followed. The only "rule," it might be said, is to be as intelligent and honest as lies within one's power. The other implication is that logic—and mathematics—has at any given time a body of subject-matter which, in a historical sense, is existential, and with which it works. The forms that result from the analysis and reordering are relative to the subject-matter at hand. Change from a theory of deduction as rational demonstration (a theory characteristic of the classic theory), to such an interpretation as that quoted above, did not itself arise or proceed from formal logical considerations. On the contrary, the change in the formal conceptions of logic was conditioned by the fact that change had occurred in the methods used in inquiry and consequently in the subject-matter arrived at. Analytic examination and reordering of the subject-matter of method and conclusions resulted in a new and immensely fruitful knowledge of forms and formal relations. But forms are still relative to the continuum of inquiry from which they derive, and to which they are still relevant even when they are abstracted and independently formulated.

CHAPTER XXIV
SOCIAL INQUIRY

The subject-matter of social problems is existential. In the broad sense of "natural," social sciences are, therefore, branches of natural science. Social inquiry is, however, relatively so backward in comparison with physical and biological inquiry as to suggest need for special discussion. The question is not whether the subject-matter of human relations is or can ever become a science in the sense in which physics is now a science, but whether it is such as to permit of the development of methods which, as far as they go, satisfy the logical conditions that have to be satisfied in other branches of inquiry. That there are serious difficulties in the way is evidenced by the backward state of social inquiry. One obvious source of the difficulty lies in the fact that the subject-matter of the latter is so "complex" and so intricately interwoven that the difficulty of instituting a relatively closed system (a difficulty which exists in physical science) is intensified. The very backwardness of social inquiry may serve, then, to test the general logical conceptions that have been reached. For the results of discussion of the topic may show that failure to act in accord with the logical conditions which have been pointed out throws light on its retarded state.

I. Introduction. Certain conclusions already arrived at form an introduction to the discussion.

1. All inquiry proceeds within a cultural matrix which is ultimately determined by the nature of social relations. The subject-matter of physical inquiry at any time falls within a larger social field. The techniques available at a given time depend upon the state of material and intellectual culture. When we look back at earlier periods, it is evident that certain problems could not have arisen in the context of institutions, customs, occupations and in-
terests that then existed, and that even if, *per impossibile*, they had been capable of detection and formulation, there were no means available for solving them. If we do not see that this conditioning, both negative and positive, exists at present, the failure to see it is due to an illusion of perspective. For since conceptions standardized in previous culture provide the ideational means by which problems are formulated and dealt with, even if certain problems were felt at a particular period (past or present), the hypotheses required to suggest and guide methods of their solution would be absent. “There is an inalienable and ineradicable framework of conceptions which is not of our own making, but given to us ready-made by society—a whole apparatus of concepts and categories, within which and by which individual thinking, however daring and original, is compelled to move.”

a. The impact of cultural conditions upon social inquiry is obvious. Prejudices of race, nationality, class and sect play such an important role that their influence is seen by any observer of the field. We have only to recall the story of astronomy and of more recent incidents in the doctrine of evolution to be aware that in the past institutional vested interests have told upon the development of physical and biological science. If they do not do so at present to anything like the same extent, it is in large measure because physics has now developed specialized subject-matters and techniques. The result is that to many persons the “physical” seems not only relatively independent of social issues (which it is) but inherently set apart from all social context. The appearance of absence of conflict is to some extent a function of this isolation. What has actually happened, however, is that the influence of cultural conditions has become indirect. The general type of physical problems that are uppermost determines the order of conceptions that are still dominant. Social tendencies and the problems attending them evoke special emphasis upon certain

orders of physical problems rather than upon others. It is not possible, for example, to separate nineteenth century devotion to exclusively mechanical conceptions from the needs of industry in that period. “Evolutionary” ideas were active, on the other hand, in dealing with cultural-social material before they were applied in biology. The notion of the complete separation of science from the social environment is a fallacy which encourages irresponsibility, on the part of scientists, regarding the social consequences of their work.

b. That physical science and its conclusions do as a matter of fact exercise an enormous influence upon social conditions need not be argued. Technological developments are the direct result of application of physical science. These technological applications have profound and extensive consequences upon human relations. Change in methods of production, distribution, and communication is the chief determining condition of social relationships and, to a large extent, of actual cultural values in every advanced industrial people, while they have reacted intensively into the lives of all “backward” peoples. Moreover, only an arbitrary, or else purely conventional point of view (itself a cultural heritage from earlier periods), can rule out such consequences as these from the scope of science itself. The convention in question posits a complete separation between “pure” and “applied” science. The ultimate ground of every valid proposition and warranted judgment consists in some existential reconstruction ultimately effected. When the logician or philosopher is faced by the reconstructions resulting from physical discoveries, it is not possible for him to say, like Canute to the tide, “Thus far shalt thou go and no further.”

2. One of the points discussed in an earlier chapter concerned the experiential continuum and the continuity of inquiry. This

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1 Cornford, *From Religion to Philosophy*, p. 45, quoted by Stebbing, *A Modern Introduction to Logic*, p. 16n. The latter author adds: “No thinker, not even the physicist, is wholly independent of the context of experience provided for him by the society within which he works.” While this is especially true of the relation of a given physicist to the smaller society or scientific workers within which he works, it is also true that the activities of this group as a whole are determined in their main features by the “context of experience provided” by the wider contemporaneous community.

