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THE ROOTS OF SOCIAL KNOWLEDGE¹

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ABSTRACT

Approaching the study of knowledge from the standpoint of its evolutionary genesis we find that there are two distinct sorts, which may be called spatial and social. The former, based on sense perceptions, gives rise to exact or mensurative science. The latter, based on the "mental-social complex," gives rise to a sort of knowledge essentially sympathetic or dramatic which is lacking in that exact agreement upon elementary perceptions which is necessary to true mensuration. However, owing to the essential likeness of mental-social complexes, a working agreement is possible and the accumulation of social knowledge goes on.

The external or behavioristic study of human life should not be disjoined from its natural union with the sympathetic observation of consciousness. Statistics is a method of manipulation, not of perception.

Interpretation and prevision, in sociology as in other sciences, is a work of the constructive imagination.

If we are to gain a large view of knowledge we should, it seems to me, consider it genetically by tracing it to its sources in human nature and human history. Knowledge is, after all, a phase of higher organic evolution, and has apparently been developed for the sake of its function in giving us adjustment to, and power over, the conditions under which we live. If these conditions present any fundamental division in kind we should expect that the capacities of the human mind and the knowledge based upon these capacities would show a corresponding division.

In fact, the conditions with which the mind has to deal, and has had to deal ever since life began to be human, divide themselves rather sharply into two kinds: the material, on the one hand, and the human or social, on the other. We have always needed to understand both things and persons, and the most primitive savage, though he may occasionally confuse them, is quite aware that they are different and must be understood in different ways.

This division lies as deep as anything in our experience, and it corresponds to a like division in our mental apparatus. For the

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external contacts we have our various senses, and also, in recent times, the extension and refinement of these through aptly named "instruments of precision" which have made the exact sciences possible. For the internal contacts we have a vast and obscure outfit of human susceptibilities, known as instincts, sentiments, emotions, drives, and the like, quite as firmly grounded in the evolutionary process as the senses, capable of extension and refinement in ways of their own, and giving rise to a kind of knowledge that we recognize as peculiarly human and social.

You will say, perhaps, that all knowledge, whether of things or of men, comes to us by the aid of the senses, and that the division I assert is therefore imaginary. It is true that all knowledge calls for sense activity of some sort or degree, but the function of this activity in material or spatial knowledge, on the one hand, and in human or social knowledge, on the other, is quite different. In dealing with things sensation is the main source of the raw material which the mind works up into knowledge; in dealing with men it serves chiefly as a means of communication, as an inlet for symbols which awaken a complex inner life not primarily sensuous at all. In the one case it is our principal instrument; in the other only ancillary. When I meet a stranger and judge by his face, bearing, and voice that he is a kindly and cultured man, and by his words perceive, in a measure, the working of his mind, the sensuous images are like the starting mechanism of an automobile; they set at work processes more complicated and potent than themselves, of which, mainly, the resulting knowledge consists.

For our present purpose we may, then, distinguish two sorts of knowledge: one, the development of sense contacts into knowledge of things, including its refinement into mensurative science. This I call spatial or material knowledge. The second is developed from contact with the minds of other men, through communication, which sets going a process of thought and sentiment similar to theirs and enables us to understand them by sharing their states of mind. This I call personal or social knowledge. It might also be described as sympathetic, or, in its more active forms, as dramatic, since it is apt to consist of a visualization of behavior accompanied by imagination of corresponding mental processes.

There is nothing mysterious or unfamiliar about social knowledge, except as we may be unaccustomed to recognize and think about it. It is quite as early to appear in the child and in the race as is material knowledge, quite as useful in the everyday affairs of life, and quite as universally accepted as real by common sense. If there are men of science who do not see that it is something distinct in kind, but are inclined to regard it as spatial knowledge in an imperfect state, destined in time to be perfected by more delicate measurements, this is doubtless because they approach the matter with the a priori conceptions appropriate to physical research. In relation to social phenomena the merely spatial conception of knowledge indicates an abstract way of thinking that does not envisage the facts. It is not, in this field, in accord with common sense. All of us know that the essential things in our relation to other men are not subject to numerical measurement.

I trust it will not be supposed that I am advocating any metaphysical dualism between mind and matter. It is not necessary, for my present purpose, to take a side on that question, but I have myself no doubt that all the phenomena connected with social knowledge, including introspection, have physical concomitants in the brain and nervous system. In theory these physical facts are capable of physical measurement, but when we consider their minuteness and inaccessibility, the likelihood of their being measured in a spatial sense seems quite remote. We must get at them, in practice, through consciousness and through overt behavior.

