and multiplied; free thought has come as a fact; and we have all become conscious that life and man are more complex than we had thought, and not to be settled of an evening by the study fire through some simple formula. Thus have the development of printing and of individuality gone hand in hand.

An important and oft-discussed question arises in this connection, namely, that of the discovery of minds in others. No instinct of itself gives any such information. The Material, Personal, and Social instincts all act in response to (*i. e.*, are made definite by) influences, but do not discover anything except as they reason and invent. There is not in any or all of them the knowledge that other minds exist, or indeed any knowledge at all.

The simplest and most direct explanation seems here the most plausible. Interest in others of our own kind is innate and unthinking. These individuals, then, would be classified together in memory as men—those to coöperate with. The identification of oneself as a man would then take place through language, for others would tell us of it. When a man accepts it that he is also John Smith, *i. e.*, when he comes to the point of saying, “I, John Smith”—when he has learned, in short, that his Material self (I) moves also as one of the community under the name John Smith, then the result is inevitable. He will inevitably think himself like the others—more like them, in all probability than he is, for it is well known that no power yet has given us the gift to see ourselves as others see us. And the others, of course, he will think are like him, far more like him than they are. (Children as a rule appear to learn their Social selves first, and begin with “baby” before they have thought enough to say “I”, but the order of discovery of the two selves is not important, and may vary.)

The theory that man has an intuitive knowledge of the existence of other minds, and the theory that all animals (the others as well as man) examine themselves and then identify others by an act of comparison—these theories may be dismissed as needing no refutation.

We now come to a consideration of the relations of the Social unit to itself in time. Social units in man differ from individual units in that they commonly last very much longer. The individuals die but the unit remains. Through memory and language the acts of past individuals are retained in the unit and have an influence in the present. So that it may be said that a human Social unit is composed not only of its actual members, but also of those who though dead are influential in memory.

Memories of the past are retained only as they are or may be influential. There must be a satisfaction of some instinct if they are to be held and repeated. The interest may be either Material, Personal, or Social, but the interest and pleasure must be there.

It thus happens inevitably that most of the past is forgotten and that the portions sifted out and held as important and pleasant come to have a purity and consistency and a fitness to the tone of the community (its impulses and desires), that is constantly more noticeable. Moreover, as the past is not remembered clearly in its unessential details, the actual perspective back through the ages is sure to be foreshortened; the traditions are sure to come closer to each other than the facts were; and in the end they

inevitably collect either about some age or about some few individuals, which ages and men thus inevitably represent the character of the state or tribe as a whole. (Writing and printing, of course, to a great degree put an end to this.)

Moreover, it is clear that, in the course of time, most of the good and loved habits of Society would be traditionary; while most of the evil and unlovely ones evidently would not be remembered as having existed in the far past (since men would usually have no interest or pleasure in remembering them).

Thus, not only do the men of the past appear to have been more perfect than those of the present, but the past ages likewise appear to have been larger, stronger, braver, more intellectual, virtuous, fair, and the rest. Hence a feeling of special reverence for the past. Legends and history are treasured. A custom has favor according as it is ancient or time honored. Precedents become arguments. If our fathers did or thought so, it must be right and proper. That gods and demi-gods, golden ages and gardens of Eden, should be placed among the ancestors was inevitable among Social men with memory and imagination. Even now the same forces are at work in the *laudator temporis acti*.

This feeling toward the past has lessened greatly in the last hundred years. Some of the causes are not far to seek. Evolutionary research has made it clear that man has risen and not descended from the past. Documentary evidence, having taken the place of oral tradition, preserves for us the actuality of some

of the past ages, and we see clearly that they were worse in many ways and not better than ours. Finally, we are well aware that the most valuable part of our traditionary knowledge is very modern indeed, and was acquired even within the memory of many living men. We are thus far more disposed than was any past age to try our hands at improvements; and we perceive that tradition and precedent are often unsuited to the new era which is with us. Hence a general sifting and criticising. Nevertheless, the feeling of responsibility toward our past—the feeling that it is part of us and has its rights—remains and will remain and may grow stronger.

Corresponding to it is the fact that the Social unit includes also the members yet to come. They have their rights; we have our duties and responsibilities toward them. We are bound to consider them in our present acts. The man who says, "After me the deluge"—who does not consider what sort of name, position, or business, he will hand down to his children—is as evil or weak-minded Socially, as the nation which would do the same. In general, indeed, the feeling of responsibility to the future is probably more constant and effective than that to the past, for we see the future growing up all about us. Hence the duty of instructing children and doing what we can, however mistakenly, to make their future comfortable and happy. Hence, not infrequently, the sense of responsibility restraining and determining men who were scapegraces before they had children. We thus acknowledge a duty to the future, though it is

Virtue
Parent

Duty

usually not very definite either in thought or in compulsion when carried beyond the immediately coming generation. We may confidently believe, however, that it will grow in proportion as the needs of the future are made clearer. These two responsibilities to the past and to the future are undoubtedly important Social anchors especially in a progressive race.

The purity of the Social unit now claims attention.

As the unit is formed by the coöperation of the members composing it, so the purity of the unit is a matter of interest to all the members. This purity means that each of the members shall coöperate with the rest. "Thou shalt love thy neighbor," is the Christian statement of it. There is no other Social demand, and the failure to coöperate is the only Social fault. The satisfaction of the members of the unit in the actions of any member who coöperates and is helpful, etc., is called accord, approval, approbation, and the like. With memory, a settled feeling of confidence, respect, trust, and the like, becomes established, and such individuals may achieve reputation, renown, or fame, and receive applause, laudation, or commendation; while they and their acts may be memorable, notable, and the like. As is evident from these words, not all individuals are equally qualified or equally willing in Social matters. It is the frequent lack that justifies the lively satisfaction.

The acts approved by the Social instinct are called right, good, fair, just, moral, dutiful, worthy, humane, helpful, sympathetic, honest, or pure; or they

may be formal, seemly, proper, and the like, if they are a yielding to the sense of the community rather than evidently prompted by the thoughtful Social impulse of the individual himself.

Impurity in the unit is caused, as has been said, by the failure of any individual in it to coöperate with the rest. Such an individual—one who will not live and act as the rest do—is viewed by the Social instinct as it views an outsider or stranger. Indeed, in most cases, it is in this way that strangers are discovered. They do not act, live, or perhaps speak, in a way to get along smoothly with the members of the unit; they are not in sympathy and do not know how to be so. In the case of strangers, time will usually overcome the difficulty, if time is allowed. Thus, even in the case of bees, a new queen may be introduced into a hive if she be protected from the bees for a few days. This is done by putting her into a small cage and inserting both into the hive. After a time the bees “become used to her”—quite as probably as she becomes used to them.

The feeling of the unit toward the individual who fails in coöperation may be disapproval, blame, disapprobation, or the like, rising easily to resentment, indignation, and wrath.

Acts incurring the disapproval of the Social judgment may be called faults, sins (of omission or of commission), transgressions, trespasses, crimes, vices, and the like.

Many adjectives qualify the sinner or the sin. They may be bad, wrong, evil, wicked, criminal, de-

praved, infamous, scandalous, perverse, outrageous, immoral, guilty, foul, naughty, polluted, faulty, perfidious, malevolent, or maleficent; or merely discordant, offensive, excessive, immoderate, or improper; or merely odd, strange, or the like.

A considerable part of the wrongdoing of the world is caused by the greater strength of the Material and Personal instincts as compared with the Social. These instincts are then not kept within the bounds dictated by helpfulness and sympathy.

See

Faults of the Material instinct against the Social may be called: theft, covetousness, bribery, venality, usury, defalcation, perjury, swindling, cheating, defrauding, vandalism, and the like; or nastiness, and the like.

Faults of the Personal instinct may be: immodesty, prudery, all sorts of sexual vices—partiality, obtrusiveness, pharisaism, rebelliousness, fractiousness, refractoriness, forwardness, frowardness—contumaciousness, rudeness, riotousness, impudence, knavery, ruthlessness, rowdyism, cruelty, envy, detraction, animadversion, backbiting, disparagement, defamation, unfairness, slander, gossip, fawning, servility, toadyism, obsequiousness, shirking, dronishness, negligence, pauperism, mendicity. Other words may be found in the chapter treating of the Personal instinct.

Some of the above words are of mixed origin, as are also sycophancy, quackery, charlatanry, pandering, and doubtless many others.

Not only do the other instincts sometimes refuse to

be subject to the Social, but they sometimes use the Social for their own ends. Some general names for this sort of fault are: hypocrisy, simulation, bluff, feigning, guile, dissembling, duplicity, sham, smugness, sleekness, slyness, oiliness, time-servingness, pretence, posing, deceit, and perfunctoriness.

Certain acts are distinctly offensive to the Social unit as a whole, notably treason and murder.

There may be a balance of instinct resulting in the faults of temporization, evasiveness, and the like; or perhaps negligence, tardiness, and the like.

The causes of criminality are various. Some unfortunate individuals are abnormal, unnatural, or monstrous. Bodily deformity is often a Social fault. Brain deformity may be still more so. Instincts, again, may be abnormal and may act wrongly, *i. e.*, the positive impulse may act like the strongest negative. Abnormal instincts are found among the animals, *e. g.*, the bad barn-yard cock, the rogue elephant, the lone wolf, etc.; and in man, *e. g.*, the wife beater, the criminal insane, and often the so-called born criminal.

Or, again, the Social may be weak, or perhaps even lacking. It may also be lacking in its higher forms, though present in its lower ones, *e. g.*, in the man who will steal but who is a good husband and father. Or, again, there may be mental weakness and an inability to grasp the meaning of the complexities of the modern state, as in many ignorant persons and in most politicians.

The ordinary Social faults of the ordinary man,

however, which are occasional, or, if customary, are yet perhaps of no great seriousness (frailty is, perhaps, the word), are commonly caused (as are also many crimes) by the excess of the other instincts over a fairly strong Social. To some extent this form of fault is common to all men. Thus, it is the theory of our jury system that any man has the proper Social sense in matters that do not concern him individually, while no man is to be trusted to judge Socially where he is himself concerned.

The play of the other instincts against the Social is called temptation, or seductiveness, and results may be seduction, backsliding, corruption, defilement, or debasement.

The quality of a bad man may be: criminality, villainy, vileness, rascality, or roguery. The quality of the crime: atrocity, enormity, or ignominy.

All acts impairing the perfection of the Social unit arouse the negative Social impulse. The qualities of this impulse may be strictness, sternness, austerity, rigor, severity, obduracy, or implacability. These seem to be the unmixed Social qualities. With a Personal element they may become asperity or censoriousness; with memory the result may be crabbedness or sourness, amounting at last to such moods as misanthropy or cynicism.

The simplest actions of the negative Social impulse are an attack upon the guilty individual and his killing, or expulsion from the unit. The penalties of outlawry and death are the commonest in primitive Social organizations, and are regularly inflicted even

for comparatively slight offences. In general, such treatment is called punishment. When Society advanced, or when the offence was very slight, the punishment was not so severe, and was intended (after reason came in), to warn the offender to cease his evil ways. Herding animals are said to attack unruly members of their aggregations, *e. g.*, dogs and monkeys very notably. Such attacks are punishment. When the unit attacks wholly or in part as a warning to the offender, the attack may be called correction. In man punishments and corrections of various sorts are found—either physical, as in flogging and the like; or mental-physical, as in the pillory, or in the segregation with education of the workhouse and prison; or, almost wholly mental, as when the offender is shunned and becomes an outcast.

Verbal dealing with the offender is also common. Punishment may take the form of rebuking, reproving, scolding, reprimanding (perhaps publicly), execrating, denouncing, reviling, or the like. Milder forms of disapproval may be protest, remonstrance, reproach, complaint, grumbling, or recrimination.

If for some reason, *e. g.*, a strong Personal or Social feeling toward the delinquent, the Social wrath be overcome, we may have leniency, and toleration—or, if some punishment has already been inflicted, pity, placability, or resignation in the affair.

Some of the acts under these circumstances may be advice, counsel, persuasion, chiding, or correction; and after these (or perhaps without them), conciliation, mitigation, extenuation, palliation, condoning,

excuse, forbearance, relenting, indulgence, reconciliation, pardon, forgiveness, or purgation, or even the granting of privilege.

If the Social instinct in the offender is really strong, he may ultimately feel (either of himself, or, more commonly, on feeling the disapproval of others and finding himself more or less an outcast or in danger), disgrace, shame, compunction, culpability, affliction, penitence, contrition, regret, repentance, remorse, or the like. Many of these traits seem to be found in animals, at least in dogs. They may show as fear in the presence of members of the Social unit, the culprit being unable to meet the situation. The man may, however, attempt apology, excuse, palliation, extenuation, mitigation, or the like. Or, admitting the fault, he may attempt to get back into the unit through supplication, self-abasement, expiation, propitiation, weeping, or the like—attempting to prove to the unit that he is worthy to be one of them again; to have his fault forgotten; etc.

As is by now clear, a cause of intricacy and difficulty in Social life is the presence in power of the Material and Personal instincts. The man who enters a Social unit does not thereby give up either of these instincts, nor is there any reason why he should not follow them, so long and so far as Social duties do not conflict. And this he does. But the Social condition is thus a constant practical problem which may be stated as follows: "How shall we with our Material and Personal desires live together?" Theorists on the state often quite lose sight of this prob-

lem—a fundamentally practical one in all communities. It is usually clearer, however, in the minds of lawyers, a large part of whose labors is the adjusting of difficulties arising out of this state of things. The difficulties are all the greater because it is no easy thing to distinguish one impulse from another; and because, even in cases where men do so distinguish, sympathy with one or another party may nullify proper results. The actual problems of living together thus become so confused and, in practice, so impossible of solution, that human Society may well be described as a huge daily compromise, in which there is no prospect that the Social forces can ever completely conquer. It is not a theory but a condition that confronts us.

Some of the details of the interworking and compromising of these instincts now claim our attention; and first we will consider human “games.”

Games are of three distinct sorts: (1) those that are imitations of the lives of mature individuals, and are essentially Social, (2) those that are Material but held in bounds by the Social, (3) those that are Personal but held within Social bounds. Not infrequently a game belongs in part to more than one of these divisions.

Of those of the first sort, we may notice the playing with dolls, the playing house, and the like, in children. Also, more or less, the whole educational system of humanity. All this is a play at life. Even the most absurd and curious educational systems of the world are supposed to prepare the young to take a

place later in the affairs of the active world. When these games are performed out of compulsion no great good can come of their special forms. If, however, they rouse an interest, there can be no doubt that they develop the instinct that is interested. There may even be several instincts or varieties of instincts involved. Thus, the child with the doll not only develops the family Social instinct by imitation of the grown folks, but she undoubtedly satisfies her own little maternal impulse. In many cases, indeed, it may be doubted whether she is playing a game at all, so earnest is she and so much of real affection and helpfulness does she exhibit. All this is or may be purely Social.

In the case of education there is far more variety. Here the foundation of the institution is Social, *i. e.*, willingness and obedience to rules; and if the child or youth learns nothing else he may develop in this play-world or community a Social sense along these lines. He is expected, however, to use, in addition to the Social sense, the special instinct suited to the kind of work being done. Thus science and geography and arithmetic are expected to interest him in the world of matter (Material); history and political economy are to interest him in Social affairs; while literature may be both Social and Personal. Moreover, the grade of work may interest him either in the Body, the Practical, or the Thought and Ideal grade of any instinct. A certain amount of this grade-development undoubtedly takes place, especially in the more advanced classes. There is probably not

nearly so much, however, as is intended. Many young persons are deficient in imagination, or in preparatory training, or else the subject itself is wrongly presented, so that a considerable part of the work of education rests on the Social impulse, *i. e.*, on obedience and willingness. This is thought by many to be the best way of learning: "Let the boy work; it's good for him. When he has learned that he cannot do as he pleases and is willing to have it so, half of his education is done." Half of his Social education, that is. Spice is thrown into the work, as a rule, by stimulating rivalry (Personal). When there is no other interest, this makes the work seem more like certain other games, and will often arouse indifferent pupils—though neither knowledge nor goodness springs naturally out of this source. It is often curious to observe how absolutely artificial the game of education is, especially where books and theories are much used.