2 “The only valid distinction between pure and applied research in natural science lies between inquiries concerned with issues which may *eventually* and issues which *already do* arise in the social practice of mankind.” Hogben, *Retreat from Reason*, p. 8. The following passage from the same author is pertinent to the earlier remark concerning the tendency toward intellectual irresponsibility bred by isolation of the field of physical inquiry from the needs and possibilities inhering in the “social practice of mankind.” “The education of the scientist and technician leaves him indifferent to the social consequences of his own activities.” (Ibid, p. 3)
expressed the principle of the “long run” phase of knowledge connected with the self-developing and self-correcting nature of scientific inquiry. Just as the validity of a proposition in discourse, or of conceptual material generally, cannot be determined short of the consequences to which its functional use gives rise, so the sufficient warrant of a judgment as a claimant to knowledge (in its eulogistic sense) cannot be determined apart from connection with a widening circle of consequences. An inquirer in a given special field appeals to the experiences of the community of his fellow workers for confirmation and correction of his results. Until agreement upon consequences is reached by those who reinstate the conditions set forth, the conclusions that are announced by an individual inquirer have the status of an hypothesis, especially if the findings fail to agree with the general trend of already accepted results. While agreement among the activities and their consequences that are brought about in the wider (technically non-scientific) public stands upon a different plane, nevertheless such agreement is an integral part of a complete test of physical conclusions wherever their public bearings are relevant. The point involved comes out clearly when the social consequences of scientific conclusions invoke intensification of social conflicts. For these conflicts provide presumptive evidence of the insufficiency, or partiality, and incompleteness of conclusions as they stand.

3. The conclusion that agreement of activities and their consequences is a test and a moving force in scientific advance is in

3 C. S. Peirce is notable among writers on logical theory for his explicit recognition of the necessity of the social factor in the determination of evidence and its probabilistic force. The following representative passage is cited: “The next most vital factor of the method of modern science is that it has been made social. On the one hand, what a scientific man recognizes as a fact of science must be something open to anybody to observe, provided he fulfills the necessary conditions, external and internal. As long as only one man has been able to see a marking upon the planet Venus, it is not an established fact. On the other hand, the method of modern science is social in respect to the solidarity of its efforts. The scientific world is like a colony of insects, in that the individual strives to produce that which he himself cannot hope to enjoy.” —Dictionary of Philosophy and Psychology, Vol. 2, p. 502.

4 The “agreement” in question is agreement in activities, not intellectual acceptance of the same set of propositions. (Cf. ante, pp. 31-4.) A proposition does not gain validity because of the number of persons who accept it. Moreover, continuity of inquiry as a going concern must be taken into account rather than the exact state of belief at a given moment.

harmony with the position that the ultimate end and test of all inquiry is the transformation of a problematic situation (which involves confusion and conflict) into a unified one. That it is much more difficult to accomplish this end in social inquiry than in the restricted field of physical inquiry is a fact. But it is not a fact which constitutes an inherent logical or theoretical difference between the two kinds of inquiry. On the contrary, the presence of practical difficulties should operate, as within physical inquiry itself, as an intellectual stimulus and challenge to further application.

4. That social inquiry must satisfy the conjoint conditions of observational ascertainmment of fact and of appropriate operational conceptions may seem too evident to require explicit statement. For they are obviously conditions of all scientific achievement with respect to existential subject-matter. But the failure to satisfy the requirement of institution of factual and conceptual subject-matter in conjugate correspondence with each other is such a marked characteristic of the present estate of the social disciplines (as is shown in some detail later) that it is necessary to make the point explicitly. On the positive side, the necessity of this conjugate relation indicates the most important way in which physical science serves as a model for social inquiry. For if there is one lesson more than any other taught by the methods of the physical sciences, it is the strict correlativity of fact and ideas. Until social inquiry succeeds in establishing methods of observing, discriminating and arranging data that evoke and test correlated ideas, and until, on the other side, ideas formed and used are (1) employed as hypotheses, and are (2) of a form to direct and prescribe operations of analytic-synthetic determination of facts, social inquiry has no chance of satisfying the logical conditions for attainment of scientific status.

5. One further point will be mentioned before we come to discussion of social inquiry in its own terms. The wide field and intricate constitution of social phenomena, as compared with physical phenomena, is more than a source of practical difficulties in their scientific treatment. It has a definite theoretical import. For the existential conditions which form the physical environment enter at every point into the constitution of socio-cultural phenomena. No individual person and no group does anything
except in interaction with physical conditions. There are no consequences taking place, there are no social events that can be referred to the human factor exclusively. Let desires, skills, purposes, beliefs be what they will, what happens is the product of the interacting intervention of physical conditions like soil, sea, mountains, climate, tools and machines, in all their vast variety, with the human factor. The theoretical bearing of this consideration is that social phenomena cannot be understood except as there is prior understanding of physical conditions and the laws of their interactions. Social phenomena cannot be attacked, qua social, directly. Inquiry into them, with respect both to data that are significant and to their relations or proper ordering, is conditioned upon extensive prior knowledge of physical phenomena and their laws. This fact accounts in part for the retarded and immature state of social subjects. Only recently has there been sufficient understanding of physical relations (including the biological under this caption) to provide the necessary intellectual instrumentalities for effective intellectual attack upon social phenomena. Without physical knowledge there are no means of analytic resolution of complex and grossly macroscopic social phenomena into simpler forms. We now come to discussion of the bearing of logical principles of inquiry upon distinctive social subject-matter.