Spatial knowledge, we know, has been extended and refined by processes of measurement, calculation, and inference, and has given rise to exact science. It is generally agreed that knowledge of this sort is verifiable and cumulative, making possible that ever growing structure of ascertained fact which is among the proudest of human achievements. It may be worth while to consider for a moment to what this peculiarly verifiable character is owing.

It is owing, I take it, to the fact that this sort of knowledge consists essentially in the measurement of one material thing in terms of another, man, with his senses and his reason, serving only as a mediator between them. If, then, a group of investigators can agree upon a technique of measurement they may go ahead, achieving re-

sults and passing them on from man to man and from generation to generation, without concerning themselves with the vagaries of human nature and social life. This technical agreement is found possible, and the accumulation of knowledge goes on. But we must, of course, discriminate between the immediate results of measurement and the body of hypothesis and theory which is constantly arising out of them. Science gives us fact out of which the intellect endeavors to build truth. And what we judge to be true, even in the spatial sciences, is largely a social matter dependent upon the general movement of thought. A group of scientific men, familiar with previous investigation in a given field and armed with a sound technique, is the best instrument we have for the pursuit of truth, and is one of the most remarkable products of our social system; yet it is, of course, far from infallible. All groups have a body of beliefs which are taken for granted merely because no one disputes them, and which often turn out to be illusions. Assent is induced by conforming influences not wholly different from those operating in religion or politics. In short, no group is a trustworthy critic of its own conclusions, and only the test of time and of exacting criticism from wholly different points of view can determine the value of its contribution. There have been many groups, made up of very intelligent men working devotedly and in full assurance of being on the right track, who are now seen to have been astray. And although scientific methods are no doubt improved, it would be fatuous to suppose that they are a guaranty against group error. Some of the teachings of science are permanent truth, but only time reveals which they are.

The practical success of spatial science in enabling us to predict, and even to control, the behavior of the material world about us has given it vast prestige and brought about a feeling that the more all our mental processes are like it the more perfect they will become. A conception of what social science ought to be has accordingly grown up and gained wide vogue which is based rather upon analogy than upon scrutiny of the conditions with which we have to deal. Let us return, then, to the sources of our knowledge of mankind, and consider for a moment the development of this sort of knowledge in a child. He comes into the human world already

provided with a vast complex of innate capacity for life peculiar to the human race and embracing in its potential content those processes of social emotion, sentiment, and intelligence in which men find their chief interests and motives. All this is an outcome of evolution, highly practical, the very stuff that has made man the most puissant of animals, and it has, no doubt, the same physical reality as any other nervous or mental processes. Regarding the exact content of this inborn raw material of personal and social life there has been much discussion, into which, fortunately, we need not enter. Some say that it includes quite definitely organized mechanisms, similar to the instincts of the lower animals; others, that the inborn mechanisms of man are small and indeterminate, taking on organization only under the stimulus of a particular kind of life. However this may be, no one can doubt that we are born with an inchoate world of mental capacity, existing physically as a mass of brain and nerve complexes, which requires as the main condition of its growth an interchange of stimulation with similar complexes existing in other personal organisms.

The process by which a distinctively human or social mind and a corresponding type of knowledge grows up within us was first expounded at some length in 1895 by James Mark Baldwin, who called it "the dialectic of personal growth." It resembles a game of tennis in that no one can play it alone; you must have another on the opposite side of the net to return the ball. From earliest infancy our life is passed in eager response to incitements that reach us through the expressive behavior of other people, through facial expression, gesture, spoken words, writing, printing, painting, sculpture, the symbols of science, and the mechanic arts. Every response we make is a step in our education, teaching us to act, to think, and to feel a little more humanly. Our brain and nerve complexes develop in the sense of our social surroundings. And at the same time our consciousness takes account of this inward experience and proceeds to ascribe it to other people in similar conditions. Thus by a single process we increase our understanding of persons, of society, and of ourselves. When you play golf you not only acquire spatial knowledge in the shape of a certain muscular skill, but also social knowledge through learning the pride one feels when he makes a

long drive, or the humiliation when he tops the ball and gets into the creek. As you see another man do these things you repeat, sympathetically, your own inner response on former occasions and ascribe it to him. A new reach of human experience is opened to you and you enlarge your understanding of men. And you extend your knowledge of domestic life, of letters, arts, and sciences in much the same way. Consider scientific work in the laboratory and in the field. Does it give only material knowledge of the behavior of *things* in test tubes, of the look and feel of strata, of the habits of fishes, or does it also teach you to understand chemists, geologists, and zoölogists as *men*, to participate in a phase of human life, share its ideals, and learn its social methods? And is not the latter knowledge quite as important to the man of science as the former? Able men in every field excel, as a rule, in human as well as technical knowledge, because both are the fruit of a richly developed mind, and both must also be cultivated as instruments of success.