Of Material games the purest examples are those found in education. Our educational systems are probably far too exclusively Material as they stand at present. The Material element comes in also in many other games (*e. g.*, gambling), but in such cases it is not the basic impulse. Gamblers, for instance, may need money, but the method is not Material nor are they.

By far the largest share of what are commonly called games have the Personal interest and motive. They are struggles in rivalry. The Social element is the rules which set bounds to the contest and decide

the means and methods. It is this Social element, the necessity of keeping the instincts within the bounds of self-control and order, that is the source of most of the educational value of such games. When the rules are broken (perhaps secretly or slyly, but always from the Personal desire to win), games are little more than an exercise in immorality. In many cases, however, there are no rules except custom or humanity. The object in every case is to put the opponent to confusion by surpassing him either in strength or in skill or otherwise.

The simplest forms of the game are perhaps athletic sports—running, jumping, driving, tossing weights, throwing the spear, archery, and the like, in competition. In all of these there are rules, and the one who surpasses others has the right to glory and to be triumphant.

As of an equal grade of simplicity but without rules, may be noted the practical joke, which is a putting to physical confusion through slyness or by catching the victim off his guard. There is here no actual contest, but the fact that one trips up the unsuspecting victim is an evidence of easy superiority which is held to justify glorying, jeering, and laughter.

Most games are much more elaborate and demand a considerable mental element—and this mental element must be Personal if it is to be of the best. Commonly there is a mingling of the physical with the mental, as in football, baseball, tennis, cricket, boxing, billiards, and the like. Often, as in some of these, the contestants are in units which play together

Socially against similar units or teams. Certain other contests demand no physical skill, but are purely mental, as chess, cards, and the like, and the various forms of guessing for a wager, called betting and gambling. There are very few kinds of contests into which trickery and unfairness may not and do not enter. These are approved by the Personal, which wins as it can, but are disapproved by the Social element, and especially by the spectators—of whom more anon.

There is also a purely mental form of game in which nothing is involved except the mental confusion of an opponent through words. Even his surprise is a triumph for the opponent. Such a conquest may be accomplished by superior agility or quickness of mind; or merely by leading the victim astray as, for example, by seeming to be Materially or Socially in earnest when, as suddenly appears, the matter has no sense at all; or the mere nature of a Personal remark may be surprising. Such contests are called jokes, jests, riddles, punning, banter, chaff, irony, pleasantry, humor, whimsicality, sarcasm, ridicule, facetiousness, waggishness, drollery and scurrility. If the victim is deceived or made to appear slow or stupid, the joker has the right to triumph and laugh. The victim in certain forms of the joke will laugh in sympathy, but he will regularly find it not nearly so pleasant as it seems to the joker. Pleasantry in most hands has a distinct tendency to Personal seriousness, and easily lapses into abuse, etc., as one may perceive by reading our comic papers.

The quality of surprise in continued speech may be called nonsense, fancy, wit, humor, brilliance, brightness, and the like, and may be used to great advantage especially by showing how some imaginary person might be or was put to confusion. Of course, also in this as in the above-mentioned cases, the Personal attractiveness of the speaker has much to do with the acceptance his playfulness receives, *i. e.*, we may accept his superiority with liking and meekness. In short, the situation is essentially one of rivalry, although kept within bounds by the Social sense.

It should be noticed that individuals having little or no Personal instinct may very well be put completely to confusion and yet not feel confused nor perceive what the intention was, nor indeed understand why any one should choose to say things that are untrue or without sense. From this point of view the Personal instinct (with the Social) is the sense of the ridiculous. The Social and Material instincts in themselves have no such sense. They do not understand Personalities, or the love of fighting and conquering for the mere satisfaction of restlessness, or the joy of merely defeating somebody whether actually or mentally, whether fairly or by trickery.

The production of wit and humor, however, although chiefly Personal, demands (it should be remembered), Social sympathy. It may thus be absent for two reasons, since a lack either of the Personal or of the Social impulse may be at the bottom of the

deficiency. Thus, Wordsworth lacked the Personal; while Browning was weak on the Social side. Both lacked wit.

We now proceed to more serious relations of the Social with the Material and Personal.

As we have said, man enters and lives in the Social unit with his home and his Material possessions generally. They are a part of him and are recognized sympathetically as such. If they are harmed all feel that the man is harmed. This relation is the recognition of ownership, and is elemental in human society. Language regularly recognizes it in such words as property and ownership and in the possessive forms of speech—his, hers, Smith's, and the like—making no distinction between his arm, his children, his home, or his land. All go together, and Social sympathy says they should or ought to. Hence property is a Social right. On the recognition of this right are built up all the intricacies of business, commerce, and the like, including working for wages or salary; lending, pledging, rewarding, and the like. It is to be noticed that the whole conception of earning is, however, quite simple and rests on the mere moral right to property. Labor is considered property, since it might or does produce property; hence the man is entitled to the property he makes or to an equivalent. There is no further right involved, *i. e.*, the exchange is purely Material, and there is no moral quality in service so rendered. The man who carries out my ashes for a dollar is not doing a Social act; he is exchanging his time-property for my money-

property, and only the general right to own things at all is involved.

It is necessary to draw the line clearly between a Social (moral) service and a Material exchange, if Social reasoning is to advance. There is no exchange, no *quid pro quo*, in moral service; we *must* help our neighbor. The argument, "therefore he ought to help us," absolutely does not follow in Social matters; and to make it, the transaction must be reduced to the Material exchange basis. Certainly he ought to help, but not because we helped him. It is an elemental duty on his side as on ours, and the two acts of helpfulness have absolutely no relation to each other except in their common origin in duty. Thus we are bound to help him fifty times if he needs it, though we may not need his help once. Certainly helpfulness is a sign of goodness, and if we are compelled to choose in the distribution of our aid, we may well, and perhaps should, choose him whom we know (through his past services) to be good, rather than one whom through experience we know to be lacking in helpfulness. The exchange idea, however, is a blunder in Social reasoning. This is often felt, yet the Material conception is the prevailing one, and in many cases has the moral force of a custom and must be followed. We must reward the man who brings back a purse or saves a life; we must return Christmas gifts or Social calls; we must keep an eye open to return in some way the aid given us by a friend. Such things rest heavy on the consciences of some. Society is thus largely a matter of reciprocity

and exchange. There is certainly no great harm in it in itself; it has even the good point that it reënforces moral helpfulness. Nevertheless, it has the distinct and serious disadvantage of confusing the moral sense by constantly identifying (in our thoughts and memories) morality with matters of exchange that have absolutely no moral tinge. Jesus felt this (*cf.* Luke vi, 32 ff.; xiv, 12 ff.).

As is well known the exchange or reciprocity or contract idea has been used as the theory of the state and of morals generally. Socrates is reported to have argued that a son should treat his mother well because the mother had done and endured so much for him. So he seems to have conceived that a law of the state is a two-sided matter, and that a good man may choose either to obey or to take the penalty. Whereas the Social fact clearly is that the child must treat his mother well; and the man must obey the state. The penalty in law is a sign of the Social wrath of the state; it is not in any sense a *quid pro quo*. Resistance after disobedience would, of course, only make the matter worse; but disobedience itself is wrong and is only to be justified by the higher love of the state dictated by conscience—which Socrates evidently had, however he may have reasoned.

Primitive justice had a large element of this Material conception in it. No doubt the earliest forms were quite natural and violent. There was often a mingling of the Personal, and revenge and justice were not yet clearly distinguished. When, however, justice became a considered and formal matter, its

most successful side must have concerned property; its consideration for the criminal was pretty certainly small. If a man was forcibly deprived of his property or goods, the community helped him recover it from the evil-doer. The evil-doer meanwhile would be killed or driven from the community, or, perhaps, would bribe his fellows with an ox or a sheep. Out of such events much of primitive justice apparently grew. The man received back what he had lost; the judge was paid for his labor; the villain lost what he paid the judge; and the community kept an eye on the villain thereafter. This method seemed simple and practical in questions of property, so, perhaps, for want of a better method, it was extended. The man who put out another's eye, should have his own put out, or should pay the injured man (and, in either case, the court) an amount agreed upon. If a man killed another he must pay either with his life (and the court took his property), or with a sum of money, either to the family of the deceased and to the court, or the court alone—and the community kept its eye on the murderer if he lived.

The evident weakness of this Material idea of justice is that it takes no account of an essential fact, namely, that the criminal is or may be bad. He is just as bad after paying the fines as he was before, and just as much a danger to the community, except that he may be more prudent. There is, in short, nothing in the action of the court that really touches the criminal.

Modern criminal justice is still very much what it

was. We balance crimes with penalties, either of money or of months in confinement, and when the man has paid he is commonly as much a menace to the community as he ever was (and the community has been ill served); or if he is improved, public suspicion, which is the only punishment a moral man fears, and which is the only true punishment any criminal gets, begins its endless years of torture. Thus the state is unfairly cared for in the first place and the criminal unfairly in the second. The true method is clear enough to our modern criminologists. The penalty should be suited not to the crime but to the criminal. No man should be let loose upon the community until he can be guaranteed to be fit to be among men. // Months and dollars have nothing to do with the question, which is essentially moral and psychological. Undoubtedly, the matter is one of extreme practical difficulties and may prove insoluble. Experiment alone can determine what can be done. It is a hopeful sign, however, to find the true gist of the matter more and more recognized; and this is a good thing, not chiefly because of the criminal, but because of the community. Every clearing up of the Social idea must be of real value and importance; and the idea that a community is built upon exchange is seriously wrong and a real bar to natural helpfulness.

The Personal instinct likewise goes on unchecked within the Social unit so far as it does not conflict with the Social. It also is sanctioned by the sympathy of the community and is generally agreed to

be the most charming instinct there is. Thus Emerson's "Every one loves a lover," contains an essential truth.

But while the confusion arising from the Material instinct in Society though great and in certain respects serious, is fairly easy of solution, that arising from the Personal while certainly no less great and serious, is for most persons simply insoluble. No instincts contain thoughts by which they can be plainly identified, and when the Personal is woven with the Social the result seems so simple that few are even suspicious that anything can be wrong. Nevertheless, as the Personal is essentially hostile to the Material, so it is essentially rebellious and careless of the Social. The dreamers who hope to legislate the sense of property out of existence, would do better if they could begin by legislating the Personal instinct into its proper limits.

In the first place, it seems that the Personal instinct regularly and inevitably joins with it the Social for its own ends. The lover or friend while he is laboring to endear himself Personally, is almost certain to use helpfulness and sympathy, and thus to endear himself Socially; and she is a rare mate who can always distinguish whether she most misses the suitor (when absent) Socially (*i. e.*, for his helpfulness and sympathy), or Personally (for his attractiveness). This joining of the two impulses results in some of the most entirely attractive traits of our nature, for instance, tenderness, gentleness, courtesy, politeness, civility, thoughtfulness, chivalry, quixotism, affability,

cordiality, urbanity, kindness, graciousness, bountifulness, munificence, charity, courtliness, gentlemanliness, generosity, breeding, and the like.

Undoubtedly, sympathy is a great gain in Personal affairs; and just as plainly it is a great Social gain to treat all members of the unit as though they were Personally attractive.

These are plain advantages and are so recognized. But with a considerable proportion of persons, helpfulness and sympathy go with the Personal and scarcely exist at all otherwise. The handsome young woman will be treated with courtesy by all men, but the ugly old woman may have quite a different experience. Similarly, if there arises a question as to helping a friend when the friend is Socially (morally) in the wrong, many will choose to help the friend—lie for him, aid and abet him, etc.—and will not distinguish that this is wrong. On the contrary, not to do so would lie heavy on what must be called their consciences. This trait is called loyalty. This union of the Personal and Social has regularly a lovable (Personal) and a good (Social) side even when hatefully immoral from the standpoint of the larger community or of the private conscience. Perhaps no one thing causes more trouble in the world than this overthrow of the Social by the Personal. Loyalty is not confined to any one Social unit. A man may be loyal to a friend, to his family, to his business or social associations, to his city, state, or country. Nothing can be more certain, however, than that the “imperious word ought” demands obedience to the

larger unit rather than to the smaller, and to conscience rather than to friendship.

The negative of loyalty, namely, the feeling of an obligation to attack all those individuals and units whom we or our friends or units dislike Personally, is, of course, quite as common as loyalty itself. Most of the daily affairs of life have this Personal tinge. The friend, the friendly family, party, state, or country, is not admitted to be defective in any serious respect; the disliked man, party, state, or country, usually has neither wits, knowledge, courage, goodness, nor truth. These positions are felt to be Social obligations. In reality, the distaste we may feel in any such matter is the Social sense, resisting its overthrow by the Personal. The confusion of thought is not unimportant.

When the matter is turned the other way, as it very commonly is by good people, namely, that we must love our neighbor Personally, then come the twinges of conscience and the rebellions. But there is no *must* in Personal relations, and the Social love is no more than fair dealing, coöperation, helpfulness, and sympathy. Of course, Social love is the greatest satisfaction in the world, and it is, perhaps, no easy matter to feel and exercise it toward those we dislike Personally. Nevertheless, no one can deny that we ought to do so. Personal affection, on the other hand, is quite a different matter, and there is not only no *must* reënforcing it, but there is not even a possibility of arousing it toward everybody—that is not its function.

Perhaps no situation is ordinarily so confusing to the conscience as that entered upon through the reception of favors. If a helpful deed is done us as a mark of Personal affection (known or suspected), what is the moral position? Two false ideas are common: First, as we have already seen, that we must repay the obligation. This is the Material idea of morals. Second, that we are bound to repay with Personal affection. This is the Personal idea of morals. Actually, if the act was strictly a Personal one, we may receive it like any other act of courtship. No individual is bound to respond to the affection of a suitor; yet it is not well, either, to coquet. Caresses from one not Personally liked may be too intimate for honesty; and gifts are caresses, if given from Personal motives. There is, then, no Personal obligation, but those who are wise do not receive Personal helpfulness from those whom they dislike or care nothing for. If, however, the helpfulness is purely Social, there is still no bond, for the bond of duty was always present, and is not changed by this act except as we are inspired by it to be better and more helpful ourselves. If, however, the helpfulness was Material, then we are bound to repay it in kind. Ordinarily, it is impossible to know what it was, and it is taken as friendly, *i. e.*, Personal with some Social, and is accepted or refused as such.

It is to be noted that if accepted as Personal or Social nothing is gained, as a matter of fact, by returning a benefaction. The Social bond is just as strong, and the deed remains just as good after as

before the repayment. Similarly, repayment does not touch a Personal situation. There is thus in receiving benefactions a danger of tying ourselves up permanently in the bonds of loyalty. Thus it happens from the common faulty way of thinking, that almost every man may be said to have his price.

We now note that the Personal instinct has its own way of looking at, and entering into, all the conditions of Social life. Social successes are sometimes Personal, as when a man leads his family or some other organization by sheer Personal force—either by attractiveness or by temper and violence. All Social successes, however, are likely to be considered Personal triumphs. The political leader is a hero if he wins, and is jeered if he loses. Individuals outside of any organization are often looked upon by those within as if they were defeated rivals—with laughter or scorn or even mockery, *e. g.*, the foreigner or the parvenu. From the Personal side come also the various adornments and fancy dresses that are worn by special organizations and especially by leaders (the same instinct at work that adorns the cock among the hens)—uniforms, feathers, gowns, cassocks, crowns, silk hats, and the like. Hence, also, the cock-like manners of the Socially triumphant—dignity, stateliness, condescension, augustness, dictatorialness, autocracy, arbitrariness, patronization; with the love of splendor, show, magnificence, grandeur, pageantry, sumptuousness, and regalia. Personal-Social are also the love of power, authority,

office, leadership, precedence, glory, honor, and the like and even the love of popularity, publicity, notoriety, and, sometimes, of good name.