II. Social Inquiry and Judgments of Practice. It was shown in the course of earlier discussions that there are judgments which are formed with express reference to entering integrally into the reconstitution of the very existential material which they are ultimately about, or concern. It was also shown that the judgments in which this phase is explicit—namely, judgments of practice and historical judgments—are special instances of the reconstructive transformation of antecedent problematic subject-matter which is the end-in-view and the objective consequence of all inquiry. These considerations have a peculiar bearing upon social inquiry in its present condition. For the idea commonly prevails that such inquiry is genuinely scientific only as it deliberately and systematically abstains from all concern with matters of social practice. The special lesson which the logic of the methods of

This consideration is fatal to the view that social sciences are exclusively, or even dominantly, psychological.

Physical inquiry has to teach to social inquiry is, accordingly, that social inquiry, as inquiry, involves the necessity of operations which existentially modify actual conditions that, as they exist, are the occasions of genuine inquiry and that provide its subject-matter. For, as we have seen, this lesson is the logical import of the experimental method.

Physical inquiry to a considerable extent and mathematics in an even greater extent have now reached the point where problems are mainly set by subject-matter already prepared by the results of prior inquiries, so that further inquiries have a store of scientific data, conceptions and methods already at hand. This is not the case with the material of social inquiry. This material exists chiefly in a crude qualitative state. The problem of institution of methods by which the material of existential situations may be converted into the prepared materials which facilitate and control inquiry is, therefore, the primary and urgent problem of social inquiry. It is then to this phase of the logic of social inquiry that further discussion will be particularly directed.

1. Most current social inquiry is marked, as analytic examination will disclose, by the dominance of one or the other of two modes of procedure, which, in their contrast with one another, illustrate the separation of practice and theory. On the practical side, or among persons directly occupied with management of practical affairs, it is commonly assumed that the problems which exist are already definite in their main features. When this assumption is made, it follows that the business of inquiry is but to ascertain the best method of solving them. The consequence of this assumption is that the work of analytic discrimination, which is necessary to convert a problematic situation into a set of conditions forming a definite problem, is largely foregone. The inevitable result is that methods for resolving problematic situations are proposed without any clear conception of the material in which projects and plans are to be applied and to take effect. The further result is that often difficulties are intensified. For additional obstructions to intelligent action are created; or else, in alleviating some symptoms, new troubles are generated. Survey of political problems and the methods by which they are dealt with, in both domestic and international fields, will disclose any number of pertinent illustrations.
The contrast at this point with methods in physical inquiry is striking. For, in the latter, a large part of the techniques employed have to do with determination of the nature of the problem by means of methods that procure a wide range of data, that determine their pertinency as evidential, that ensure their accuracy by devices of measurement, and that arrange them in the order which past inquiry has shown to be most likely to indicate appropriate modes of procedure. Controlled analytic observation, involving systematic comparison-contrast, is accordingly a matter of course in the subjects that have achieved scientific status. The futility of attempting to solve a problem whose conditions have not been determined is taken for granted.

The analogy between social practice and medical practice as it was conducted before the rise of techniques of clinical observation and record, is close enough to be instructive. In both, there is the assumption that gross observation suffices to ascertain the nature of the trouble. Except in unusually obscure cases, symptoms sufficiently large and coarse to be readily observable sufficed in medical practice to supply the data that were used as means of diagnosis. It is now recognized that choice of remedial measures looking to restoration of health is haphazard until the conditions which constitute the trouble or disease have been determined as completely and accurately as possible. The primary problem is, then, to institute the techniques of observation and record that provide the data taken to be evidential and testing. The lesson, as far as method of social inquiry is concerned, is the prime necessity for development of techniques of analytic observation and comparison, so that problematic social situations may be resolved into definitely formulated problems.

One of the many obstructions in the way of satisfying the logical conditions of scientific method should receive special notice. Serious social troubles tend to be interpreted in moral terms. That the situations themselves are profoundly moral in their causes and consequences, in the genuine sense of moral, need not be denied. But conversion of the situations investigated into definite problems, that can be intelligently dealt with, demands objective intellectual formulation of conditions; and such a formulation demands in turn complete abstraction from the qualities of sin and righteousness, of vicious and virtuous motives, that are so readily attributed to individuals, groups, classes, nations. There was a time when desirable and obnoxious physical phenomena were attributed to the benevolence and malevolence of overruling powers. There was a time when diseases were attributed to the machinations of personal enemies. Spinoza's contention that the occurrence of moral evils should be treated upon the same basis and plane as the occurrence of thunderstorms is justifiable on the ground of the requirements of scientific method, independently of its context in his own philosophic system. For such procedure is the only way in which they can be formulated objectively or in terms of selected and ordered conditions. And such formulation is the sole mode of approach through which plans of remedial procedure can be projected in objective terms. Approach to human problems in terms of moral blame and moral approbation, of wickedness or righteousness, is probably the greatest single obstacle now existing to development of competent methods in the field of social subject-matter.