If the distinctive trait of spatial knowledge is that it is mensurative, that of social knowledge is, perhaps, that it is dramatic. As the former may be resolved into distinctions among our sensations, and hence among the material objects that condition those sensations, so the latter is based ultimately on perceptions of the intercommunicating behavior of men, and experience of the processes of mind that go with it. What you know about a man consists, in part, of flashes of vision as to what he would do in particular situations, how he would look, speak and move; it is by such flashes that you judge whether he is brave or a coward, hasty or deliberate, honest or false, kind or cruel, and so on. It also consists of inner sentiments which you yourself feel in some degree when you think of him in these situations, ascribing them to him. It is these latter sympathetic elements which make the difference between our knowledge of a man and our knowledge of a horse or a dog. The latter is almost wholly external or behavioristic, although those who associate intimately with them may acquire some measure of true sympathy. We know animals mostly as a peculiarly lively kind of thing. On the other hand, although our knowledge of people is likewise behavioristic, it has no penetration, no distinctively human insight, unless it is sympathetic also.

There is, no doubt, a way of knowing people with whom we do not sympathize which is essentially external or animal in character. An example of this is the practical but wholly behavioristic knowledge that men of much sexual experience sometimes have of women, or women of men—something that involves no true participation in thought and feeling. The more behavior in the other sex is instinctively sexual, the more our understanding of it is apt to be external rather than sympathetic. Or, to put it rather coarsely, a man sometimes understands a woman as he does a horse; not by sharing her psychic processes, but by watching what she does. There is, in fact, a complete series in our knowledge of persons, from the purely external, like our knowledge of babies, of idiots, of the wildly insane, up through all grades to the completely internal or sympathetic, as when, in reading a meditative writer like Marcus Aurelius, we know his consciousness and nothing else. For the most part, however, human knowledge is both behavioristic and sympathetic: the perception or imagination of the external trait is accompanied by sympathy with the feeling, sentiment, or idea that goes with it.

This is also the process by which we come to understand the meaning of a word, and through such understanding make ourselves at home in that vast realm of meanings to which words are the key. We may know words as mere behavior, as when a man speaks to us in a strange tongue, but in that case they do not admit us to the realm of meanings. To have human value the word and the inner experience that interprets it must go together.

In short, we learn to know human life outwardly and inwardly at the same time and by a single process continuous from infancy.

Adopting a convenient and popular term, I will call the individual human mind, including all these socially developed sentiments and understandings, the *mental-social complex*. I hope by the use of this colorless expression to escape from the traditional implications that obscure such terms as mind, consciousness, spirit, and soul.² About this, whatever we call it, the question of the na-

² In a similar way the "group mind," that is, a collective view of individual complexes communicating with, and influencing, one another, might be called the social-mental complex.

ture and possibilities of social knowledge centers. It is our supreme gift; but for that very reason, because all the deep things of life are in it, it is the part of us about which we know least, and is least amenable to precise treatment. Can it be made available for science, or shall we try in some way to dodge it, or cancel it out, as the physical scientist does when he requires that the ideas about nature which come from it shall be verified by nature herself through physical measurement? The trouble with any such plan would seem to be that in human life the mental-social complex *is* nature. It is the very heart of what we seek to describe and make intelligible. It cannot be dodged without dodging life itself.

Suppose, for example, you secure, by a series of mental tests, detailed knowledge of what a certain person does in various situations. This may be of great value; I expect important results from such studies; but after all they cannot enable you to know the person as a living whole. The social man is something more than the sum of standardized acts, no matter how many or how well chosen. You can grasp him only by the understanding and synthetic power of your own mental complex, without which any knowledge you may gain from behavior tests must remain superficial and unintelligent. Is it not a somewhat equivocal use of terms when we talk of measuring intelligence or personality? What we measure is the performance of standardized operations. To pass from these to the organic whole of intelligence or personality is always a difficult and fallible work of the constructive imagination.