Together with this it is to be noted that no Personal or Personal-Social exhibition takes place in a community without being through sympathy a matter in which many are interested; and as the Personal instinct itself is keen and demonstrative, so, in the natural increase and confidence of Social sympathy it may produce the wildest phenomena of Social life. Thus, religious revivals if pitched upon the Personal plane may be such scenes of shrieking, dancing, hysteria, and physical collapse, as to make the Material and Social mind think of a mad-house. Similarly, a political meeting, if conducted under strongly Personal conditions, may be a scene of most uncontrolled excitement. Such fits are apparently exceedingly pleasant and very slightly moral.

The most ordinary exhibition of the Personal-Social, however, is in the crowds which support champions of all sorts. It is a joy to the on-lookers to see the hero triumph; it is akin to triumphing oneself, though there is regularly no such thought in the mind. Hence the excitement over public games of all sorts, including cock-fighting and the like—shouts over the victor and jeers at the defeated. Hence the delight in contests of wit—laughter with the victor and at the victim (found, as we have seen, even among the lower animals, for instance, the elephants). Hence the eternal delight of the people in their military heroes, commonly outstripping any

feeling toward their moral ones, and always more demonstrative, with ovations, triumphal processions, and the like. Hence, also, the popularity of politically successful men, especially if they are noisy and abusive. Such men, it is true, being themselves strongly Personal, may arouse strong Personal liking in the individuals of the crowd, but a large part of popular applause may be mere sympathy with the deed, as many a popular hero has found.

In this connection may be noted the rules of games and fighting—determining what is pleasing and what not, so that the contest may be continued to our taste. All such rules imply an audience to be pleased. And, on the other hand, no small part of the joy of the modern Social and popular idol is the sympathetic triumphing of his fellows—their shouting and laughter and applause, their pride and boasting, in which his own feelings are multiplied and magnified, and come back to him greater every way.

From all this it becomes evident that the Personal instinct plays a large part in Social life. The “popular idol” is regularly a man of this type rather than of the Social, though of course, he must be Social. His chief thoughts are likely to be of defeating somebody or something, his chief joys the success of such efforts and the applause of the crowd. The more useful man Socially, however, is very often one who knows no Personalities and has none, but whose sympathies are open to all men, and whose chief pleasure is in their happiness—in the solidarity of the state. The former type is common among our politicians;

the latter, fortunately, among our judges, the real reliance and safeguard of mankind.

We will notice, finally, the limits which the Social instinct has imposed upon the Material and Personal instincts as to public exhibitions of themselves. Both instincts in man have become modest. It is thought to be shameful and indecent among civilized peoples to defecate or conjugate in public, and the very names of such acts are barred from polite Society. Many children actually grow to maturity without a suspicion of sex, the subject is so entirely tabooed. It is similarly felt to be not quite modest to eat alone in the presence of others; and men eat either in private or Socially. Similarly, it is immodest to exhibit strong Material or Personal emotions in public. Food must be eaten without eagerness; talk of one's health must be general and indefinite; a man must be slightly cool with his wife or his lady-love in public; etc.; etc. One may, however, be as affectionate (Personal) as one chooses in talking with very young children, and it is perhaps this fact, coupled with the customary coldness associated with ordinary speech, that makes lovers, even in private, resort so often to "baby-talk." On the other hand, it is the avoidance of the Personal note that has led many languages into their curious and indefinite use of pronouns and words of address—in English, *e. g.*, you and we for thou and I. Personal display of wealth or knowledge is also in bad taste if others of equal possessions are not present. Similarly, Personal vanity, boasting, and the like are "ill-bred." Good general traits

along these lines may be called modesty, sobriety, decency, and the like. More elemental Personal self-restraint is compelled Socially in the so-called sexual virtues—purity, continence, chastity, virginity, and the like. The idea that chastity has some connection with morals is very old and reached a barbaric height in the Middle Ages. It rests, however, upon secondary facts of experience, and is not elementary, as modesty and the other above-mentioned restraints are.

THE IDEAL-SOCIAL INSTINCT.

The entire satisfaction of the Social instinct is, of course, impossible, since it could take place only by an actual fusion of the individuals composing the Social unit. This does not occur above the unicellular organisms.

The practical approach toward satisfaction is the history of Society—perhaps the history of man. That great strides have been made through the painful experiments of ages is undoubted. Especially is progress plain since the coming in of printing and other modern inventions. The elaborate interaction and coöperation of the modern state is certainly the triumph of the life on the earth; and there is no sign that it has reached its possibilities even now. It is plain that new experiments are being made and are to be made. This is still being done to a large extent by those who do not really see what ends they will reach. Perhaps this is inevitable; perhaps no one mind can grasp the implications of certain pro-

posed radical changes. If so, we must feel our way where we cannot imagine it. The Social impulse will not rest while unsatisfied, for (it should always be remembered) reason is the servant of the impulses, and if it will not, or cannot help them, they will certainly act without it. We shall certainly change somewhat, and perhaps seriously.

Imaginary satisfactions of the Social instinct have been fairly common in the history of the world. Usually the fancy has roamed in the past where some Golden Age or other similar condition of things was existent. The element barred out was, somewhat vaguely, sin. These ages have never been very clearly described.

There have also been special attempts at conceiving of actual states. Plato's "Republic" and More's "Utopia" are standard. Of late there have been special theories of a similar sort called Socialism, Anarchism, and the like. Such theories are likely to be distinct and elaborate but, of course, are very simple compared with the actual society of our times. It should be plain that no adequate theory of society can be constructed without a thorough knowledge of human desires and interests. These, however, after thousands of years of experiment, have discovered and invented the state as it is, and it is hardly likely that any one man will evolve a new state out of whole cloth, at this date, to supersede it entirely. No doubt, however, the popularity of some of these theories shows lines in which human progress is possible, and not only possible but extremely

probable. The duty of the unsatisfied is to complain and protest; it is for the able and intelligent to discover the remedy if there is one.

The Social instinct is the fundamental one in art. All art is created for the enjoyment of society and to express its moods. It is thus deeply sensitive to its Social surroundings, both in its thoughts and in its style. If good, it is likely to be extremely conservative, and it tends distinctly to formalism and "schools." Like language, it is (historically), at first extremely simple and general and limited in scope, and only when civilization is fully developed does it become a means of more individual expression.

The Material instinct in art tends to honesty and simplicity and truth in the observation and handling of material details. It tends also to the analysis of motives and the logical unfolding of details.

The Personal instinct, if unbridled, tends to ornamentation and eccentricity (the latter to provoke surprise); if more under Social control, it becomes an extreme formality, with richness and ingenuity in details (*e. g.*, in Milton). In the latter case the formality is the chief evidence of Social control, and is, perhaps, caused by a feeling that informality, *i. e.*, eccentricity, is ridiculous.

The more purely Social forms of art are dictated by a love of society and humanity, and are thus moral—often profoundly so. Not infrequently they conceive of and depict a society in some way much better than the actual—often that of some other age or place or even world. They are always selective,

always more or less different—and in some chosen way—from the actualities of the world.

In style, the Social impulse tends to be simple and formal and clear. It wishes to be understood and approved. Like the Material, it finds no attractiveness in ornamentation. Its broad (but exclusive) love of humanity and morals, on the other hand, tends to make it trivial in its subjects and (often) careless as to its truth. It is also apt to lack brevity.

The Social instinct as a factor in religion has an elaborate history. This instinct, though most definitely felt toward objects of our own species, is felt in some degree toward all objects, according to their exhibition of signs of life. Thus, in the lower forms of the animal world there is no clear distinction between animate and inanimate objects. The snake will bite at a stick that offends it, quite as readily as at a living creature. Bees, when aroused, will sting anything that opposes them. And so on. Darwin's dog barked fiercely at the closed parasol that was puffed and moved by the wind. The distinctions are not and cannot be clearly made at first.

Thus, also, in the earlier and more primitive races of man, minds are conceived in external objects both correctly and incorrectly, very frequently the latter. Any moving object is thought to move like the others that move; any object that makes a noise is thought to have a voice; and so on. Any object that aroused the mind Personally would thus be thought to be a Personality. Hence the inevitable personifications of early civilizations: trees, clouds, the sun, moon,

and stars, rivers, mountains, animals, the earth—all were supposed to be actuated by human minds. Later they were supposed to *contain* spirits that were of human kind; and these spirits were often represented in art—not infrequently as only partly human, the other elements being either borrowed from the lower animals, or being grotesque inventions made by the exaggeration of human traits or expressions—forms calculated to arouse the proper emotion better than the mere natural appearance could. Little by little, these supposed beings were given attributes of a more Social kind. They were supposed to be interested in the world and to work with or against man. Very commonly they were in some special Social relation to a family, tribe, or race.

The ascribing of personality to objects having none, is still a common and evidently natural occupation of the mind. It satisfies the same old instinctive Social impulse, and makes us feel akin to all nature. Poets not uncommonly arrive at a love of nature by this method. The flowers are maidens; the grove is a “venerable brotherhood”; the sweet day is a “bridal of the earth and sky.” All this is, of course, only a filling out and strengthening of the natural love of the earth which, like the love of home, is Material in origin. We may believe that the home-feeling was, and is, also active in many of the primitive beliefs, *e. g.*, tree-worship.

The earth has become a much lonelier place since the days of our early beliefs. The nixies and the fairies and the goblins and the wood-spirits are gone,

with the gods of love and wine and war and fertility and the rest. Knowledge has put an end to all but one. He is reckoned the Spirit of the Universe, which is the sign and evidence of his character. Sometimes he is conceived as in it, as if the universe were his body; sometimes he is conceived as outside of it, in the relation of a watch-maker to a watch. In either case he is harder of approach in the external world than the old gods were.

But here, as elsewhere, Christianity has added the crowning conceptions. As the Social impulse is greater than the Material and Personal impulses, so God is conceived as, above all, good and sympathetic; and we may become "workers together with him." Thus, God is conceived as the complete answer to this instinct also. The goodness and sympathy that we never find on earth is found in God. The yearning that earthly Society can never satisfy—the desire to be perfectly at one with other minds without losing our own individuality—that yearning is to be stilled somehow, some time, somewhere, with the church and God. His power will perfect and coördinate our individual wills with his, and the result will be comparable to the union of the parts of the body. More commonly, the figure used is that of a community, either a city or a family. Of the city, God is king; of the family (and this is the figure Jesus regularly used) God is the father.

The fatherhood of God, though perhaps not the most perfect figure of speech Socially, is recognized as by far the best known to include the traits by

which God is supposed to satisfy the three instincts together, for fatherhood has Material, Personal, and Social implications in almost an even balance.

On the other hand, the conception of a good God makes him the personification (and source) of the Social *ought* or *must*. When we do as we ought, we are following his leadings. Conscience is the voice of God in the mind, and so on. Thus we must obey God (and therefore, unfortunately, those who know what he wants done); those who do otherwise cannot have part in the final perfect communion.

These elements in Christianity are plainly Social.

CHAPTER XI

THE SOCIAL UNITS

THE FAMILY

THE simplest and closest of the Social units is called the family. This is composed, in its most complete form, of a male and a female and their offspring, but may lack, temporarily or permanently, one or more of the members. That the family is recognized as a Social unit in man is shown by the fact that it is named.

The family is found among most of the higher animals. Many insects, the spiders, some fish, all birds and mammals, unite in this way. Among the birds there are the apparent exceptions of the cuckoo and the cow-blackbird, which, however, feel enough of the instinct to lay in a nest, *i. e.*, to join, in a sense, in the family of another bird; while the cuckoo is said to build occasionally and rear its own young.

The duration of the family union varies greatly. Some spiders are said to devour their own young if they do not soon leave the association. Many an-

imals live in families during only a part of each year. Others, again, mate for life and have new offspring from time to time, who quit the family on reaching maturity, *e. g.*, some birds and mammals. In man the family ordinarily lasts during the life of the parents, but relationships are often remembered and to some extent felt, and any family may be thought of as including past families (the ancestors of those alive) and future families (the descendants).

The breaking up of families may be caused either by lack of food, the members shifting for themselves, as sometimes in man; or by Personal jealousies and rivalries; or by the formation of new families by the mature young. The families of honey-bees apparently divide because of the closeness of their quarters. These causes are all Material and Personal rather than Social, but there is doubtless in most species a weakening of the Social tie when the young are mature. The impulse of helpfulness evidently grows less both in many of the lower animals and in man. Nevertheless, the quail coveys (*families*) hold together through the winter; and the families of ants and honey-bees may last for years.

The family comes into existence in all cases similarly, and its history shows comparatively little variation in different species. The beginning of the family is, regularly, two individuals of opposite Personal sexes who seek each other and maintain fellowship, evidently under the Personal impulse of sex. Very commonly these build some sort of home or nest, though in some cases there is no home, and in many

others the home is built by the female alone. In this nest or home the eggs or young are deposited, and in it the young remain until old enough, or almost so, to care for themselves. In some cases the young shift for themselves from the start, but commonly they remain with the parents and are aided and defended in various ways by the mature animals. When the young are mature they either leave the family or (like the bees and ants) become part of it, when they may join in the care of the young.

It is not our purpose to repeat unnecessarily what was considered in the last chapter. We pass then directly to certain questions and objections as to our theory.

In the first place, is marriage and the family a product of Personal sex or of a variation of it? It is plainly not an inevitable sequel or accompaniment of it. Male animals, as a rule, are certainly more sexual Personally than females, but if either of the parents is lacking in parental helpfulness, it is almost inevitably the male. Indeed, it might almost be said that the normal family is made up of the female and the young, so commonly does the male, after the first, leave all to the female. Among the ants and bees, again, the workers are those who have least Personal sex, while the males are those who do least for the family. We may appeal further to common human experience, and ask whether men who are strongest in Personal sex are the ones who are most eager to enter marriage bonds, and whether, on the other

hand, good men do not inevitably marry, if possible, when they fall in love.

Again, the wave of Personal sex feeling is not co-incident with the wave of family feeling. Animals regularly have a period of strong exhibition of sex and courtship, and only after Personal satisfaction do they begin building or nesting. Moreover, after building, Personal sex often ceases entirely, and always decreases, while the family instinct only then really gets under way.

But, it may be argued, the family instinct is a transformation of the Personal instinct. To such an argument we can, perhaps, offer no absolutely conclusive answer, but we submit that the transformation is complete. The change from the singing, fluttering bird with no eye or apparent thought except for the female and his rivals, to the quiet hard-working bird carrying worms to the young and with scarcely an eye for his mate, deserves no less an adjective. Certainly if this is Personality, it is acting wholly out of character.

Our view of the situation is already known to the reader. The production of sex-cells and the care for the fertilized ova, we hold to be Social in nature, together with the special physical provisions for the same. The sex-cells, however, are strongly Personal, as is the whole body at the time of their (Social) production. Personal phenomena preceding, and to some extent accompanying, marriage are dependent upon the Body-Social instinct, but the Social is not dependent upon the Personal, although for a time

the Personal is very much the more demonstrative of the two, and although the family is actually determined by the Personal, in the sense that this instinct regularly determines which individuals shall originate the family, and then brings these individuals together. The family bond is thus in essence not Personal at all but Social. And this is true among men as among the other animals. Marriage should be entered upon according to Personal preferences, but the man or woman who marries for Personal sex will meet with an utter and grievous disillusionment.