2. When we turn from consideration of the methods of inquiry currently employed in political and many administrative matters, to the methods that are adopted in the professed name of social science, we find quite an opposite state of affairs. We come upon an assumption which if it were made explicit or formulated would take some such shape as "The facts are out there and only need to be observed, assembled and arranged to give rise to suitable and grounded generalizations." Investigators of physical phenomena often speak and write in similar fashion. But analysis of what they do as distinct from what they say yields a very different result. Before, however, considering this point I shall discuss a closely connected assumption, namely the assumption that in order to base conclusions upon the facts and only the facts, all evaluative procedures must be strictly ruled out.

This assumption on the part of those engaged, in the name of science, in social investigation derives in the minds of those who entertain it from a sound principle. It springs, at least in large measure, from realization of the harm that has been wrought by forming social judgments on the ground of moral preconceptions, conceptions of what is right and wrong, vicious and virtuous. As
has just been stated, this procedure inevitably prejudices the institution of relevant significant data, the statement of the problems that are to be solved, and the methods by which they may be solved. The soundness of the principle that moral condemnation and approbation should be excluded from the operations of obtaining and weighing material data and from the operations by which conceptions for dealing with the data are instituted, is, however, often converted into the notion that all evaluations should be excluded. This conversion is, however, effected only through the intermediary of a thoroughly fallacious notion; the notion, namely, that the moral blame and approvals in question are evaluative and that they exhaust the field of evaluation. For they are not evaluative in any logical sense of evaluation. They are not even judgments in the logical sense of judgment. For they rest upon some preconception of ends that should or ought to be attained. This preconception excludes ends (consequences) from the field of inquiry and reduces inquiry at its very best to the truncated and distorted business of finding out means for realizing objectives already settled upon. Judgment which is actually judgment (that satisfies the logical conditions of judgment) institutes means-consequences (ends) in strict conjugate relation to each other. Ends have to be adjudged (evaluated) on the basis of the available means by which they can be attained just as much as existential materials have to be adjudged (evaluated) with respect to their function as material means of effecting a resolved situation. For an end-in-view itself is a means, namely, a procedural means.

The idea that "the end justifies the means" is in, as bad repute in moral theory as its adoption is a commonplace of political practice. The doctrine may be given a strictly logical formulation, and when so formulated its inherent defect becomes evident. From the logical standpoint, it rests upon the postulate that some end is already so fixedly given that it is outside the scope of inquiry, so that the only problem for inquiry is to ascertain and manipulate the materials by which the end may be attained. The hypothetical and directive function of ends-in-view as procedural means is thus ignored and a fundamental logical condition of inquiry is violated. Only an end-in-view that is treated as a hypothesis (by which discrimination and ordering of existential material is operatively effected) can by any logical possibility determine the existential materials that are means. In all fields but the social, the notion that the correct solution is already given and that it only remains to find the facts that prove it is so thoroughly discredited that those who act upon it are regarded as pretenders, or as cranks who are trying to impose some pet notion upon facts. But in social matters, those who claim that they are in possession of the one sure solution of social problems often set themselves up as being peculiarly scientific while others are floundering around in an "empirical" morass. Only recognition in both theory and practice that ends to be attained (ends-in-view) are of the nature of hypotheses and that hypotheses have to be formed and tested in strict correlativity with existential conditions as means, can alter current habits of dealing with social issues.

What has been said indicates the valid meaning of evaluation in inquiry in general and also shows the necessity of evaluative judgments in social inquiry. The need for selective discrimination of certain existential or factual material to be data proves that an evaluative estimate is operating. The notion that evaluation is concerned only with ends and that, with the ruling out of moral ends, evaluative judgments are ruled out rests, then, upon a profound misconception of the nature of the logical conditions and constituents of all scientific inquiry. All competent and authentic inquiry demands that out of the complex welter of existential and potentially observable and recordable material, certain material be selected and weighed as data or the "facts of the case." This process is one of adjudgment, of appraisal or evaluation. On the other end, there is, as has been just stated, no evaluation when ends are taken to be already given. An idea of an end to be reached, an end-in-view, is logically indispensable in discrimination of existential material as the evidential and testing facts of the case. Without it, there is no guide for observation; without it, one can have no conception of what one should look for or even is looking for. One "fact" would be just as good as another—that is, good for nothing in control of inquiry and in formation and settlement of a problem.

3. What has been said has direct bearing upon another assumption which underlies a considerable part of allegedly scientific social
inquiry; the idea, namely, that facts are just there and need only to be observed accurately and be assembled in sufficient number to warrant generalizations. A generalization in the form of a hypothesis is a prerequisite condition of selection and ordering of material as facts. A generalization is quite as much an antecedent of observation and assemblage of facts as it is a consequence of observing and assembling them. Or, more correctly stated, no generalization can emerge as a warranted conclusion unless a generalization in the form of a hypothesis has previously exercised control of the operations of discriminative selection and (synthetic) ordering of material to form the facts of and for a problem. To return to the point suggested earlier: What scientific inquirers do, as distinct from what they say, is to execute certain operations of experimentation—which are operations of doing and making—that modify antecedently given existential conditions so that the results of the transformation are facts which are relevant and weighty in solution of a given problem. Operations of experimentation are cases of blind trial and error which at best only succeed in suggesting a hypothesis to be later tried except as they are themselves directed by a hypothesis about a solution.