Many people, agreeing perhaps with what I have said about the ultimate difference in kind between spatial and social knowledge, will hold that just because of this difference anything like social science is impossible. While spatial knowledge is precise and communicable, and hence cumulative, the dramatic and intuitive perceptions that underlie social knowledge are so individual, so subjective, that we cannot expect that men will be able to agree upon them or to build them up into an increasing structure of ascertained truth.

This is, in fact, a formidable difficulty which enthusiasts for exact social science are apt to ignore. I may say at once that I do not look for any rapid growth of science that is profound, as re-

guards its penetration into human life, and at the same time exact and indisputable. There is a difference in kind here which it would be fatuous to overlook.

Regarding subjectivity, I may say that all knowledge is subjective in one sense: in the sense, namely, that it is mental, not the external thing, but a construct of the mind. Even the simplest perceptions of form or extent, much more the exact perceptions of science, far from being mere physical data, are the outcome of an extended process of education, interpretation, and social evolution. Your so-called physical sciences are, after all, part of the social heritage and creatures of the mental-social complex. In so far, then, spatial knowledge and social knowledge are on the same footing.

The question of more or less subjectivity, as among different kinds of knowledge, I take to be one of more or less agreement in the elementary perceptions. If the phenomena can be observed and described in such a way as to command the assent of all intelligent men, without regard to theory or to bias of any sort, then the factual basis of knowledge acquires that independence of particular minds which we call objectivity. A yardstick is objective because it provides an undisputed method of reaching agreement as to certain spatial relations. Professor Einstein has shown, I believe, that this objectivity is not absolute, but it suffices for most purposes of spatial science. Strictly speaking, there are no yardsticks in social knowledge, no elementary perceptions of distinctively social facts that are so alike in all men, and can be so precisely communicated, that they supply an unquestionable means of description and measurement. I say distinctively social facts, because there are many facts commonly regarded as social which are also material events, like marriages, and as such can be precisely observed and enumerated. But the distinctively social phenomena connected with marriage are inward and mental, such as the affection and desire of the parties, pecuniary considerations, their plans for setting up a household, and so on. These also can be known and communicated, but not with such precise agreement among observers as to make decisive measurement possible.

You may say that while it is true that the mental-social phe-

nomena cannot be observed directly with much precision, they express themselves in behavior, which is tangible and which we may hope eventually to record and measure with great exactness. Even our inmost thoughts and feelings take form in the symbols of communication, in gesture, voice, words, and the written symbols which are preserved unchanged for ages. All this is true and much to the point: I am a behaviorist as far as I think I can be without being a fanatic. But we must not forget, as behaviorists sometimes appear to do, that the symbol is nothing in itself, but only a convenient means of developing, imparting, and recording a meaning, and that meanings are a product of the mental-social complex and known to us only through consciousness. Reliance upon symbols, therefore, in no way releases us from the difficulty arising from the unmeasurable nature of our elementary social perceptions. We can record behavior and handle the record by statistics, but I see no way of avoiding the ultimate question, What does it mean?

And how about introspection? Does not the kind of perception which I inculcate involve this disreputable practice, and if so, is it not thereby hopelessly vitiated?

The word "introspection," as commonly used, suggests a philosopher exploring his inner consciousness in more or less complete abstraction from the ordinary functions of life. While this method may have its uses it is thought to have been more relied upon in the past than it deserves. Let us observe men under more normal conditions, and preferably, it is urged, through their actions rather than through their supposed thoughts.

But just what, after all, is introspection? It is not merely the philosophic introversion I have indicated, but takes various forms, some of which, in everyday use by all of us, are indispensable to any real knowledge of the minds of other men.

That whole process of the social growth of the mind which I have mentioned involves elements introspective in character. We come to know about other people and about ourselves by watching not only the interplay of action, but also that of thought and feeling. As we perceive and remember sensuous images of gesture, voice, and facial expression, so, at the same time, we record the movements of thought and feeling in our consciousness, ascribe

similar movements to others, and so gain an insight into their minds. We are not, for the most part, reflectively aware of this, but we do it and the result is social knowledge. This process is stimulated and organized by language and—indirectly, through language—by the social heritage from the past. Under the leading of words we interpret our observation, both external and introspective, according to patterns that have been found helpful by our predecessors. When we have come to use understandingly such words as “kindly,” “resolute,” “proud,” “humble,” “angry,” “fearful,” “lonesome,” “sad,” and the like, words recalling motions of the mind as well as of the body, it shows that we have not only kept a record of our inner life, but have worked up the data into definite conceptions which we can pass on to others by aid of the common symbol.