There is some evidence that in birds and fish, and perhaps other animals, the Social instinct is active and strong before the movements of Personality. These animals, like many others, pass through what may be called a cycle each year. Personality and the family instinct exist with them, in power, during only a part of the year. (This is plain evidence, it would seem, of some such connection and perhaps dependence between them as we have supposed.) With the on-coming of the breeding season, however, these animals regularly undertake considerable journeys, called migrations, in order to arrive at some particular breeding spot. According to our theory the secret of this movement is plain. It is the family-homing instinct which has revived and which brings the birds and fish to the old abode—some of the younger individuals following Socially. In the case of birds, it is believed by all observers that individual birds often return to the exact nesting spot year after year. Perfect proof is difficult, of course, but the evidence

is all in one direction as to probability.¹ In these cases the impulse to return may be satisfied definitely only by coming to a certain spot, perhaps to a certain vine on a certain porch a thousand miles from the point of departure. It is the memory, clear or dim, of the nest that causes the return, and this is the Family-Material instinct at work. That it is not Personal is shown by the fact that the males and females regularly travel separately, the males regularly arriving at the home several days before the females. Evidently there is here an instinct stronger than the Personal, and leading the males and the females not only forward but apart from each other. Thus the mating takes place at the breeding-grounds. It is plain, however, that if Personality were the chief thing and the family a transformation of it, the mating should take place first and the birds (like a human bridal couple) should then proceed together to the nesting spot.

Our theory also makes clear the relation of pregnancy to the family. The production of sex-cells is accompanied by strong Personality, but after this production has ceased we may understand that the Personal would grow less. The retention and care of the fertilized ova, however, would then begin and this is purely Social—helpful. With pregnancy, therefore, there actually takes place a profound physical change in the size, form, and composition of the

¹ I have myself heard a song sparrow, with a peculiar individual note, singing in the same locality two years following; and others have noticed similar cases.

body, which change we have called a Social one. With the physical change takes place also a profound mental change. New impulses are aroused and are very strong. Some of these, in human beings, are highly eccentric, but in every normal case there is an unusual arousing of the family (Social) instinct. There can be little doubt that the connection between pregnancy and the family instinct is a real one. In many animals the pregnant female is the founder and sole organizer of the family; in almost all cases she is its chief member, both in pregnancy and later, while the effects still continue. Even in man she is recognized as the centre of the home. She cares for the children and for the husband; though timid, she will run greater risks and dangers, ordinarily, than the husband will to save or protect the young; and she is commonly ready to take the helm if the helpmeet fail or prove unworthy. It is to be noted, moreover, how uninspired those marriages are apt to be in which there are no children; and how often marriage takes place after women are already pregnant—the man having all his Social side aroused through sympathy with the far greater instinct in the woman. In some countries marriage after the beginning of pregnancy is the rule. It seems to have been common and honorable in England in Shakespeare's day (*cf.*, for instance, "Twelfthnight"); and it may well be that this was once the case in all lands, and that human marriage is to be explained as the creation, in a sense, of the pregnant female. The "engagement" often is, and probably always was, a cohabitation

that lasted until pregnancy was evident. It could be broken honorably and was, if pregnancy was too long in coming.

Undoubtedly this explanation of the Family-Social development and especially of its relation to the Personal, may leave something to be desired and perhaps much; not more, however, than may fairly be thought explicable, along the lines of our theory, in the future.

All Social units are to be treated and considered as real, though not fully accomplished, organisms. Hence we shall find in them repetitions of what occurred in the lower fusions, and there will be forms of the Material, Personal, and Social instincts. These we shall call the Social-Material, Social-Personal, and Social-Social instincts, when necessary; or we shall put the name of the Social unit as the first part of the word, *e. g.*, Family-Material, Family-Personal, Family-Social, and the like. These instincts exist, of course, in the individuals of any Social unit. They concern the unit as a whole, and may be felt sympathetically, more or less, by all the individuals in the unit.

The Family-Material instinct would be concerned first with the arrangement and perfection of the family within itself, as the Body-Material was with the body within itself. A first need of the instinct in this capacity would be satisfied only when the family unit was complete. The complete unit is no doubt different in different animals. In man it consists of a man, a woman, and one or more children. If any

of these members is lacking, a sense of loneliness and incompleteness is felt. Newly married couples are often quite unconscious of the cause of this loneliness, and may be so happy as not even to notice that they are lonely. The lower animals when they mate, doubtless never recognize that offspring have anything to do with their union. But both among the lower animals and in man there is regularly great joy, and (in man at least) a feeling of greater perfection in the family, and of greater contentment, when the offspring comes. (The reader may here be referred to Kipling's "An Habitation Enforced," than which nothing could be better.) Thus the likeness between a cackling hen and a human parent of a few hours is not merely superficial. In both cases it is the Family-Material impulse that has been satisfied. This impulse in man, if it becomes a conscious desire, is called the desire of offspring, or perhaps philoprogenitiveness. Like other instincts it may be deceived in its satisfaction. It not infrequently, as we have seen, adopts strangers, sometimes even by force.

A further need of the Family-Material impulse is the home and property. This has been discussed elsewhere and need not be dwelt on further.

The family tends to keep itself pure. Its power over its own members is, in itself, felt to be unlimited, and a member may be punished or expelled for bad behavior. In simpler civilizations the power of life and death is regularly left in the hands of the parents or the father. Even among the later Romans the

father had the legal right to put to death the newborn child, and in earlier times this right seems to have extended to the older children also. The practice of killing the drones of the hive is a similar case among the bees. We may notice, also, again, the tendency, in families of all animals that have homes, to keep the Extra-Body clean. Details may be found in the chapter on the Material Instinct.

Individuals outside of the family are felt to be so. They have no claim on the family impulses, and, so far as it is concerned, do not exist. If such individuals attempt to interfere with the family or to join it—to eat, sleep, or live with it—they are ejected without sympathy. They have no right to the family sympathy and love. The right to hospitality, acknowledged in certain countries, is not a permanent right to the family, but the more general right of men as human beings. It is a fine trait and not found among most barbaric nations, or even among the civilized, who commonly regard strangers as without claims of any sort upon the family sympathy.

Family-Material are also the relations of the family within itself. Each member has the Social impulse toward all the others. Hence, there is mutual assistance, sympathy, and the like. The feeling is regularly stronger in the mature individuals of the unit, the immature, though coöperating a little, being rather helped than really doing anything for the unit. They are also regularly less strongly Social than the mature members, at least in man. In most animals, including man, there is also

a difference between the parents, the less Personal parent being usually the more Social. This is usually the mother, a word that stands for so much that is helpful, devoted, and sympathetic. If the family instinct is combated by the other instincts, its promptings are very distinctly felt as moral—hence the duties of parents and children toward each other.

We have already mentioned some of the marvellous coöperative acts of parents. Such are, for instance, the laying of eggs in places where food suitable to the young will be found, as in many insects; the collection of suitable food for the young, either in advance (as in the mud-wasp), or afterward (as in birds). Sometimes the young are fed in special ways, *e. g.*, by regurgitation in most birds, or from milk-glands in the mammalia.

But there is one case (and there may well be many others) in which the situation is different, and the probable facts, if of a Social nature, not so easy to imagine. This is the turning over of their eggs by certain birds, *e. g.*, the domestic hen. Not all birds do this, but it is not uncommon, and, what is very important, it is absolutely necessary in some cases in which it occurs, if the eggs are to hatch. The yolk of these eggs is heavier than the rest of the contents, and is not held in place in any secure way, so that it sinks to the lower side if the egg is left too long in one position. This, of course, kills the egg. The turning of the eggs thus seems plainly helpful, coöperative, and therefore Social.

The most evident Darwinian theory would sup-

pose that hens gradually acquired the habit of turning their eggs—those who turned producing more offspring than others, etc. But such a theory is open to at least two objections. In the first place, the eggs would have been selected, not the acts of the hens. Only the eggs which needed no turning would at first have hatched, and they would have been selected. On the other hand, was ever a habit more frivolous and less heritable, to all appearances, than a purposeless turning over of an egg? A more plausible theory of the same sort would be this: that the turning of the eggs is a mere nervous trick found in certain birds, and that after it was well and permanently developed, the yolks no longer needed support in the eggs, and hence the support gradually failed. This last seems a plausible hypothesis, and is, of course, quite acceptable to our theory. The case has all the appearance of an accident in nature.

Nevertheless, it should be absolutely settled, first of all, that it is such an accident and not a true case of Social sympathy. As is well known, the hen will sit on anything resembling an egg. She will even try to hatch out what is in a door-knob. It would seem from this that there can be no great sympathy or even intelligence in her relation to her eggs, but this is not so certain. If I look at a photograph and smile at it, it does not follow that I am deceived into thinking it my live friend. So the hen who looks at a white door-knob, or even a china egg, may be moved to sit and yet not be deceived; it may satisfy her impulse somewhat without for a moment misleading

her. Mr. Lloyd Morgan's experiments with chickens have made it clear that memory also plays a very large part in such actions. We have mentioned elsewhere the hen who, having raised a brood of ducks and grown accustomed to them, afterward hatched a brood of chickens, and was found insisting that the new brood should enter the water and swim as the first brood had done. If, then, a hen sits on a door-knob and even turns it at proper times with her feet, it still does not follow that there is no Social sympathy between her and a real egg, impelling her to turn it over. The treatment of the door-knob may be merely associative memory. If, however, a hen of no experience will sit upon china eggs and turn them, then it will be fairly certain that the act is a mere nervous trick, like the turning of the dog before he lies down. It seems most probable that it is such a trick, for it is not evident what the exact nature of the communicated impulse could be.

The family performs many acts in common. Perhaps the most notable in man is the Material one of eating. The eating together of families is not merely an individual act; it is more like a family rite, and is regularly felt so. The stranger who eats with a family is felt to be, by that act, an adopted member of the family, at least *pro tempore*. The individuals of the family owe duties to him, and he to them. If it is discovered that he is an enemy, he must be allowed to depart in safety; if he does some harm in or to the family, the crime is unnatural and revolting. Hence the many obligations between family and guest;

Custom of Eating Together!

hence the special significance of banquets and feasts, and the attractive associations about such words as hospitality, welcome, hosts, and such places as taverns, inns, and the like. Hence, also, the obligation and the flavor of the farewells and good-bys (God be with you). *tell me meet again*

The relationship through eating is recognized in the word companion (mess-mate), and no doubt also in comrade (tent-mate or room-mate), though the latter recognizes the bond as established also by sleeping in the same room or dwelling. Sleeping together as a family act is found commonly among the lower animals. Quails sleep in a close circle with all their heads pointing out. The hen and her young also form a family group at night.

It is impossible for the family to exist without the entrance into it of Personal relations. These are, however, considered in general to be foreign to it as a family. In man Personal sex is usually considered wrong except as between the parents, and is usually a private matter with them. Moreover, the laws of both Personal and Material decency are commonly felt by all the mature members of the family. It is felt, in short, that certain Personal and Material matters do not concern the unit as a whole. Moreover, the lesser acts of the Personal impulse when opposed to the Social are felt to be wrong in the family. Partiality, rivalries, and the like, are felt to be out of place.

Nevertheless, the Personal instinct enters into the state of every actual human family. Fathers, and

particularly mothers, often kiss and fondle and "sweetheart" and "darling" their children; and almost always treat some better than others for Personal reasons. Moreover, the position of the man toward the rest of the family is regularly Personal to some extent. He may beat or otherwise terrorize both his wife and the children, not because they do wrong but because they oppose him. Obedience is given him not merely because he is superior in initiative or goodness, but quite as often because of Personal or Material fear. Hence, among many lower races it is the woman who does the work, except when she is unable to, or when there is some Personal attractiveness in it, as in hunting or fishing. Hence, also, the condition approaching slavery in the wives of Turks, Chinese, the ancient Greeks, and to some extent in most of the nations of the world. In the most primitive nations, however, such as the natives of America and Australia, woman holds no degraded position, but is in some respects superior in power and influence to man. The Personal form of the family is thus apparently a result of a certain development in civilization.

In the Personal form of the family the mother, in her turn, is Personally superior to the younger children, and may terrorize them into subjection; though when the children are strong enough they quickly reverse the position both as regards the mother and also the father, for, of course, Personal treatment educates the members of the family to be strongly Personal in all their Social acts and thoughts.

In many civilizations the family includes not merely the parents and the offspring, but also slaves or servants. The position occupied by them is, like that of the other members, regularly Personal. The man and wife and children all may terrorize them and demand obedience of them.

At the end of the list may be placed the domestic animals, whether laborers or pets—the dog, the horse, the cat, the cow, the chickens, the ass, and the goat. These are on a lower plane, as a rule, than the slaves, and may be controlled by all the higher members of the household.

The peace of the family thus depends largely upon the Personal characteristics of its members. The situation usually works out into a fairly durable and enduring and well-understood state, which may be joyless enough, but on the other hand may be the sweetest and most encouraging and restraining and consoling fact of mature life. *Kentucky Horse*

The relation of the family toward other families may be either Personal or Social. The former is the Family-Personal relation; the latter the Family-Social.

A family is sure to view other families as units like itself. Hence the Family-Personal relations of love, hate, friendship, jealousy, envy, rivalry, hostility, and the like. These feelings are felt by each member of the one family toward the other family as a whole, and may form a subject of family talk and Social excitement. They are not inconsistent with different Personal feelings between individuals of

the two families, although most commonly the Family-Personal decides the Individual-Personal. Important consequences result from the Family-Personal, as will appear later.

The Family-Social instinct is that which causes families to unite into the various larger units of society, such as clans, tribes, cities, towns, villages, spreading into states, realms, nations, peoples, and the like, with subfusions of various sorts. For our purposes we shall call all true fusions of this grade States, and their instincts, accordingly, the State-Material, State-Personal, and State-Social. We will now turn to the consideration of this unit.

THE STATE

The State is a Social union of families. Many flocks of animals have the State form for at least part of the year. Thus the wild pigeons, the crows, the sea-gulls, the swallows and swifts, and others, nest in roosts or colonies; the prairie-dog does the same; and many of the larger mammals herd in families. In most of these cases the family sense is distinct, and, except among the larger mammals, includes a sense of property. In many other cases not mentioned, the sense of property among birds is so great that a flocking of families is practically impossible during the breeding season. Such birds commonly flock after the young are able to care for themselves wholly or in part, but whether any Family sense remains in such cases is not clear. In their absence of plain family ties these gatherings of birds

(and similarly of the fish), seem to lie midway between the State and the Family forms, but on the whole they are rather to be considered imperfect State forms. The birds which have a distinct State form during a part of the year, regularly assume this flock form during the non-breeding months.

The State forms among animals have little organization, as a rule, and are commonly a mere company-keeping. Exceptions are the herding animals, which often hold together and render assistance in hunting or defence; and may even set out sentinels, punish delinquents, and perform Social acts of individual heroism and help.

The sense of property of such flocks or herds is slight, but (like the same sense in many human tribes) not altogether lacking. They are apt to frequent definite areas, over which they may roam and toward which they doubtless have a certain home feeling. It is upon such a feeling that we should rest our explanation of the migration of birds. Birds apparently have two distinct Social home feelings, one the Family home feeling, the other the Flock home feeling. When they are in the Family form they have a feeling toward some definite spot; when in the Flock this feeling is felt toward some other region or regions; and the Family spot and the Flock region may be thousands of miles apart. Thus in the spring the Family-Material instinct may call them to Labrador or the Arctic Circle, while in the autumn the Flock-Material may call them to South America. The details of this tremen-

dous yearly movement are as yet imperfectly or not at all known. There is little doubt that the actual movement is a following of a remembered (*i. e.*, recognized) route, and some of the routes now taken by the birds are believed to be of great antiquity and better suited to former geographic conditions. The actual spurs or hinderances to migration may be the temperature at night, the supply of food, and the direction of the winds. That most bird migration takes place at night or very early in the morning is one of its striking peculiarities, and is doubtless of great significance, though as yet unexplained except by the absurd suggestion that night travel is safer than travel by day. *Sensible*

That the human State is thought of as composed essentially of families is shown by many customs and rights recognizing that unit. Such are the rights of the family to property, and the acknowledged right of the family to control its own affairs, extending in certain cases, as we have seen, to the power of life and death. The Englishman boasts that his house is his castle, and that the State, even, must stay out of it. In primitive States, moreover, it is families rather than individuals that rule and, even in more advanced civilization, it is the householder who is considered and has power, even though the man have no wife and children. He is a family in his interests, though lacking certain members.