The assumption that social inquiry is scientific if proper techniques of observation and record (preferably statistical) are employed (the standard of propriety being set by borrowing from techniques used in physical science), thus fails to observe the logical conditions which in physical science give the techniques of observing and measuring their standing and force. This point will be developed by considering the idea, which is current, that social inquiry is scientific only when complete renunciation of any reference to practical affairs is made its precondition. Discussion of this fallacy (fallacious from the strictly logical point of view) will start from a consideration of the nature of the problems of social inquiry.

III. Institution of Problems. A genuine problem is one set by existential problematic situations. In social inquiry, genuine problems are set only by actual social situations which are themselves conflicting and confused. Social conflicts and confusions exist in fact before problems for inquiry exist. The latter are intellectualizations in inquiry of these “practical” troubles and difficulties. The intellectual determinations can be tested and warranted only by doing something about the problematic existential situations out of which they arise, so as to transform it in the direction of an ordered situation. The connection of social inquiry, as to social data and as to conceptual generalizations, with practice is intrinsic not external. Any problem of scientific inquiry that does not grow out of actual (or “practical”) social conditions is factitious; it is arbitrarily set by the inquirer instead of being objectively produced and controlled. All the techniques of observation employed in the advanced sciences may be conformed to, including the use of the best statistical methods to calculate probable errors, etc., and yet the material ascertained be scientifically “dead,” i.e., irrelevant to a genuine issue, so that concern with it is hardly more than a form of intellectual busy work. That which is observed, no matter how carefully and no matter how accurate the record, is capable of being understood only in terms of projected consequences of activities. In fine, problems with which inquiry into social subject-matter is concerned must, if they satisfy the conditions of scientific method, (1) grow out of actual social tensions, needs, “troubles”; (2) have their subject-matter determined by the conditions that are material means of bringing about a unified situation, and (3) be related to some hypothesis, which is a plan and policy for existential resolution of the conflicting social situation.

IV. Determination of Facts in Social Inquiry. This topic has, of necessity, been anticipated in the foregoing discussion which has shown that facts are such in a logical sense only as they serve to delimit a problem in a way that affords indication and test of proposed solutions. Two involved considerations will, however, be explicitly dealt with.

1. Since transformation of a problematic situation (a confused situation whose constituents conflict with one another) is effected by interaction of specially discriminated existential conditions, facts have to be determined in their dual function as obstacles and as resources; that is, with reference to operations of negation (elimination) and affirmation, the latter being determination of materials as positively agreeing with or reinforcing one another. No existing situation can be modified without counteracting ob-
constructive and deflecting forces that render a given situation confused and conflicting. Operations of elimination are indispensable. Nor can an objectively unified situation be instituted except as the positive factors of existing conditions are released and ordered so as to move in the direction of the objective consequence desired. Otherwise, ends-in-view are utopian and "idealistic," in the sentimental sense of the latter word.

Realistic social thinking is precisely the mode of observation which discriminates adverse and favorable conditions in an existing situation, "adverse" and "favorable" being understood in connection with the end proposed. "Realism" does not mean apprehension of the existing situation in toto, but selective discrimination of conditions as obstructive and as resources; i.e., as negative and positive. When it is said "We must take conditions as they are" the statement is either a logical truism or a fallacy which then operates as an excuse for inaction. It is a truism if it is understood to mean that existing conditions are the material, and the only material, of analytic observation. But if it is taken to mean that "conditions as they are" are final for judgment as to what can or should be done, there results complete abnegation of intelligent direction of both observation and action. For conditions in any doubtful and undesirable situation are never all of a piece—otherwise there would be no conflict or confusion involved—and, moreover, they are never so fixed that no change in them can be effected. In actual fact, they are themselves changing anyhow in some direction, so that the problem is to institute modes of interaction among them which will produce changes in the direction that leads to the proposed objective consequence.

2. That conditions are never completely fixed means that they are in process—that, in any case, they are moving toward the production of a state of affairs which is going to be different in some respect. The purpose of the operations of observation which differentiate conditions into obstructive factors and positive resources is precisely to indicate the intervening activities which will give the movement (and hence its consequences) a different form from what it would take if it were left to itself; that is, movement toward a proposed unified existential situation.

The result of taking facts as finished and over with is more serious in inquiry into social phenomena than it is with respect to physical objects. For the former phenomena are inherently historical. But in physics, although universal conceptions are defined and kinds are described in reference to some final existential application, they are free from the necessity of any immediate application. Every social phenomenon, however, is itself a sequential course of changes, and hence a fact isolated from the history of which it is a moving constituent loses the qualities that make it distinctively social. Generic propositions are indispensable in order to determine the unique sequence of events, but as far as the latter is interpreted wholly in terms of general and universal propositions, it loses that unique individuality in virtue of which it is a historic and social fact. A physical fact may be treated as a "case." Any account of, say, the assassination of Julius Caesar assuredly involves the generic conceptions of assassination, conspiracy, political ambition, human beings, of which it is an exemplifying case and it cannot be reported and accounted for without the use of such general conceptions. But treatment of it as just and merely a case eliminates its qualities that make it a social fact. The conceptions are indispensable but they are indispensable as means for determining a non-recurring temporal sequence. Even in physics "laws" are in their logical import ultimately means of selecting and linking together events which form an individual temporal sequence."