Much of our social knowledge, especially that acquired from reading, involves a process more consciously introspective. One can hardly read a play or a novel intelligently, I should say, without recalling ideas and emotions from his own past for comparison with those of the people described. The hero, as we conceive him, is fashioned out of material from our own lives. Is it not rather absurd for scientific men to repudiate introspection? Does anyone prepare a scientific report or article without first turning an inward eye upon the contents of his mind in order to see what he has to offer and how he can arrange and present it? In short, introspection, however abused by philosophers, is a normal and common process, without which we could know very little about life.

Introspection, if critical, is more objective than the usual practice of floating upon social currents without attempting to become aware of them. How can you be objective with regard to your motives unless you hold them off and look at them? I have in mind a recent book, a good book, too, in which the writer, who deprecates introspection, advances a series of opinions on social questions of the day so obviously those of his race, country, and social class that one can only smile at his naïveté. Surely a little introspection would not be out of place here: one’s subjectivity needs to be understood, if only to avoid it.

It seems, then, that outside and inside in human life, conscio-

ness and behavior, mutually complement and explain each other, and that the study of external behavior as a thing by itself must, in the human field, be as barren as mere introspection, and for much the same reason, namely, that it isolates one aspect of a natural process from another. Nature has joined these things together, and I do not think that we gain anything by putting them asunder. Records of behavior without introspective interpretation are like a library of books in a strange tongue. They came from minds, and mean nothing until they find their goal in other minds.

However, I see no reason for quarreling with those extreme behaviorists who hold that we should observe men merely from the outside, as we do other animals. Let them work on this theory, if they find it helpful, and show what they can do. Even if it is wrong it may give rise to a valuable technique, as wrong theories have done in the past. It is fair to judge behaviorists by their behavior. I suspect that they will be found in practice to make use of introspection when they need it, much like the rest of us.³

At the opposite pole, it would seem, from behaviorism we have the method, or rather various methods, of mental analysis through the probing of consciousness and memory. These all rest in great part upon sympathetic introspection, or the understanding of another's consciousness by the aid of your own, and give full play to the mental-social complex. They may be used in sociology as well as in psychiatry, and, in fact, do not differ in principle from the personal interviews widely employed in the study of social situations. Indeed, I take it that the psychoanalytic psychology owes its vogue to its boldness in disregarding the rather narrowly spatial methods within which laboratory psychologists were confining themselves, and venturing, by the light of clinical interviews and introspective interpretation, to explore the weird caverns of the human mind. Men saw that the sequent revelations resembled what they knew of their own egos. The method is quite separable

³ I need hardly say that the scientific study of behavior has no necessary connection with the group of men who call themselves "behaviorists." Their extreme doctrine of the rejection of consciousness is best understood as a reaction against a former extreme, in psychology, of purely introspective study. Social studies have always been mainly behavioristic.

from the extravagant theories associated with it and will no doubt be largely used.

I have conceded that social observation is, on the whole, less precise and verifiable, and hence less surely cumulative, than spatial observation, not only because the conditions can seldom be reproduced by experiment, but because the perceptions themselves are less alike in different persons, and so less easy to agree upon. Experience shows, however, that these difficulties are by no means sufficient to prevent objective and co-operative study of social phenomena, and a cumulation of knowledge which, though not so tangible as in experimental science, is capable in time of yielding vast results.

The basis of common social perceptions, and hence of cumulation, is in the general similarity of mental-social complexes throughout the human race, and the much closer similarity among those formed by a common language and culture. We become aware of this similarity by watching the behavior of other men, including their language, and finding that this behavior can be interpreted successfully by ascribing to them thoughts and sentiments similar to our own. The idea that they are like us is practically true; it works. It was generated in the experience of our earliest childhood, and we have gone upon it all our lives. This fundamental agreement upon meanings can be made more precise by the careful use of language and other communicative signs, something as sense-perceptions are refined by the use of instruments of precision (though probably to nothing like the same degree), and thus allows a transmission and cumulation exact enough for practical use.

All history, all news, all social investigation, is a record of what men did—of such visible acts as are thought to be significant, and also of their symbolic acts, their speech, and their works of art. But what makes the record interesting is that through our likeness to them it becomes also a record of what they were, of their meanings, of their inner life, the semblance of which is awakened in us by the acts recorded.