In modern times and especially in America the tendency seems to be to consider the State as an aggregation of individuals. The home is pretty freely

invaded and regulated by law; its individual members possess property; and the man with no home interests is given equal rights with the rest. It follows easily from such a conception that the breaking up of families through divorce should seem a matter of slight consequence, and the property right highly questionable. Any theory of the State, however, that is built upon such a conception we may feel sure will fall into more or less serious mistakes. If, for instance, the suffrage were confined to the mature members of families (fathers and mothers) and the property holders, it seems clear that it would be far more nearly normal—far more interested in the State and far less subject to wild whims and prejudices—than it is at present.

The State-Material instinct is the Social-Material instinct of the individuals of the State in so far as it is aroused by the State. As the State is composed of the bodies of its citizens, so the Extra-bodies of the citizens, *i. e.*, their lands and possessions, may be considered and are considered the home or possession of the State. The State also owns property belonging to none of its citizens. Such are roads, public lands, buildings, money, and the like. All the landed possessions together commonly make one tract, which is called the country. Any man who owns land in a country is, in so far, a citizen of that country, and there is not infrequently a bar against such ownership by those not actually professing citizenship and accepted as citizens. Nevertheless, although the land of the citizens is the country, and is felt so, yet it

is so in the same sense as the citizens are the country, *i. e.*, men have the same right in land as in life, and the State can rightfully interfere in one or the other case only as a distinct public interest demands it. Civilized countries recognize this and provide that all such interferences shall be made good to the owner and shall not occur without good cause. Undoubtedly this relation is clearly felt by all. Private property is felt as private, although a part of the country; and the feeling of an American in thinking of Yellowstone Park or of the Capitol at Washington is quite a different thing. These are the property of the nation.

The arable land of a State if unoccupied is felt to signify potential citizens. It is, therefore, a desire of the State-Material instinct to fill out the body of the State by having this land occupied. Hence the encouragement of immigration in young States. Often the State has an idea of what its body should be, and dreams of absorbing territory or even continents. Hence, sometimes in young States, a desire for conquest and the acquisition of territory. This desire, like the similar one in the cells, regularly results, if successful, in overgrowth and a consequent splitting up of the State into several States. Many nations have had this experience.

Entrance into a State is commonly through birth, but may take place formally, either upon the acquisition of new territory, or through individual naturalization. There is probably no nation in the world that has not been much affected by these assimila-

tions. The tendency to bring about complete assimilation of the parts of a State is also State-Material. This will be mentioned again.

The feeling of the individual toward the State is the duty called clannishness, patriotism, or allegiance. That between individuals is, of course, the duty of sympathy and coöperation.

Individuals outside of the State have no claim to the State sympathy and helpfulness. Quite regularly they are felt to have no claim to any sympathy. No foreigner in any country can escape this fact entirely. Sometimes he will be put to death; in other cases stoned or abused or ejected; in the best case he may expect to be laughed at (Personal). He is outside the Social unit and is at a disadvantage.

Men inside the State are treated like outsiders if they do not follow its laws and customs. Like the foreigners they are felt to hinder the perfection and purity and strength of the State. Such men may be conservative, old-fashioned, reformers, or criminals. The insane also used to suffer.

Of conservatives we may mention the Tories of the American Revolution, and similar individuals in every revolution. Reformers are in almost every case thought to be evil men, *e. g.*, Socrates, Luther, Galileo, Kant, and Darwin.

Of criminals it may be noted, at the risk of repetition, that there are several kinds and many degrees. Some are abnormal; others are not evenly proportioned, another instinct being stronger than the

Social; others, again, are weak either in mind or in Social instinct.

To this last class most men belong in some degree. Many men who are honest in their families have no feeling when it is a question of dishonesty to the State, or even to a corporation. Many who are honest in a corporation feel little obligation toward individuals outside, or to the State. Many who feel the obligation to the State feel none toward foreigners. These limitations are largely dependent upon the grasp and understanding of the mind, and are thus dependent upon the grade, rather than upon the possession, of the Social instinct.

Hence, in all countries it is advantageous to represent the State by some symbol—a flag, heraldry, a king, a god, or a song; or to have it expressed in some simple stories of great acts of great individuals. Such things help the mind's grasp, and, since most men have little grasp, are of inestimable practical value. Hence, also, a real political value in an aristocracy. Education and mental training evidently have Social worth also as strengthening the mind's grasp. On the other hand, simple good laws and good customs are a regular mainstay of the State; and the non-enforcement of good laws, or the multiplication of legal or governmental details beyond speedy and efficient usefulness, or beyond the understanding of the common man, may be a serious hinderance to Social virtues.

The State has regularly the power of life and death over its members. Originally, families were punished

rather than individuals, but this custom has fallen into disuse, and the death penalty itself seems to be dying out. The State, however, still exerts the right to employ the lives of its citizens in war, whether in offence, defence, or when the State has no real interest in the outcome. It is felt to be the duty of citizens to lay down their lives for the State. *Dulce et decorum est pro patria mori*. Having the power of life and death, of course all lesser rights of the State over its citizens may be taken for granted.

The most important act of the State-Material instinct is perhaps the orderly arrangement of the State within itself. It is felt by all good citizens that the State should work smoothly, but, owing to the Material and especially the Personal factors in the problem, this has not been a simple matter and is not. Indeed, progress toward the accomplishment of it is the advance of civilization, and it has been, or has seemed, exceedingly slow. We can attempt only the slightest outline of it.

To begin with, it is to be noted that in a union of families, each family would naturally act as a unit, and in this action would inevitably follow and be led by its domineering Personal masculine leader. The man decided upon the acts of his family; the family followed him. Hence, while it is true that the family centres largely about the mother, the State, on the other hand, may be said to be almost exclusively the product of the man. For this, as we might thence infer, he is also, as a sex, far better fitted. Man is in general more bold and active and inventive (Per-

sonal), has more interest in distant and imaginary affairs (Personal again) than woman has. This is likely to result, in good minds, in wider and better balanced sympathies (Social), and thus in a better grasp. Thus he has had, and continues to have, more interest in the State.

In the original arrangement of the State the Personal factor, even more than in the family, was regularly the determining one. The father managed the sons, if possible, even after they were married and had families of their own. He was finally deposed, either by one of them or by death, and the power went to the strongest (Personal). Thus in all primitive races the chief is a warrior. In some of the primitive tribes he may be deposed by any one who can or will do it. This primitive state of things is found also in such organizations as robber bands. It is not unlike the condition found in the herds of the higher animals, and it often results, as among the animals, in polygamy. As a rule, an absolute power of life and death is in the hands of the leader or chief.

As the tribe grows, the leader or chief discovers that policy and management may count for nearly as much as force. Thus a strong fighter may become chief by general consent, and may build up a bulwark of retainers about him. He may also choose his successor from among his sons (since the tribe is felt to be made up of, and therefore ruled according to, families)—subject perhaps to the general fact that he who can may depose the chief. Such depositions,

however, cease to be strictly individual, and must be supported by some party or clique.

The last step of this advance occurs when the State attains a really considerable size. Here the sorting out goes much further, and there arise various ranks. The man who can rule a number of families contests with another who can rule a number, and all the families follow the victor. The ruler is the greatest warrior and the most skilful schemer; and he, more and more, takes advice from those who are under him. The strong men of the State thus grow into a subfusion for mutual support, and the actual chief leaves much to them. More and more offices become hereditary, and the heir is sure of his position if he can retain the favor of the king and the powerful nobles. Meanwhile, men who have become dangerously or respectably strong by their own exertions are being constantly received into the higher ranks of the rulers, for there gradually come into existence various ranks, more or less changing, down to the families that are practically or actually slaves. Heredity becomes fixed as law and right, and the State becomes settled—and the nobles no longer need to fight.

Thus arose such institutions as caste and class; with innumerable distinctions such as: king, duke, marquis, earl, monarch, prince—all military titles; nobility, lord, lady, gentleman, and the rest; peers, parliaments, peasants, menials, servants, slaves, thralls, dependents, partisans, officers, police, citizens, rabble, varlets, and the like. All became hered-

itary, within limits, and grew to have the full support of custom.

It is to be noted that all these distinctions are by origin Personal and not Social; and that all date from the early warlike barbaric condition of mankind. Moreover, as a matter of actual fact, the higher orders were in no way answerable to the lower for what they did. Against these all crimes were freely permitted them. Robbery, murder, adultery, and the like, went on unrebuked, and the last-mentioned crime is even now considered not only no offence to the State, but even something of an honor to the wronged family, in certain parts of Europe.

Meanwhile, a similar advance was taking place along Material lines. Business and trading grew, especially in certain geographical centres. In business, however, violence could not be the rule. Laws and customs founded upon the right of property were developed. Property of all sorts (like Personal position) became hereditary in families. But as these developments took place, it became evident that the Material method was destined to be exceedingly important. Men must eat to live, and what they eat is property—Material possessions. Hence, he who can control much property can control profoundly the fate of other men. He can compel them to work for him and feed him in order that they may live at all. And if the law and custom of the land make the property hereditary, his children and grandchildren forever may compel others to feed

and clothe and protect and otherwise care for them, for the mere privilege of living at all. Against such power, Personal valor was nothing. Hence the nobles took possession of immense lands and so secured for themselves a double power. / At the present day the power of the nobility in all countries rests entirely upon this custom of the inheritance of property, and their immense landed estates have not only been inherited but in some countries used to be entailed, *i. e.*, could not be sold or in any way leave the holder of the title. The power so obtained, however, is practically unlimited, since there is commonly no legal redress if a tenant is thrown out to starve either for or without reason. /

In certain places, however, and especially in sea-port towns and cities, the Material development took place without much interference from the Personal. As in such places many were successful, and as these had no way of compelling one another—and money is a lover of peace—the merchants and property holders ruled. Thus grew up a complex and crowded life built upon the Material conception of Society; and, unlike the Personal, which is always violent and irregular, it was constructive. It elaborated upon the rights and duties of citizens; it discovered some of the elements of justice and morals; it stood for integrity and reliability and safety. It was, in a word, much more ready to be purely Social than the Personal was, for it is possible to be Social and still to make money; indeed, it is necessary to be somewhat Social to carry on any business; while the Personal

wins chiefly by transgressing Social rights and customs.

In the course of time the Material ideas have shown themselves to be distinctly stronger than the Personal. The nobles have not only become more nearly Material themselves, but they have constantly had to compromise with the business men, either admitting some of them to the nobility or allowing them certain rights. Thus, Personal positions, as such, have come to seem, and to be, more and more antique and unessential encumbrances in the State. In some new countries they have not been allowed to gain a foothold at all. In all the old countries (except perhaps Russia) they have been limited and controlled so as to be reasonably obedient to Material and Social interests.

In America it is felt that the inheritance of Social positions of power is a plain absurdity, since such inheritance so often falls upon unworthy shoulders. In the primitive State this was not so bad, for the principle of inheritance was not strictly followed. The unfit son lost what, if fit, he might have had. Thus the State was flexible, and strong men tended to come to the front. We perceive that the modern State should be equally flexible, and that no man should come to the front except by individual merit—and that this merit should be Social (*i. e.*, directed to the ends of the State), and not Personal or Material. In the actual working, the results are not altogether satisfactory, and perhaps never can be, since men are and will be moved by Personal and Material mo-

tives. Nevertheless, the American experiment is a distinct success, and shows no trace of reverting to the old Personal forms of government seen in Europe.)

But while the Personal inheritance of Social office seems to have been satisfactorily settled, the Material inheritance of Social power has hardly been touched. This problem we have already stated. A man by economy and ability may amass a great fortune, and with it an enormous power over his fellow-men. This, if honestly acquired and used, no State has the right to deprive him of. But when the question arises as to the inheritance of this enormous power over his fellow-men, it is plain that in essence it is the same question as that of the inheritance of any other political power. In so far as wealth is a home-*stead*, *i. e.*, actual property owned and worked by the family, it seems a good regulation that it should be heritable; it keeps up a Family sense that is restraining and encouraging; but in so far as it is a Personal or Social power, there is no reason why it should be more heritable than any other Personal or Social power, such as the presidency or a senatorship.

This question has not yet been settled practically, or even fairly met. What has happened in history is that property has gradually come into the hands of a very few who have then grievously misused it, and have finally been deprived of it by a popular uprising. Such were the Reformation in Germany, the same movement in England, and the Revolution in France.

The Personal forms of the State may be: autoc-

racy, despotism, tyranny, absolutism, theocracy, demagogism, monarchies, slavery, and the like. The more purely Social forms are called republics, or democracies. The Social State as opposed to the wilful Personal State is called freedom or liberty, the other being oppression or tyranny. It should be noted, however, that freedom is often used with a distinctly Personal meaning, *i. e.*, as meaning a freedom from the necessity of obeying any imposed laws.

The State-Material instinct has as one of its moral aims the bringing into unity and sympathy of the members of the State. The Personal method of accomplishing this is terrorization. The most famous exposition of this method is that of Machiavelli. Machiavelli was a good and patriotic man who had the interests of the State closely at heart. He perceived clearly that to be strong a State must have unity and the support of its citizens. This condition, however, he thought could be best brought about by the Personal method—for he himself was brought up in a Personal State. To such a State his book seems eminently practical and wise, and all the Personal governments in the world follow it more or less. It comes to seem atrocious, however, in proportion as governments become more purely Social.

The Social solution of this same question has, as we have said, progressed slowly, but has now grown to be very complex. Not only is speech used to bring citizens in touch with one another, but mechanical inventions of various sorts have been turned to the same use. Such are the railroad, steam-boat, tele-

graph, telephone, and printing press, which are not merely Material inventions but are distinctly Social as well, and have often been compared to the blood vessels and nerves of the commonwealth. On the other hand, there are the inventions for the uniformity of the actions of the State (laws and customs); and the instruments for enforcing them (courts of justice and the police); and the means of making them when necessary (governmental bodies, representative or of the whole people). The struggle against the old Personal methods has brought out also the Social right of equality before the law, and the desire to make all citizens as nearly equal as nature will permit. Hence popular education, boards of health, and the like. Many apparently slight inventions have influenced the Social life profoundly, *e. g.*, eye-glasses, the electric light, and the electric car.

It is becoming also more and more evident that in proportion as the Social side of the State is developed and the Personal and Material sides obliterated, the need of government grows less. The moral side appeals to all men, and needs scarcely any support from force; the Personal side on the other hand is always violent, rebellion-provoking, uneconomical, and unpractical. Criminals there will always be, and the State must attend to them, but in a country like America the man who does what he thinks right need scarcely know that there are any laws. In such a country, moreover, the largest part of the activities of the people are quite apart from the government. Hence, by the way, such a State is very hard to under-

stand—harder even to understand than are individuals who are free, natural, and happy.

Honor
&
Virtue

The advance or change from the Personal form of State to the Social or Material-Social form is one that can be made only with extreme difficulty. The manner of thought in a Personal State is Personal, and this permeates to the very bottom and to the least affairs of life. Mr. Bryce in his "American Commonwealth" observes that "it is an old saying that monarchies live by honor and republics by virtue," and this is a way of stating the contrast between the Personal and the Social ideal. And it must be easily evident that the change of ideal from honor to virtue is tremendous, and not to be accomplished by an act of will, for it is a change of interest, a change of dominating instinct. It is thus almost impossible for any individual to be purely Social in a community whose instincts are strongly Personal; and the community itself can change only gradually.