It was just affirmed that social phenomena are historical, or of the nature of individual temporal sequences. Argument in support of this assumption is superfluous if "history" is understood to include the present. No one would dream of questioning that the social phenomena which constitute the rise of the papacy, the industrial revolution, the rise of cultural and political nationalism, are historical. It cannot be denied that what is now going on in the countries of the world, in their domestic institutions and foreign relations, will be the material of history in the future. It is absurd to suppose that history includes events that happened up to yesterday but does not take in those occurring today. As there are no temporal gaps in a historically determined sequence, so there are none in social phenomena that are determined by inquiry for the latter constitute a developing course of events. Hence, al-

*See, ante, pp. 445-7.
though observation and assemblage of materials in isolation from their movement into an eventual consequence may yield "facts" of some sort, the latter will not be facts in any social sense of that word, since they will be non-historical.

This consideration reinforces the conclusion already drawn: Inquiry into social phenomena involves judgments of evaluation, for they can be understood only in terms of eventualities to which they are capable of moving. Hence, there are as many possible interpretations in the abstract as there are possible kinds of consequences. This statement does not entail carrying over into social phenomena a teleology that has been outmoded in the case of physical phenomena. It does not imply that there is some purpose ruling social events or that they are moving to a predetermined goal. The meaning is that any problematic situation, when it is analyzed, presents, in connection with the idea of operations to be performed, alternative possible ends in the sense of terminating consequences. Even in physical inquiry, what the inquirer observes and the conceptions he entertains are controlled by an objective purpose—that of attaining a resolved situation. The difference between physical and social inquiry does not reside in the presence or absence of an end-in-view, formulated in terms of possible consequences. It consists in the respective subject-matters of the purposes. This difference makes a great practical difference in the conduct of inquiry: a difference in the kind of operations to be performed in instituting the subject-matters that in their interactions will resolve a situation. In the case of social inquiry, associated activities are directly involved in the operations to be performed; these associated activities enter into the idea of any proposed solution. The practical difficulties in the way of securing the agreements in actual association that are necessary for the required activity are great. In physical matters, the inquirer may reach the outcome in his laboratory or observatory. Utilization of the conclusions of others is indispensable, and others must be able to attain similar conclusions by use of materials and methods similar to those employed by the individual investigator. His activity is socially conditioned in its beginning and close. But in physical inquiry the conditioning social factors are relatively indirect, while in solution of social problems they are directly involved. Any hypothesis as to a social end must include as part of itself the idea of organized association among those who are to execute the operations it formulates and directs.

Evaluative judgments, judgments of better and worse about the means to be employed, material and procedural, are required. The evils in current social judgments of ends and policies arise, as has been said, from importations of judgments of value from outside of inquiry. The evils spring from the fact that the values employed are not determined in and by the process of inquiry: for it is assumed that certain ends have an inherent value so unquestionable that they regulate and validate the means employed, instead of ends being determined on the basis of existing conditions as obstacles-resources. Social inquiry, in order to satisfy the conditions of scientific method, must judge certain objective consequences to be the end which is worth attaining under the given conditions. But, to repeat, this statement does not mean what it is often said to mean: Namely, that ends and values can be assumed outside of scientific inquiry so that the latter is then confined to determination of the means best calculated to arrive at the realization of such values. On the contrary, it means that ends in their capacity of values can be validly determined only on the basis of the tensions, obstructions and positive potentialities that are found, by controlled observation, to exist in the actual situation.

V. Conceptual Subject-matter in Social Inquiry. This theme was necessarily touched upon in the consideration of the first point, the nature of problems. It was also treated in the foregoing section regarding "fact-findings" that are carried on in isolation from conceptions of an end to be attained. For it was pointed out that such conceptions, while they need to be tested and revised in terms of observed facts, are required to control the selection, arrangement and interpretation of facts. Consideration of the present theme will, accordingly, be confined for the most part, to pointing out the logical mistake of those methods that treat conceptual subject-matter as if it consisted of first and ultimate, self-validating truths, principles, norms. As so often happens with contrary one-sided views, the defects of the factual, so called "positivistic" school and of the conceptual school, provide arguments by which each evokes
and supports the views of the other. It cannot be said that the conceptual or “rationalistic” school pays no attention whatever to facts. But it can be stated that it places its entire emphasis upon conceptions, so that facts are subsumed directly under “principles,” the latter being regarded as fixed norms that decide the legitimacy or illegitimacy of existing phenomena and that prescribe the ends towards which endeavor should be directed.

There can be no doubt that in some form or other the past history of social thought has been dominated by the conceptual approach. There have existed (to mention merely some outstanding phases) first, the conception, in classical, moral and political theory of ends-in-themselves that are fixed in and by Nature (and hence ontological and cosmological); secondly, the doctrine of “Natural Laws,” which itself assumed a variety of forms in successive epochs; thirdly, the theory of intuitions of a priori necessary truths, and, finally, as in contemporary thought, the doctrine of an intrinsic hierarchy of fixed values. It is no part of the present task to examine these various historical manifestations of identification of ends having objective status with a priori conceptual material. An illustration, exemplary as to the logic involved although not exemplary as to its material, will be given.