I open Herodotus at random and find an account of how the

Carthaginians, having captured many Phoceans from disabled ships, landed them and stoned them to death. But after this the sheep, oxen, or men who passed the spot were stricken with palsy. So they consulted the Delphic Oracle, who required them to institute a custom of honoring the dead Phoceans with funeral rites. Here is a record of behavior which we interpret by sympathy. We feel the cruelty of the Carthaginians, their wonder and alarm at the strange conduct of the stricken men and animals, their anxious resort to Delphi, their awed obedience to the oracle. Of the grounds for criticizing this narrative from the standpoint of a wider study of human ideas and human behavior I need not now speak. Like all social observation that comes down from the past, it must be interpreted in view of the difference in mental complexes between the men who made the records and us who read them. We must, as we say, get their background and point of view. But men are, after all, so much alike that an imagination trained by comparative study can usually make out fairly well what the records mean. The true reason why we must, in sociology, rely mainly upon contemporary rather than historical facts is the inadequacy of the record. History does not tell what we want to know, and we must look in the world about us for answers to questions which the men of old never thought of putting.

At any rate we actually have accumulations of social knowledge. Aristotle and many other early writers collected facts which are still held to be trustworthy, and interpreted them by generalizations which still command respect. In modern times the process has gone on developing in volume, diversity, and precision, and has given rise to technical groups of specially trained men. We have many kinds of history, we have social anthropology, political science, law, economics, sociology, comparative religion, comparative literature and art, and other departments, each with its own archives of recorded fact.

Indeed, as regards cumulation the study of mankind has a great advantage in that its subject matter is uniquely self-recording. Even the records of geology and paleontology do not compare in richness with those that man hands down about himself through language and the several arts. And the more he approaches and

enters a civilized state, the more extensive these records become. The dinosaur may leave his skeleton and even his (or her) eggs, but man deposits a fossil mind. We know infinitely more about him than we do about any other animal, and the difficulty of accumulating knowledge, so far as primary facts are concerned, is quite imaginary. Dispute, as in other fields, is mainly about interpretation. The selection and explanation of facts has heretofore proved provisional; it has to be done over again with every change in the general current of thought. But is not this true of all science? At this moment the whole theoretical trunk of physics has been torn up by the roots and seems likely to be thrown upon the rubbish pile. A lasting structure of knowledge is hardly to be expected, except as regards the primary facts and their simpler relations, and this much we may expect in social science as well as in spatial.

It is high time that I referred to that body of knowledge and practice known as statistics. Statistics is an exact method, and it is enabled to be such precisely because it is not in itself social but mathematical. It does not directly *perceive* social facts, or any other kind of facts, but it takes standard units of some sort, which may be perceived social facts, and compiles, arranges, manipulates, and presents them in a way intended to make them yield illumination. The statistician operates between the primary observer, on the one hand, and, on the other, the theorist who demands light on certain hypotheses. Perhaps I may without offense liken him to a cook, who neither supplies the food nor consumes it, but is a specialist upon the intervening processes.

Evidently it would not be good sense to assume any antagonism between the exact methods of statistics and the more fallible procedure of sympathetic observation and interpretation. They are complementary and do not or should not overlap. The only opposition likely to arise is one due to the bias of the practitioner. A statistician, if he lacks breadth of mind, is apt to be so fond of his exact processes that he avoids and depreciates anything else, while the sympathetic observer is apt to be impatient of statistics. This difference of tastes would not do much harm if the functions were kept separate, but when a man who is fit for only one assumes both the result is unfortunate. Much statistical work, especially

that based upon questionnaires or interviews, is vitiated by a lack of dramatic insight into the states of mind of the people who supply the information. A questionnaire is an instrument of social perception, and if its use is to have any scientific character, the first duty of the user is to dramatize the play of thought and feeling that takes place between the person that puts the question and the person that answers it. What was the actual state of mind of the latter, and what the human significance of his reply? Not every investigator has the insight and the conscience to perceive and report this real fact, commonly so different from the apparent fact, upon which the value of his work depends.

And so with the questions or problems used in mental tests. If they aim only to test the power to perform standardized operations they are objective, but, socially speaking, superficial; if they go beyond this and attempt to discover social or moral attitudes they are subjective, and of no value for science without sympathetic interpretation.

It is not the case that social science is becoming exact through the substitution of statistics for social sympathy and imagination. What is taking place is, rather, that the use of sympathy and imagination is becoming more competent, while statistics is being substituted for guesswork in the manipulation of data.