Thus, for instance, if there is a revolution or other governmental change in a Personal State, there is ordinarily no great progress. The new rulers are likely to be even more overbearing than the old ones, for their conception of the State is just as Personal when they rule as it was when they cringed. Nor is it true that the lower classes develop a Social manner of thought among themselves. Their interests also are Personal and each is eager in some way to put down his neighbor. Thus, there are grades below grades, down to the very bottom, each cringing to the one above and towering up in the presence of those

below. Those who have not observed this form of State themselves may get an idea of it by reading the rather merciless stories of the author of "Elizabeth and her German Garden." She finds this State both in England and in Germany, and is herself strongly of the type.

Lady Russell

When foreigners from Personal States come to the United States, their behavior is very characteristically Personal. Those of the lower classes are very humble for a few months and sometimes very much longer, after which they are likely to grow extremely impudent and overbearing. If nobody will kick them, it is because it is a nation of inferiors who must be kicked. Then gradually it dawns upon them—often, however, it is their children who first learn—that there is a third possible condition, and that they need be neither cringing nor overbearing but may be simply equal to their fellow-men. Adult foreigners of the educated classes (with their minds full of memories and thoughts) rarely learn, but ordinarily cringe and are overbearing in America all their lives.¹ The change to the Social is felt even in the family. Foreigners are apt to be far more violent and domineer-

¹ "People meet on a simple and natural footing with more frankness and ease than is possible in countries where every one is either looking up or looking down. There is no servility on the part of the humbler, and if now and then a little of the 'I am as good as you' rudeness be perceptible, it is almost sure to proceed from a recent immigrant, to whom the attitude of simple equality has not yet become familiar. . . . It raises the humbler classes without lowering the upper; indeed, it improves the upper no less than the lower by expunging that latent insolence which deforms the manners of so many of the European rich or great." Bryce, "American Commonwealth" (1889), Vol. II, p. 663.

ing with their wives and children than their American-born children afterward are, for the American family tends distinctly to be Social rather than Personal in its internal economy—as was, of course, inevitable.

An illustration of the difficulty of the change from the Personal to the Social in a large community is to be found in the Southern States of this country. Before the war of 1861, this part of America was organized in a Personal form of State. There were the slave-holders, the negroes, and the poor whites, each forming a distinct class, and with a distinct Personal relation of superiority and inferiority. The outcome of the war was the legal disruption of this form of State. Before the courts, thereafter, whites, blacks, and poor whites were to be equal. The so-called “negro question” is the result. The whites cannot conceive of equality, before the law or under any other circumstances. Thus the negro question is chiefly a psychological and not chiefly an economical one. If the Personal factor could be eliminated, the impudent negro would shortly disappear, and the question take its proper (and no doubt still very serious) Social form. This is not meant as a claim that the negro question as it stands is one of easy solution; on the contrary, as has been said, the change from a Personal to a Social form of State is so difficult as to be wellnigh unheard of, and if it is to take place in the South it must mean a profound change in most of the thoughts and interests current there.

The State-Personal instinct is the feeling of the State (found in its individuals as members of the State) toward other States. As in the case of families, this feeling is consistent with quite opposed feelings between individuals of the two States. The State-Personal impulse may be love or friendship, but up to the present has been almost exclusively rivalry and hatred. So far, no nation has risen to be treated as having rights that must be respected except through war with other nations; and the condition of the world is that of an armed peace, and a more or less bitter envy and hatred. Such a view of world politics is inevitable between nations whose internal policies are wholly or in part Personal. America with its more Social form of government shows little sign of viewing the world so, though individuals (politicians, soldiers, and the like, of strongly Personal traits themselves) not infrequently do. It is the bane of the present condition of the world (Socially), but probably will not cease until the inside of the cups and platters is cleaner. It may be noted here that a considerable portion of the actual wars of history, *e. g.*, the Napoleonic and Franco-Prussian, have had little or nothing back of them except this State-Personal impulse.

The State-Social instinct is that which would be satisfied by a union of nations as nations without regard to Personality. Instances of such unions are perhaps that of the states of the United States, and (with a Personal element) that of England and her colonies. Further advances are foreshadowed by

England
+
Germany

treaty agreements. These are made with a certain amount of sacrifice on each side, but with distinct Social satisfaction. The same pleasure is felt in the constant growth of the habit of settling disputes amicably and by arbitration. It seems even as though a standing court for this purpose might come into existence in the near future. It is to be noticed that in proportion as nations grow from the Personal phase of government, they grow peaceable, though still willing to fight in a Social cause. Fighting for the honor of the nation is felt in all civilized States, even now, to be insufficient and regrettable without a moral support. Undoubtedly, there are numerous signs to make us believe that the sense of accountability to the Social opinion of the world is a growing force in the deliberations of individual States, and we may hope that this sense will some day put an end to unjust Personal wars.

The same sense, we may hope, will put an end also to wars entered upon from Material or Social-Material reasons, though these are perhaps even harder to control. Probably the larger proportion of modern wars have belonged to this type. Instances are the Boer War, and the Chinese-Japanese and Russo-Japanese wars. Such conflicts are commonly described as "inevitable."

Treaty obligations and international agreements are the highest of the present actual Social bonds. Beyond lies only the duty to humanity, felt to some extent, at least in theory, by all good men, but scarcely represented by any organization.

Within the State there are a large number of subfusions, and to these we will devote the last pages of this chapter.

Social subfusions are those Social units that are not actually or historically independent. They often could not exist independently of the larger units in which they occur. Otherwise they are in all respects like other Social units. They take place according to some sympathy of the component individuals or families; they carry with them a sense of duty toward those within the unit and of no duty to those outside; they have their Material, Personal, and Social tendencies; they often have a past and a future imposing duties upon them.

Social subfusions vary greatly in closeness and durability. Some are mere chance aggregations, as crowds, throngs, and the like. Others have only a little organization, as mobs, bands, and the like, which may have some one bond of strong sympathy and coöperation but otherwise may be without permanence or cohesiveness. Organizations, again, may be real but informal, as in the classes of Europe—peasants, bourgeois, “society,” and the like; and the smallest of all subfusions, friendships. Sometimes the organization is more formal than real, as in associations of scholars, literary men, actors, teachers, and the like. Many, however, are solid and durable and important, *e. g.*, political parties, educational institutions, churches, secret societies, partnerships, trusts, labor unions, and so on. The number of subfusions in the modern State is very large. Organiza-

tion is sometimes said to be the "watchword" of our age. It may be well to examine a few of these subfusions in detail; the nature of all is similar.

Churches are Social fusions according to sympathy in religious and moral matters. They sometimes recognize the family unit within them, and in the Christian Apostolic Church the family may sometimes have been the unit of membership (Acts xvi, 31). In addition to the living members, churches sometimes include those who, having died, are considered as alive; and of course they stand in some relation or other to a living God. The qualification for entrance is intellectually a profession of submission to the association and its rules, and a subscription to its formal beliefs. This is called a profession of faith or a confirmation. The arrival at this state of mind may be conversion; the state of the new member may be called redemption or salvation. The forms gone through with at the time of admission may be baptism, cleansing, blessing, absolution, consecration, and the like. Obedience to the laws of the organizations is called righteousness, uprightness, holiness, piety, godliness, saintliness, lowliness, and the like. Disobedience to church laws is called blasphemy, sacrilege, profaneness, heresy, or heterodoxy. Those outside of the organizations are morally outcast, and are reproached or hated or anathematized as secular or worldly or bad; or they may excite pity. Expulsion from churches takes place for disobedience and may be excommunication or anathema. Churches gather together at intervals or on special

occasions and perform Socially certain characteristic rites such as prayer, singing, sacrifice, and communion. Prayer, fasting, charity, teaching, and mutual aid, are also among their laws for individuals. There are also special rites connected with births, marriages, and deaths of the members of the organization, but modern churches are not all of them exclusive in the use of these, and indeed some of them regularly suppose that there may be non-professing Christians. Leaders of churches are called bishops, ministers, popes, priests, deacons, saints, missionaries, and the like. The action of the Church-Material instinct in endeavoring to acquire new members is called proselytizing, or conducting revivals; and consists of teaching, preaching, prayer, singing, and the like. Churches also own property and may have elaborate forms of government within themselves. The Church-Personal instinct shows itself in the jealousy and rivalry, or the affection they often feel toward each other. Often, however, and especially in our day, they join Socially in common causes, without regard to Personality, and this is Church-Social.

The church has been and is an exceedingly strong form of organization, for it rests upon and develops the highest impulses of humanity. Like other organizations of great strength, however, its sects have not limited themselves strictly to their professed purposes. Thus they have been and often are political bodies in the common use of that term. They have conquered territories and ruled them, waged wars,

levied taxes, and so on. Some of their details are strongly Personal, *e. g.*, the gorgeous garments, ceremonies, and the like. They also, although strictly Social in true aim, have made themselves in all ages judges of the Material truths of science, and they have often been (Materially) immensely rich in lands and other possessions. In all these lines, however, other organizations have arisen and have driven them back, and it is now growing to be clear that, while churches in their moral urgings may properly use the words "you must" to the individual, the imperative stops there. We must be good, *i. e.*, must coöperate and sympathize with our fellow-men; but the thousand and one other "musts" of the churches are gradually ceasing to cause assent or even rebellion in educated hearts.

Polite society is a Social subfusion made according to Personal sympathies. Being largely Personal it has no close organization, owns no property, and demands little helpfulness or lasting sympathy from its members. Special forms of this fusion, however, may be more formal, as, for instance, clubs, secret societies, and the like. These often own property and demand more or less Social coöperation. Entrance into society is a matter of birth or of Personal fitness, and is regularly by families. The laws of society are called etiquette, manners, fashion, style and the like, and in all these the Personal and Social nature of the fusion tends to extreme formality. Naturally a chief qualification is fitness in clothes, which must be fashionable, though gorgeousness of attire

and foppery (both thoroughly Personal) are not barred. Men who have natural gifts of the Personal-Social kind are called elegant, tasteful, or refined. Such men are well-bred, decent, polished, decorous, trim, stylish, and the like, both in other respects and also in speech. The height of good taste is said to be cosmopolitanism. Cleanliness and neatness are ordinarily demanded of modern society people, though in former centuries ladies and gentlemen did not wash, and even now powder, paint, perfumes, and the like may be allowed if Personally attractive. Immorality and extravagance are also sometimes unobjectionable in society if they be agreeable Personally. Those outside the unit are thought of as ridiculous (Personal), and are considered beneath those within it—they are either mocked or ignored or patronized. Such outsiders are described as low, common, vulgar, boorish, rustic, base, queer, shabby, awkward, and the like. The rites of this Social unit are also Personal, *e. g.*, dancing, drinking, gambling, revelling, gossiping, and conviviality in general. Women and men array themselves and act, so as to be Personally as attractive as possible. /As the carrying on of this sort of life is possible in its purest form only to those who have few Material or Social interests, the highest ranks are regularly made up of the rich and idle. It is natural that such society should be looked upon with pride, envy, and distrust by the State in general. It possesses all the good and the evil sides of the Personal instinct. It may be charming, tactful, gentle, beautiful, witty, and perhaps masculine, on the one

hand; and on the other regularly tends to be more or less sexually immoral, drunken, gambling, dissipated, and idle. What such individuals do or plan is of no possible advantage Socially or Materially either to themselves or to others, and their conviction and air of superiority often moves the outside world to mirth or to envy and rage—all Personal as a rule. It may be noted that the army and navy, being Personal occupations, were also Social subfusions of the same sort as polite society, and this is still so in a measure, though the best soldier and sailor of modern times is sure to have close relations in character to the scholar and scientist.

Corporations are Social subfusions according to Material sympathy. Entrance to them may be through the possession of money or estates, or through special business ability or experience. Those who are individually active in them must in addition be morally reliable and faithful. The corporation, however, is like other Social fusions in that it entails certain duties within it, to which outsiders can have no claim. Thus, the moral reliability and faithfulness need not extend outside of the corporation. The members must be honest and helpful within the unit, but it is not felt that, in their corporate capacity, they must be so to individuals outside of it except in so far as it will be advantageous to the unit. Corporations are often related to each other as rivals, in which cases the struggle may become in part Personal, and the rival may not be considered to have claim to the ordinary moral (Corporation-Social)

rights. Every sort of trickery and strategy may be used to destroy such a rival, even at the cost of considerable temporary loss or even at the risk of trials in the criminal courts. In a similar way, corporations may become enemies of their workingmen or of the community or even of the State.

Whenever a strong Social fusion within the State adopts political principles differing from those of the State, it may easily become an object of bitter hatred to the State as a whole, for it may seem to be a rival and an enemy of the State, or perhaps a flaw in the State purity. Of this nature has been the feeling toward Catholics and Jews in certain countries. If it were not felt that these are strong organizations, banded together for their own private ends, and comprising, as it were, States within States, there would be no feeling at all concerning them. Creeds have never really been the issue in such cases. From the same cause arose the Christian persecutions among the Romans. The cry against bosses and machines is also of the same sort.

This dislike and hatred is sure to arise whenever large numbers of any foreign nationality collect and form a unit in any country. In this country Irish and Germans have been viewed with suspicion—which disappeared immediately when the massing disappeared. Few persons object to individual Irish or Germans. Of the same sort is the feeling toward the Chinese in California, and the Italians and Poles in various places. Few persons object to the individuals of these races, but in San Francisco

the mob has sometimes gone to the Chinese quarter and destroyed and killed with the maddest fury. It is organization against organization, and for the moment all Chinese are alike and none have any rights even to life.

There can be no doubt that such conflicts between organizations are apt to be far more acute in cases where some distinguishing external marks separate the parties. Thus, Jews, Chinese, and negroes are commonly recognizable at a glance, and many foreigners are known instantly by their language or accent. In such cases the hatred is commonly called a racial one.

It should be kept clearly in mind that race hatred is not at all inevitable, but is merely a name for a particular kind of Social-Personal animosity, such as may and does exist between all sorts of Social fusions. No such animosity will exist unless one or both of the races forms a strong Social organization. Thus the Indian and the negroes do not quarrel, for neither is strongly organized. The Chinese and Japanese, on the other hand, are organized and are likely to have trouble with strangers, whether in Asia or in California. Similarly, the Jews are always strongly Social among themselves, and they get into trouble all over the world. The English are very like these other races in this respect, while the Irish, the Germans, the French, and indeed most of the European races, are distinctly less so.

A good illustration of the possibilities in a race question is found in the history of the American

Indian. The Indian everywhere received the white man cordially enough. There was no natural hostility. The English settlements, however immediately formed themselves into strong Social organizations which considered that the natives, being outside, had no rights and were undeserving of consideration. The violent hatred of the two races was inevitable and appeared everywhere. In the Mississippi Valley and in Canada, however, the French took a different position. Indians were called into councils; their friendship was sought; they were taught, and their languages and customs were studied; intermarriage was not infrequent. The result is well known. The French had no conflicts with the Indians; and when war broke out against the English, the natives were the firm allies of their white friends. It was, in a word, English blood that thought that there is no good Indian but a dead Indian. The French knew better.

Similarly, the negro question (which is in part a race question) works largely along the lines of organization. After the war the whites were almost disfranchised and the negroes were given a vote. Immediately, of course, the whites and the negroes fell into two separate organizations, and the two races, which up to that time had lived together without a sign of hostility or aversion, became rivals. No doubt, the hostile feeling is far stronger on the side of the whites, since their Social instinct is far stronger than that of the blacks. They hold together almost inflexibly. Laws are passed annulling marriages between whites and

any one having black blood in any degree; against allowing blacks and whites to be educated together, or to ride together on trains. Whites refuse to live near them; to admit even their cultivated gentlemen into any social gathering; or to call them "Mr." When the President of the United States not long since received into his house an eminent black man, he aroused a roar of rage through the white communities all over the South. This is all the work of the Social-Personal instinct and is not inconsistent with strong Personal ties between individuals of the two organizations. It is to be noted that it is Social, and not caused by the inferiority of the individual negroes, nor to be allayed by their progress.