Classical political economy, with respect to its logical form, claimed to be a science in virtue, first, of certain ultimate first truths, and, secondly, in virtue of the possibility of rigorous “deduction” of actual economic phenomena from these truths. From these “premises,” it followed, in the third place, that the first truths provided the norms of practical activity in the field of economic phenomena; or that actual measures were right or wrong, and actual economic phenomena normal or abnormal, in the degree of their correspondence with deductions made from the system of conceptions forming the premises. The members of this school, from Adam Smith to the Mills and their contemporary followers, differed of course from the traditional rationalistic school. For they held that first principles were themselves derived inductively, instead of being established by a priori intuition. But once arrived at, they were regarded as unquestionable truths, or as axioms with respect to any further truths, since the latter should be deductively derived from them. The actual content of the fixed premises was taken to be certain truths regarding human nature, such as the universal desire of each individual to better his condition; the desire to do so with the least effort (since effort constituted cost in the sense of pain to be minimized); the impulse to exchange of goods and services in maximum satisfaction of wants at least cost, etc.

We are not concerned with the question of the validity or invalidity of the content of these premises. The point at issue concerns the import of the logic of the method involved. The net consequence of the procedure of classic economics was reinstatement of the older conception of “natural laws” by means of a reinterpretation of their content. For it was concluded that the “laws” of human activity in the economic field, which were theoretically deducible, were the norms of proper or right human activity in that field. The laws were supposed to “govern” the phenomena in the sense that all phenomena which failed to conform to them were abnormal or “unnatural” — were a vicious attempt to suspend the working of natural laws or to escape from their inevitable consequences. Any attempt to regulate economic phenomena by control of the social conditions under which production and distribution of goods and services occur was thereby judged to be a violation of natural laws, an “interference” with the normal order, so that ensuing consequences were bound to be as disastrous as are the consequences of an attempt to suspend or interfere with the working of any physical law, say, the law of gravitation.

Discussion of this position is concerned only with its inherent logic, not with the fact that its practical product was a system of laissez-faire “individualism” and a denial of the validity of attempts at social control of economic phenomena. From the standpoint of logical method, the conceptions involved were not regarded as hypotheses to be employed in observation and ordering of phenomena, and hence to be tested by the consequences produced by acting upon them. They were regarded as truths already established and therefore unquestionable. Furthermore, it is evident that the conceptions were not framed with reference to the needs and tensions existing at a particular time and place, or as methods of resolving ills then and there existing, but as
universal principles applicable anywhere and everywhere. A strong case might be made out for the position that if they had been framed and interpreted on the ground of applicability to conditions existing under specified spatio-temporal conditions, say, in the first half of the nineteenth century in Great Britain, they were to a considerable extent directive operational hypotheses relevant to those historical conditions. But the method that was employed forbade an interpretation in specified spatio-temporal terms.

In consequence, the three indispensable logical conditions of conceptual subject-matter in scientific method were ignored; namely, (1) the status of theoretical conceptions as hypotheses which (2) have a directive function in control of observation and ultimate practical transformation of antecedent phenomena, and which (3) are tested and continually revised on the ground of the consequences they produce in existential application.

A further illustration of the demands of logical method may be found in other current theories about social phenomena, such as the supposed issue of “individualism” versus “collectivism” or “socialism,” or the theory that all social phenomena are to be envisaged in terms of the class-conflict of the bourgeoisie and the proletariat. From the standpoint of method, such conceptual generalizations, no matter which one of the opposed conceptions is adopted, prejudge the characteristic traits and the kinds of actual phenomena that the proposed plans of action are to deal with. Hence the work of analytic observations by which actual phenomena will be reduced to terms of definite problems that may be dealt with by means of determinate specified operations is intrinsically compromised from the start. The “generalizations” are of the nature of all-or-none contradictory “truths.” Like all such sweeping universal, they do not delimit the field so as to determine problems that may be attacked one by one, but are of such a nature that, from the standpoint of theory, one theory must be accepted and the other rejected in toto.

One of the simplest ways of grasping the logical difference between social inquiry that rests upon fixed conceptual principles and physical inquiry, is to note that in the latter the theoretical controversies which exist concern the efficacy of different concep-


tions of procedure, while in the former they are about the question of an alleged intrinsic truth or falsity. This attitude is generative of conflict in opinion, and clash in action, instead of promoting inquiries into observable and verifiable facts. If one looks at the early stage of what is now the body of facts and ideas that constitute physics, chemistry, biology and medicine, one finds that at some earlier period controversy in those fields was also mainly about the intrinsic truth and falsity of certain conceptions. As these sciences have advanced in genuine scientific quality, doubt and inquiry have centered upon the efficacy of different methods of procedure. The result has been that instead of a state of rigid alternatives of which one must be accepted and the other rejected, a plurality of hypotheses is positively welcome. For the plurality of alternatives is the effective means of rendering inquiry more extensive (sufficient) and more flexible, more capable of taking cognizance of all facts that are discovered.

In fine, fact-finding procedures are necessary for (1) determination of problems and for (2) provision of data that indicate and test hypotheses; while formulation of conceptual structures and frames of reference is necessary to guide observation in discriminating and ordering data. The immature state of social inquiry may thus be measured by the extent to which these two operations of fact-finding and of setting up theoretical ends are carried on independently of each other, with the consequence that factual propositions on one side and conceptual or theoretical structures on the other are regarded each as final and complete in itself by one or another school. With reference to the conceptual framework, some additional considerations are appended.