Another impression which I take to be erroneous is that statistics is revealing uniformities or regularities in social phenomena which indicate that these phenomena may in time prove to be subject to exact prediction in quite the same way as those of physics. It is true that statistics is revealing sequence, order, and a remarkable degree of predictability in certain social processes. By analysis of what has taken place during the past ten years, especially in the economic field, where the facts are largely material, it may be possible to forecast what will take place in the next five; and no one can say how far we may go in this direction. The whole basis of this, however, seems to be the prevalence of inertia and the rarity and slowness of the more originitive processes. The greater part of human phenomena are so far routinized as to be more or less subject to calculation. Wherever men, under the impetus of habit and suggestion, are moving ahead in a mechanical manner,

or where their intelligence is merely repeating what is essentially an old synthesis of motives—as, for example, in deciding whether to marry or not—exact methods are in place. The complex of human events can, to a great extent, be resolved into currents of tendency moving on definite lines at ascertainable speeds. If we can measure these lines and speeds it may be possible to predict their combined operation, much as the motion of a comet is predicted by calculating the resultant of the gravity, tangential momentum, and other forces acting upon it. The whole basis of prediction in such fields as that of the business cycle is the belief that the underlying motivation is essentially standardized or repetitive.

Probably no exact science could have foreseen the sudden rise of the automotive industry and the genius of Henry Ford, although now that this industry is developed and institutionized we may perhaps calculate with some precision what it will bring forth in the near future.

There is no good reason to think that such statistical methods can anticipate that which, after all, chiefly distinguishes human life from physical processes, namely, originaive mental synthesis, whether by outstanding individuals or by groups. The kind of mechanistic theory which would exclude the unique function of human consciousness and will is not only highly speculative and unverifiable, but seems, as a speculation, to be losing ground. Recent philosophic writers (for example, our colleague Professor Sellars⁴), in so far as they accept mechanism or determinism, interpret them in such a way as to leave intact our human power of reorganizing and redirecting life in a manner that no exact science can hope to foresee.

There is indeed one way in which physical and social science may be assimilated. We may find that atoms and electrons are not so uniform and reliable as has been believed, that the supposed physical laws are only statistical, covering diversity in the phenomena somewhat as social statistics cover the diversities of individual men. Indeed, we are told by men apparently competent that “the present state of physics lends no support whatever to the belief that there is a causality in physical nature which is founded on rig-

⁴ R. W. Sellars, *Evolutionary Naturalism, passim*.

orously exact laws."⁶ In some such way as this the gulf may be bridged, but never, I think, by reducing the human will to zero.

Having dealt so far with observation, either direct or mediated by technique, I come now to the interpretive use of the data, to the attempt to build a structure of social truth. This is, in all sciences, a work of the imagination, and a work which has always in the past proved to be provisional and to require renewal to meet the general advance of thought. I see no reason to expect anything else in the future.

At the present time all the sciences of life are, I suppose, controlled by the idea of organic development. Darwin gave these studies their orientation by making them studies of process rather than state, of what is going on rather than what is, of a drama rather than a picture. For many years, however, evolutionary ideas were applied to social phenomena chiefly in an external and analogical way; they were imposed artificially, not allowed to grow naturally out of the social processes themselves. The result was a vast body of social theory and propaganda, all claiming to be evolutionary and scientific, but none of it the work of a technical group devoted primarily and disinterestedly to the study of social facts. Even at the present time specialists in contiguous evolutionary fields contribute profusely to social literature and by no means hide their belief that they know more about what is important to society than do the so-called "sociologists." Whether they do or not, it is a fact that some of these extraneous doctrines, like the pseudo-Darwinism of Nietzsche or the hereditary determinism of the more extreme followers of Galton, have had, and still have, a wide influence.

I shall assume, however, that, after all, social phenomena are most likely to be understood by those who make the study of them their main business, and that the application of evolutionary ideas in this sphere is the task mainly of history, anthropology, ethnology, political science, economics, social psychology, sociology, and kindred disciplines. All of these studies have, in fact, a decidedly evolutionary trend, and several of them may be said to have been created by the evolutionary movement. All of them aim at the

⁶ Hermann Weyl, quoted by J. W. N. Sullivan, *Aspects of Science*, p. 158.

understanding of personal and social wholes in the actual process of living. All make increasing use of social psychology. They do not aim to resolve social phenomena into elements which are not social, but rather to investigate the simpler and more general social processes and use the knowledge thus gained in synthetic interpretation of larger social wholes. This may be done by the use of well-chosen samples, as in studies of individual persons, of typical local or institutional conditions, and the like.