The hope of safety in all such cases lies in a reasonable patriotism, *i. e.*, in the willingness of both units, however exclusive, to sacrifice smaller Social-Personal matters for the good of the larger community and the nation. Signs of such willingness are never entirely absent, but such situations are often grave, and must be carefully met in ways calculated to weaken the organization in favor of the larger and more important organization, the republic. And the same may be said of certain labor-organizations. For it is to be remembered that it is not the principles of the organization, but the organization itself, that is the seat of the trouble. Any strong organization by its very nature is prone to be intolerant and a prey to violent hatreds; and the encouragement and strengthening of such fusions is an act that will be sorrowfully reaped, no matter what the good in-

tended. It is to be remembered, too, that an organization is a mental phenomenon, and that its strength is determined not chiefly by the number of individuals composing it, but by the sympathy and interest and obedience of those individuals. The danger in trades-unions, for instance, is not in their size, chiefly, but in their close sympathies and their often ferocious devotion to their bodies—devotion, *i. e.*, not to principles but merely to their organization; hatred, not of wrongs, but of the organization which they conceive to be hostile to their organization. And these words apply also to other subfusions, for this state of things is of the nature of all strong organizations, whether they be churches, trades-unions, political organizations, or nations.

CHAPTER XII

TYPES—CONCLUSION

HAVING now gone over the field of mental phenomena extensively, it becomes our duty to devote some space to the consideration of individual differences.

Among the atoms and molecules there are believed to be no individual differences, but one atom or molecule of a given sort is thought to be identically like another of the same sort. In the living cells, however, both of animals and of plants, the individuals of a species differ more or less from each other. In the higher animals and in man, finally, these variations are often of serious importance, and the study of them is pretty surely to be a part of the valuable and fruitful work of the future. The amount of individual variation within any given species varies greatly both in animals and in plants. Most domesticated animals and plants are, like man himself, highly variable; while most wild species, often of equal complexity and delicacy, have comparatively little variability. Darwin thought that variability is increased by domestication, but modern

inquiry, I believe, has not tended to support that idea.

But although individual variations are of great importance, we should keep our study within narrow bounds indeed if we confined our attention to them alone. There are, even within species, variations of much more serious and evident importance. Thus, in the individuals of the animals and plants, there are the variations in time. The immature becomes mature, and the mature, old. Again, there are the variations of sex, the differences between males, females, and other forms. And again, there are mutations or sports and local varieties or races. All these are proper subjects for study and classification. Thus we are led also to the variations of genera and families, and indeed ultimately to the variations between all existing mental units, from the atoms up. All these variations must be studied, and it should some day be possible to express all differences in common terms. It is in this wider sense that we will approach the subject.

Differences between mental units may be of three sorts: (1) in range of interests, (2) in grade or degree of complexity, and (3) in mechanical qualities. We will consider these three fields successively.

(1). Differences in range of interests. Differences of this sort have been constantly before us in the course of our discussion. Such differences might be called differences in instincts, and these are very great. The atoms have impulses only toward atoms. The molecules, however, both toward atoms and tow-

ard each other. The plants and animals add other instincts, until in man we find all heaven and earth ransacked for their satisfaction.

Probably no other form of difference is so easy of determination and so important after determination; and on the other hand, probably no form is so little to be brought within laws. We have classified the instincts as Material, Personal and Social, but within these bounds the relations, though apparently plain enough, are relations of classification and not of evident necessity or cause. The physical forms of plants and animals are innumerable, and all are due to the Material instinct, which is in each case satisfied—but what these differences depend on, we have scarcely a hint at present. Similarly, the home is a product of the Material instinct, yet certain animals, *e. g.*, the horse, though not weak on the Material side, builds no home. Thus, although we have no doubt of a cause underlying the similarities and differences, we can at present say little more than that certain animals have certain instincts, and certain others, others, and that in the living organisms these can be classified as either Material, Personal, or Social. It may be well to note here, however, that all animals have Material and Personal sides, and that probably all are Social, at least at times in their lives. Even criminals, the rogue elephant, and the rogue man, etc., have at least a consciousness of kind, even though their Social instinct be little more. Spiders are said to be unhesitatingly cannibalistic, yet even they do not devour their eggs or young offspring.

(2). Differences in grade or degree of complexity. This, too, has been, at least inferentially, the subject of much of our discussion. The grades here referred to are (1) Atomic, (2) Molecular, (3) Cellular, (4) Body, (5) Extra-Body, (6) Practical, (7) Recognition, (8) Thought, and (9) Ideal. Whether these will be found to be sufficient or practical, or whether they must be increased or lessened, experience must show. In practice the lines of demarcation between the last three will be found exceedingly difficult to draw.

That units differ in these grades there can be no doubt. The largest part of the superiority of man, indeed, lies here. While the lower animals often go no further than the Practical, and never beyond the lowest Thought, man passes far beyond into the Ideal. As between men there is also a considerable difference, many stopping well down in Thought and others reaching a great height in the Ideal.

In studying the grade of any mind, each instinct and interest must be examined separately. Some men, for instance, plainly reach a much higher grade along one line than along another. Wordsworth may be cited as an example. He was of the Ideal grade in Social and certain Material interests, but did not understand Personal matters though not lacking in physical sex.

It should, perhaps, be recalled in this connection that the Social instinct has several more grades than the others, and that there are corresponding differences in individuals. Some minds are Social no

higher than the family; others take in their neighbors; others, the city or town or ward; others, their country, and so on. Criminals, it is said, are sometimes good fathers and mothers. It is no rare thing to find a man cheating the government without a twinge of conscience who would never think of cheating a neighbor or a business house. Women are notable in this general respect, comparatively few of them having any clear Social sense beyond their families, though in that unit perhaps wonderfully sensitive and sensible. To this fact may in part be due their failure as a sex to do the best work in art, literature, politics, public speaking, commanding, and like half-Social activities. They are commonly out of touch with an audience larger than that about a fireside, and so become either frightened or else amazingly indiscreet. They are usually equally lacking in orderliness and form in these larger undertakings. Of course there are striking exceptions.

A number of words are in common use whose chief meanings are of grade. Thus, men of the lower grades may be called primitive, savage, brutish, beastly, animal, and gross, or fleshly, earthly, and carnal. While those of the higher grades may be lofty, intellectual, thoughtful, ideal, or spiritual.

It would seem that the practical study of the grades of any mind should not encounter any insuperable obstacles. The possession of an instinct of any grade should be easily proved by the evidence of interest or memory associations suitable to the instinct and grade. The problem is, of course, not per-

fectly simple, since various environmental elements may come in to distort the natural workings of the mind. With experience and some ingenuity, however, it should be possible to guard against these.

The study of grades, on the other hand, promises well as a revealer of the laws of the mind. The various grades are evidently much more intimately connected and interdependent than the ranges of the mind. Just what this interrelationship means ought soon to appear. In general it may be said, even now, that while the lower grades do not demand the higher ones—else all units would reach the highest—the higher ones do imply the lower stages. Thus, any harm or defect in the lower stages of an instinct will generally appear in the higher stages of the same instinct. The gelded animal will certainly be different. Personally from the ungelded. Nevertheless, this general rule is certainly not the whole truth, and the matter must be examined in detail.

We note finally that the advance in degrees is accompanied by a considerable localization of functions. This is being studied and has been for many years. That it will reveal important facts and perhaps laws in the future can hardly be doubted.

(3). Differences in mechanical qualities. These we have hardly touched upon heretofore, but undoubtedly they are of very great practical importance. Mechanical differences may be classified as of three kinds: (1) strength, (2) sensitiveness (*i. e.*, the amount of influence required to make an impulse definite), (3) quickness (*i. e.*, the time required for a response).

A fourth point for practical purposes is the evenness of action or impulse from moment to moment. This is, perhaps, reserve strength.

A considerable number of words are used to denote the lack or the presence of the above-mentioned traits, either singly or in combinations. We will here mention some of them, in order to fix clearly in mind their meanings. It should be said first, perhaps, that we suppose the suitability of all responses. If a response seems unsuitable, it is to be supposed to arise either from a lack of strength in the impulse or of sensitiveness to the external influence. Thus, flexibility and gracefulness of body or thought is to be ascribed to the strength of the impulse plus the sensitiveness of it, the sensitiveness, of course, causing the exact suitability of the action to the situation, for if an impulse responds to slight influences, it will, if strong, respond to strong impulses with an exact recognition of their values.

Impulses of strength but of little sensitiveness may be called coarse, crude, raw, rough, or rugged.

Sensitive impulses, on the other hand, may be fine, delicate, nice, or fastidious, and these words may be used either with or without implications as to strength.

Memories and sensations in a sensitive and sufficiently strong mind are said to be vivid; in a less sensitive mind, vague.

Lack of sensitiveness in a mind may be called dulness, apathy, torpidity, inertia, sluggishness, obtuseness, stupidity, subnormality, stoniness, or

phlegm. Some of these words imply a special lack of sensitiveness in memory-responses, *i. e.*, thought.

If an instinct respond, the strength of the response may be called intensity, fervor, vehemence, wildness, or even abnormality.

If an instinct have strength and therewith quickness in response, the quality may be called energy, vigor, or force. A lack of strength may be feebleness, weakness, softness, flabbiness, sloth, laziness, or dawdling. If strength be uneven from moment to moment we may have fitfulness, vacillation, mutability, changeableness, shifting, shuffling, pliability, impressionableness, or wildness. Some of these words, however, are most commonly used with other meanings, the changing state being caused by special circumstances and not by any change in the mind's strength. When the special thought is of the evenness of the mind from moment to moment, strength may be called endurance, pertinacity, perseverance, assiduity, doggedness, or plodding; or if the thought of strength come more to the front we may have sturdiness, strenuousness, stoutness, hardness, or robustness. More general terms are firmness, decision, stability, solidity, fixedness, imperturbability, composure, or equanimity.

If considerable time is required for responses, we may have slowness, ponderousness, or heaviness. If less time is required, the quality may be called swiftness, quickness, rapidity, or dash. Elasticity, or the power to recover quickly from shocks, is a combination of strength and quickness.

Strength in an impulse together with sensitiveness results in flexibility or mobility. The comparative lack of this, in rigidity or stiffness.

If strength and sensitiveness result in excellence, the mind may be said to act with skill, sureness, accuracy, precision, expertness, adroitness, smoothness, or proficiency.

If quickness be added, we may have facility, agility, readiness, deftness, or dexterity.

Greater flexibility may be resourcefulness, capableness, ingenuity, intricacy, tortuousness, sharpness; or, with some range, versatility.

One of the simplest and most important acts of ingenuity in the realm of memories is comprehension. The lack of this power may be stupidity, subnormality, imbecility, idiocy, and the like.

A greater power of ingenuity in memories is implied in such words as astuteness, acumen, cleverness, discernment, insight, keenness, penetration, and intelligence.

Lack of strength in the impulse together with some sensitiveness and some irregularity in strength may be laxity, looseness, foolishness, or addle-patedness.

Adequacy of strength and ingenuity results, in the end, in coherence, consistency, lucidity, grasp, mood, and the qualities of weightiness, breadth, largeness, and range. These often imply also strength and ingenuity in several or many instincts at once.

Similarly, the absence of these powers has such names as paltriness, pettiness, fussiness, smallness, narrowness, shallowness, superficiality, vapidity,

credulousness, gullibility, and some of the above-mentioned forms of vacillation.

The largest amounts of strength and ingenuity are found in the traits of invention, imagination, spontaneity (so called), creativeness, fruitfulness, fertility, talent, inspiration, and genius. The lack of creativeness is, in general, sterility.

We have now explained our theory of these various mechanical traits. It should be noticed that we make no distinction between physical actions and brain actions. Some of our words, indeed, can be used of only the one sort, but many can be used of both and are to be so understood. There is no essential difference in the two sorts of acts.

On comparing the mechanical differences with those of grade, it will be noticed that memory falls among the latter. The grade of a mind is thus to be determined in many cases by its memory; whereas the quality of the mind is determined by its strength, delicacy, flexibility, and the like. A man may have an excellent memory and yet be rough and clumsy and of no great intelligence, while one with little memory may be delicate and flexible; the first we should call a crude specimen of a higher grade, the second a fine mind of a lower grade. We might say, to illustrate this, that Shakespeare and Molière were minds of nearly the same instincts and memories, and thus of about the same grade, but that in his delicacy and flexibility Shakespeare is seen to be of far higher quality. If, on the other hand, Shakespeare were compared, say, with Goldsmith, one of

the chief differences is that of grade, for Shakespeare holds almost a world in memory, while Goldsmith, with (we will suppose) equal delicacy and flexibility and the same instincts, holds but a much smaller portion of it. Of course, these comparisons are only in the rough, and the similarities between the men are not really so close.

It is evident that these mechanical traits of the mind may often be quite as important in determining the value of a mind as are the more fundamental ones of range and grade. They should also be comparatively easy of examination, for they may be tested, to a considerable extent at least, by machinery and similar exact means. The laws of mechanical relationships in the variations of range and grade are not clear, but no doubt such laws will be found. Hence, it will be necessary to examine for mechanical traits all ranges and grades separately.

The interdependence of mechanical traits and powers, seems, on the surface, to follow no evident invariable laws.

For instance, there are certain species of birds, *e. g.*, the phalaropes, in which the female has the bright plumage, and behaves in most respects like a male. It sings, courts, fights, is jealous, does not sit on the eggs or care for the young, etc. In this case we have an animal apparently of slight Personal gifts up to the Extra-Body grade, but in and above that grade, strongly Personal. Or, since there is no essential incompatibility between a strong Personal and a strong Social (reproductive) gift, it has, more

Phalaropus Superciliosus

Female
Male

probably, a strong Social impulse up to the Extra-Body grade, and beyond that a far weaker Social. It would seem, in either case, that there is a possibility of a clean break in gifts at the Extra grade. (It may be well to note that, even in this case, the two sexes are exactly complementary. The male phal-ropes has the dull coloration and performs all the ordinary acts of the female. That males should be Socially stronger than females occurs occasionally elsewhere in nature, *e. g.*, in certain frogs and fish.)

Again, although the *mens sana* is regularly found in *corpore sano*, yet striking cases occur in which deformed men (weak Body-Material?) are strong in Thought-Material impulses.

Similarly, again, grace and delicacy and strength of body are no sure signs of grace and delicacy and strength of mind, *e. g.*, in athletes; and conversely, good strong brains are no sure sign of good strong bodies.

Indeed, there is quite commonly a difference in the mechanical traits of brain and of body, so that it may be said that men fall into two types according to this distinction. Those who act best in memories may be called reasoning, in type; while those who act best in physical movements may be called un-reasoning.

A similar distinction, but one which should be kept carefully separate from the above, arises from the difference in the power of memories as compared with that of sensations. Sensations are always strong, but memories may be very influential and

even stronger in influence than sensations. The type which follows sensations may be called objective; the other type, subjective.

The importance of distinguishing the subjective from the reasoning, and the objective from the unreasoning becomes evident with a little consideration. Men and animals of the unreasoning type are, of course, objective, but men of the reasoning type are not, therefore, necessarily subjective; on the contrary, in a large percentage of cases, they are quite as objective as the animals. All men, in short, reason more or less, but, for many, certain sensations result in throwing all reason to the winds. Vacillation, changeableness, and the like, are often to be ascribed to this. Subjective minds, on the other hand, are often obtuse or apathetic or stupid (lacking in flexibility). They decide upon a course of action and cannot change it. Or else they have a slow time-equation, as, no doubt, in Wordsworth, Emerson, Pater, and many other able men. The best mind should, of course, be one in which sensations and memories fuse evenly, and in which every action is a result of the sum of the whole individuality.

Similarly, the best minds should be strong and of other good mechanical traits in all grades. In the greatest men it is usually striking how solidly built up the mind is. Shakespeare starts evidently with a strong physiological base of elementary impulses, builds upon it a big practical and thoughtful structure, and upon that a finely ideal superstructure. Hence his appeal to all grades of

minds both in his own day and to a large degree in ours.

We have now completed our discussion of mental differences. It is plain that the study of them is of the utmost importance. If psychology is to have a practical value it must be largely through its acquaintance with the variations in individual minds and the possibilities of their development and usefulness. Study to this end must proceed through the description and classification of actual minds, and the material for such study is evidently very great.

First of all there is the study of actual living beings. This should include not only the normal man, both the ordinary and the extraordinary, but quite as certainly the abnormal, the insane, and the nervous. Cases of divided personality also arise from time to time; and there are such phenomena as dreams, trances, and the like. Moreover, there are the lower animals and the plants, the study of which may be of great importance.

Besides these there is a great amount of material from men of the past. All men of sterling worth in the history of mankind have been so in part because of their mental sincerity, and in many cases their words and actions are known to us in considerable detail. The most evident cases are those of the authors. All authorship of worth is in its nature a confession, and of authors we have not only the strictly literary, but also the philosophic, statesman-like, historical, biographical, scientific, critical, and religious. Other records may be no less worthy of study—confessions,

letters, unworthy and foolish productions, court proceedings, and so on. It may be presumed that almost no forms of human character are unrepresented in this sum total.

Such study will not in all details be easy or simple or perfectly exact. It would be folly to expect it to be so. Neither, on the other hand, will it be found to be insuperably difficult, at least on its broad lines. Men have judged each other with more or less correctness in all ages, and what is here proposed is no more than that such judgments shall be made more systematic, intelligent, and accurate, and their results cumulative.

When the work of examining individual minds shall have produced a greater or less amount of statistics, it will evidently be a desirable matter to classify the minds examined. That this will be possible there can be little doubt. Certain combinations of instincts and traits will surely be found together very often. The resulting classes will be called types.

How much difference may we expect to find in men? And how much similarity?

It is certainly a mistake to suppose, as some do, that at bottom men differ very little. Men often seem to resemble each other far more than they actually do. Similarity of environment and education may result in a seeming likeness that is quite superficial. A change in the environment may bring this out, as in the cases of Lincoln and Cromwell. But there are also very evident differences. We may compare, for instance, Washington with Edgar Allan

Poe; a child with a man; a man with a woman; a Newton with an idiot. None of these differences are superficial; they are not only great but they are very profound.

On the other hand, it is a mistake to suppose that men are not alike. The characters of men differ from each other no more than their bodies do—if we include the whole body. Resemblances are certainly far more numerous than differences, and are far more numerous than many imagine. A strong and regular show of difference is caused merely by the difference in remembered experiences. A man may seem to me to be quite unlike me merely because he has lived in a different town, with different parents, friends, teachers, business connections, etc., whereas, if we were both stripped of these memories we might be strikingly alike. That this is often the case, it seems to me there cannot be the least doubt. There seem plainly to be distinct types, and some seem very common.

The existence of types, however, has never been seriously doubted. Indeed, many attempts have been made in many ages to distinguish them scientifically. Palmistry and phrenology have followed in later times upon astrology and the belief in "humors." The attempt has been made to classify criminals and others by their skulls, by their color of hair, form of features, and so on. No such attempts have reached convincing success, but there can be little doubt that their authors often recognized shrewdly and well what is consistent and what inconsistent

when found in one character, and that their classifications from this point of view were often of real worth. Nevertheless, it may be taken as certain that minds ought to be classified first, and heads and hands afterward, if of sufficient value; and that minds are to be classified first fundamentally and last according to separate superficial traits.

What types will be found useful and frequent it is impossible to say in advance of actual tabulations, but if the method of classification, just referred to, be followed, it would seem that in humanity at least they would be distinguished by differences of grade and of mechanical traits, rather than those of range. Classification should, of course, begin with differences of range, if it is to be scientific and is to include all minds; it should then be according to differences of grade; and finally, according to mechanical differences. The differences in range in man, however, will in all probability be slight. Differences in grade will be far more in evidence. Differences in mechanical traits, on the other hand, are evident even to the most superficial observer, and will be of the utmost consequence.

As dependent upon difference in grade we may mention such types as the reasoning and the unreasoning; the savage and the civilized.

Mechanical differences might result in such types as the Material, the Personal, and the Social, named after the strongest impulse; and the Physical, Practical, and Intellectual, named after the strongest grade. Types may be formed also according to

fineness or quickness, though these are more difficult. In short, the field here is wide, and the subdivisions may be numerous.

No doubt many existing types will be found useful under their present names. Thus, the normal, abnormal, and subnormal; the child, adolescent, mature, and senile; the masculine and feminine. Such words may be found or invented almost indefinitely, *e. g.*, French, German, English, etc.; lawyer, soldier, physician, merchant, etc.; religious, artistic, scientific, altruistic, reforming, etc.

Type-names will be useful, but to be so, it must be made perfectly clear in detail what is to be understood by them. The discovery of the traits that all the individuals of a type have in common, is what is necessary before a really scientific value can attach even to such words as child or feminine or normal. In the case of the professions and the like, it may very well be found that some of them have no distinct type—that, for instance, the ideal surgeon, soldier, and criminal lawyer may be different only in training and employment. Moreover, there may be many distinct types within such classes. Thus, to take the professions again, it is plain that the family doctor and the surgeon; the commander of a hundred men and the commander of half a million; the criminal lawyer and the codifier; the educator and the scientist—it is plain that these are very different men though in the same callings. The definite clearing up of such matters evidently may be of value and importance both to those choosing professions and,

not less, to the professions themselves, whose average of suitable men may thus be raised.

Our discussion is now complete, and the theory is in the hands of the reader. As he will long since have perceived, it lays its emphasis upon the importance of character and upon the essential spontaneity of action and thought. It does not pretend to explain these, but starting with certain first truths or axioms resting upon observation of the facts, it attempts a thorough and broad analysis of the common simple phenomena.

That the theory has significance in far wider fields is plain. If it is accepted and found useful within its limits, there will be few departments of human thought and action ultimately unaffected by it. I hope that it may be found to be a step toward that more perfect self-knowledge and self-consciousness, without which man's intelligent progress is impossible. Unstudied impulse has led the world well, but there can be little doubt that science in this field will ultimately obtain such triumphs and make possible such striking advances, as it has already done in the fields of material affairs.

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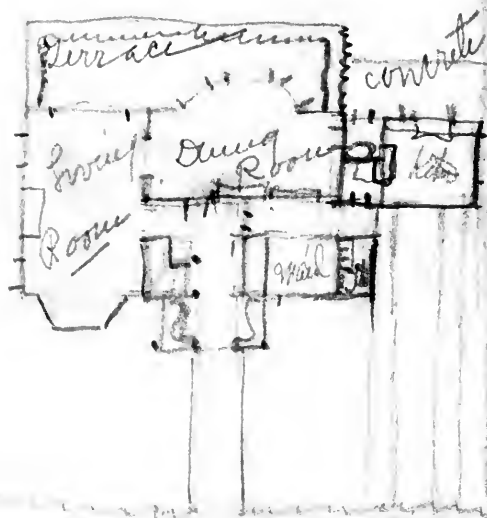
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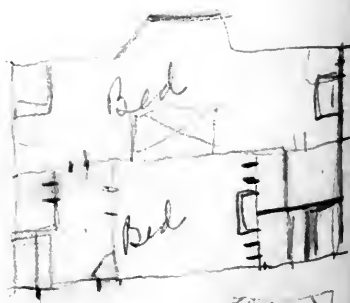
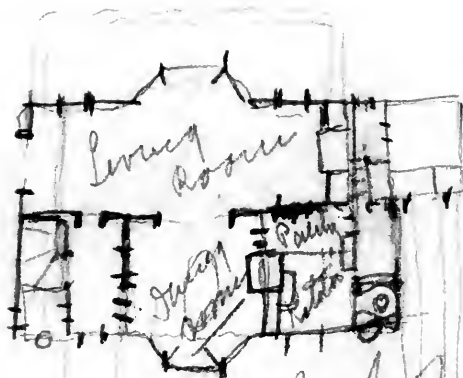
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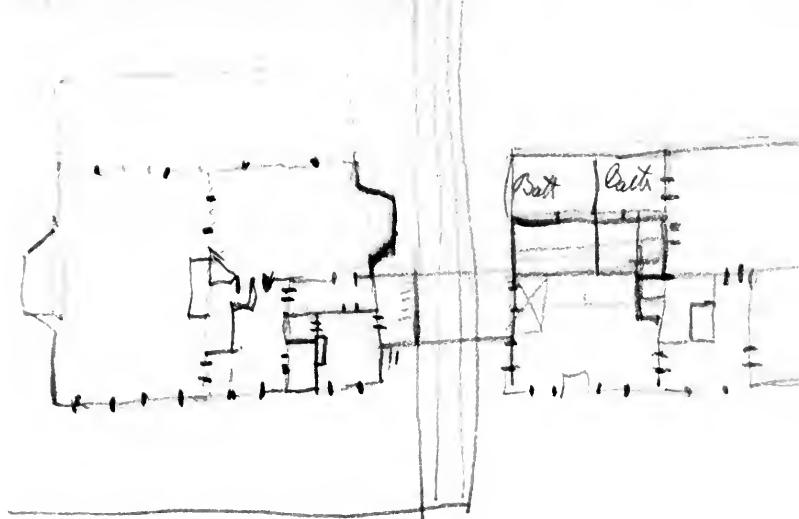
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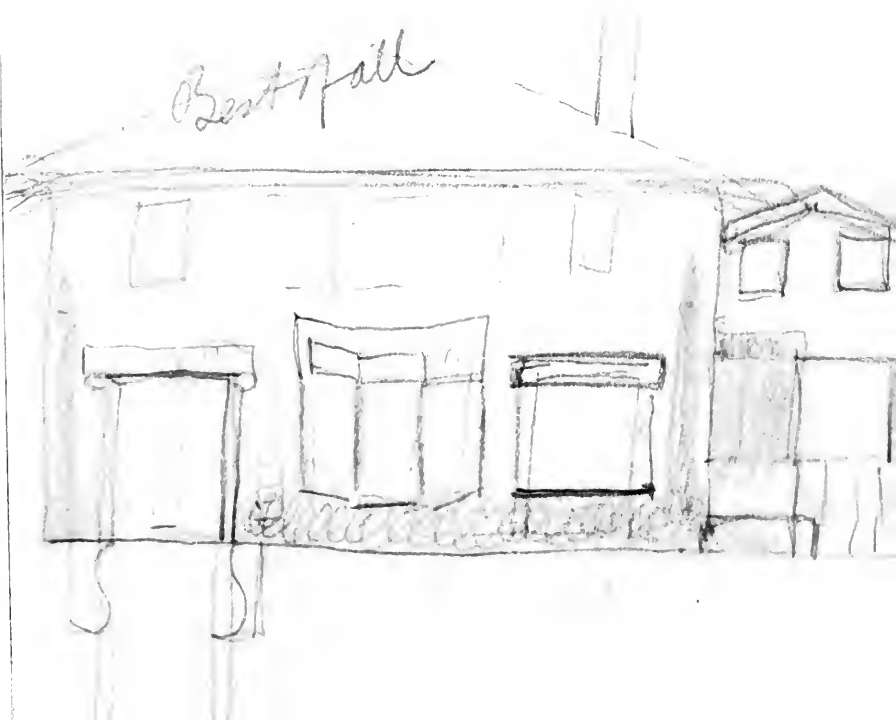
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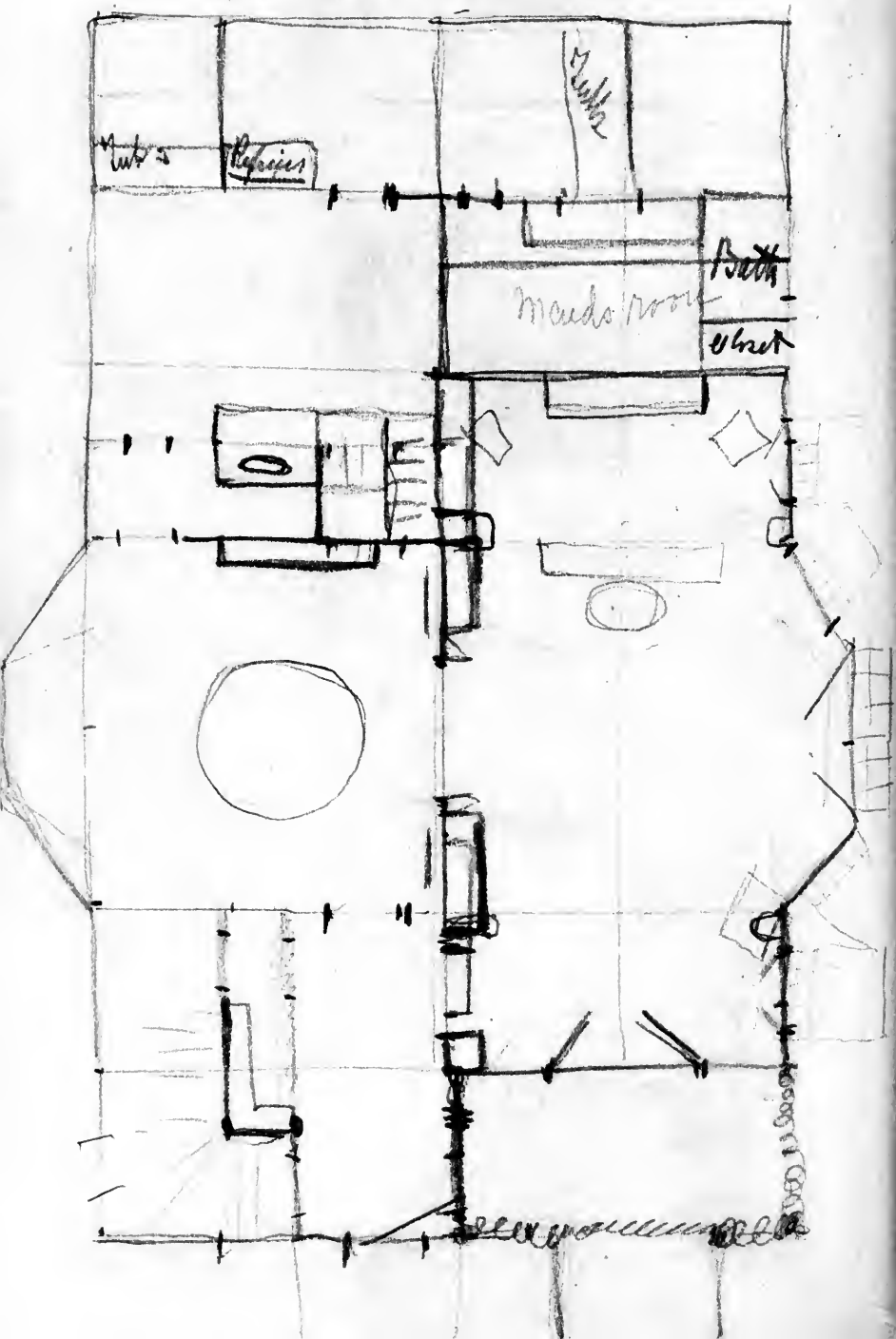


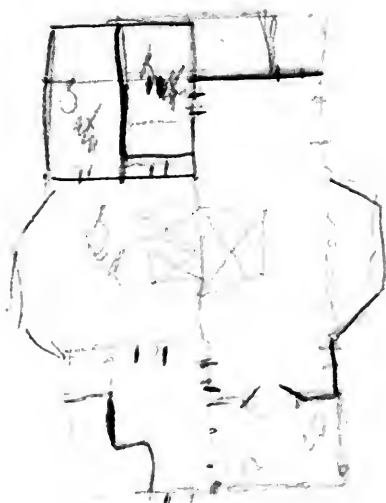
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