In general, the insights of sociology, if I may take that subject as representative, are imaginative reconstructions of life whose truth depends upon the competence of the mind that makes them to embrace the chief factors of the process studied and reproduce or anticipate their operation. This requires native ability, factual knowledge, social culture, and training in a particular technique.

It is sometimes supposed that pre-Darwinian studies in history, literature, art, and social theory were essentially unscientific and futile; in fact, mere rubbish needing to be swept aside by the advancing forces of science. On the contrary, many of these studies were based on common sense, had a sound empirical basis, and are even now of more value than hurried, dogmatical, and mostly analogical efforts to supplant them by something having the appearance of natural science. Such efforts have given rise to a variety of pseudo-sciences, some of which are flourishing at the present time, but they have not broken the real continuity of contemporary social knowledge with the solid work of earlier generations. Sociology, at least, recognizes whole-heartedly the value of pre-evolutionary research, and expects that its students shall know something of the great currents of historical, literary, and artistic tradition; shall have, indeed, as broad a culture in the humanities as possible. This culture affords the only access to great stores of facts with which we cannot dispense. It also affords a perspective of the development of social interpretation. Most of the generalizations now being defined, explored, tested, and developed into systematic knowledge were foreshadowed by penetrating minds of the past. How much of modern social psychology is implicit in the maxims of La Rochefoucauld, what insight into social processes had Gibbon! Sainte-Beuve, who saw literature as an organic hu-

man whole, observing the individual writer and the current of literary tendency with equal understanding, was a real sociologist in the field of criticism. Goethe was one in an even larger sense. An honest and competent student will be deferent to the achievements of the past and will lend no countenance to those shallow spirits who see scientific method as a sort of trick of laboratories and schedules by which they may avoid the slow approaches of actual social knowledge.

As to prediction, I have already pointed out that in the more mechanized processes of the social system it may be remarkably exact. We have no ground, however, to expect any such exactness in foretelling the multitudinous fluctuations of human life in general. Prediction, in any science, requires that the mind embrace the process, as the physicist, in his formula, embraces the process of a falling body, and so, through participation, foresee the outcome. Even in natural science this can usually be done with precision only when the process is artificially simplified, as in the laboratory. The social processes of actual life can be embraced only by a mind working at large, participating through intellect and sympathy with many currents of human force, and bringing them to an imaginative synthesis. This can hardly be done with much precision, nor done at all except by infusing technical methods with a total and creative spirit.

The human mind participates in social processes in a way that it does not in any other processes. It is itself a sample, a phase, of those processes, and is capable, under favorable circumstances, of so far identifying itself with the general movement of a group as to achieve a remarkably just anticipation of what the group will do. Prediction of this sort is largely intuitive rather than intellectual; it is like that of the man with a genius for business as contrasted with that of the statistician; it is not science, but it is the very process by which many of the great generalizations of science have first been perceived.

Predictions of any sort, however, are most likely to be sound when they are made by those who have the most precise familiarity with the observable processes, and it is the increase of this familiarity on the part of social observers, along with their greater in-

sight into principles, that should make them better guessers of what is to happen than they have been in the past.

What, then, is there new in contemporary social science, what, if anything, that promises a more rapid and secure accumulation of knowledge than in the past? Mainly, I should say, the following:

1. Liberation from outworn theological and metaphysical assumptions and reorganization on the basis of factual study and an evolutionary outlook.

2. The rise of a technical group of adequately trained scholars, with those traditions and standards, that expert criticism and exacting group atmosphere, indispensable to all higher achievement.

3. The development, since 1860, and especially since 1900, of a network of factual theory, by which I mean theory springing from observation and capable of being verified or refuted by the closer study of fact. Such theory is to be distinguished from much of the older speculation, which was largely metaphysical, unverifiable, and for that reason of no use in stimulating research.

There is nothing startling in the present movement. It shows no break with the past, does not promise any phenomenal power of prediction, and is, in fact, chiefly occupied with the ascertainment of what is actually going on and with the development of technique. We are trying to describe and interpret human life in the same spirit that the life of animals and plants has been described and interpreted, but with due regard to the different character of the problem. The human material is peculiar not only in its enormous abundance and variety, but in requiring, to deal with it, a radically different theoretical and technical equipment.