1. Directing conceptions tend to be taken for granted after they have once come into general currency. In consequence they either remain implicit or unstated, or else are propositionally formulated in a way which is static instead of functional. Failure to examine the conceptual structures and frames of reference which are unconsciously implicated in even the seemingly most innocent factual inquiries is the greatest single defect that can be found in any field of inquiry. Even in physical matters, after a certain conceptual frame of reference has once become habitual, it
tends to become finally obstructive with reference to new lines of investigation. In biology and in the social disciplines, law, politics, economics and morals, the danger is more acute and more disastrous. Failure to encourage fertility and flexibility in formation of hypotheses as frames of reference is closer to a death warrant of a science than any other one thing.

2. With respect to social subject-matter in particular, failure to translate influential conceptions into formulated propositions is especially harmful. For only explicit formulation stimulates examination of their meanings in terms of the consequences to which they lead and promotes critical comparison of alternative hypotheses. Without systematic formulation of ruling ideas, inquiry is kept in the domain of opinion and action in the realm of conflict. For ultimately the only logical alternative to open and above-board propositional formulation of conceptual alternatives (as many as possible) is formation of controlling ideas on the ground of either custom and tradition or some special interest. The result is dichotomization of a social field into conservatives and progressives, “reactionaries” and “radicals,” etc.

3. One of the chief practical obstacles to the development of social inquiry is the existing division of social phenomena into a number of compartmentalized and supposedly independent non-interacting fields, as in the different provinces assigned, for example to economics, politics, jurisprudence, morals, anthropology, etc. It is no part of a general logical theory to indicate special methods and devices by which existing barriers may be broken down. That task is the business of inquirers in the several fields. But a survey from the logical point of view of the historical development of the social disciplines instructively discloses the causes of splitting up social phenomena into a number of relatively closed compartments and the injurious effects of the division. It is legitimate to suggest that there is an urgent need for breaking down these conceptual barriers so as to promote cross-fertilization of ideas, and greater scope, variety and flexibility of hypotheses.

4. The practical difficulties in the way of experimental method in the case of social phenomena as compared with physical investigations do not need elaborate exposition. Nevertheless, every measure of policy put into operation is, logically, and should be actually, of the nature of an experiment. For (1) it represents the adoption of one out of a number of alternative conceptions as possible plans of action, and (2) its execution is followed by consequences which, while not as capable of definite or exclusive differentiation as in the case of physical experimentation, are none the less observable within limits, so they may serve as tests of the validity of the conception acted upon. The idea that because social phenomena do not permit the controlled variation of sets of conditions in a one-by-one series of operations, therefore the experimental method has no application at all, stands in the way of taking advantage of the experimental method to the extent that is practicable. Suppose, for example, it is a question of the introduction of some legislative policy. Recognition of its experimental character would demand, on the side of its contents, that they be rendered as definite as possible in terms of a number of well thought out alternatives, or as members of a disjunctive system. That is, failure to recognize its experimental character encourages treatment of a policy as an isolated independent measure. This relative isolation puts a premium upon formation of policies in a comparatively improvised way, influenced by immediate conditions and pressures rather than by surveys of conditions and consequences. On the other side, failure to take into account the experimental nature of policies undertaken, encourages laxity and discontinuity in discriminative observation of the consequences that result from its adoption. The result is merely that it works or it does not work as a gross whole, and some other policy is then improvised. Lack of careful, selective, continued observation of conditions promotes indefiniteness in formation of policies, and this indefiniteness reacts in turn to obstruct definiteness of the observations relevant to its test and revision.

Finally, it may be pointed out that the present state of social inquiry provides a test of the adequacy of general logical theory, and in this respect furnishes confirmation of the validity of the general theory which has been developed. To consider in detail its value as a test of logical theories held regarding facts and conception and their relation to each other would be to repeat what has already been said. A word may be added about its value as a test of formalistic logical theories. A logic of forms in isolation from
matter is confined in social inquiry to the function of forms in locating formal fallacies in discourse, especially in giving warning against the confusion of words having emotional immediate practical effect, (so called “expressive sentences”) with those having objective meaning. This purging of reasoning from formal fallacies is a valuable service. But it rarely requires any elaborate formal scheme to enable them to be detected. The important fallacies are the material ones. They spring from lack of proper methods of observation on one hand, and, on the other, from lack of methods for forming and testing hypotheses. With respect to these material concerns, formalistic logic is necessarily silent. The silence is sometimes defended on the ground that propositions about social matters and about what is to be done with respect to them involve valuations (which is correct), and then holding that propositions about values are pseudo-propositions, expressing merely resolutions to act in certain ways. That an element of practical resolution exists need not be denied; it is found also in every conception as to how to operate in physical science. The point which is important is that formalistic logic provides no possible ground for deciding upon one practical policy rather than another, and none for following out the consequences of a policy when put into operation as a test of its validity. The net effect is to throw the very field in which intelligent control is of the utmost importance wholly outside the scope of scientific method. There are those to whom this result will present itself as a reductio ad absurdum of the theory in question. In any case, the formalistic position is very likely to provoke a reaction that contributes to strengthening the theory of fixed a priori schemes of value, known by direct rational intuition. For any denial of the possibility of application of a scientific method is bound to encourage resort, in a matter of such importance, to use of non-scientific and even anti-scientific procedures.

I conclude discussion of the topic of the logic of social inquiry by referring again to the point which is fundamental in the foregoing discussion—its intrinsic reference to practice. This reference has been shown to be involved in determination of genuine problems, in discriminating, weighing and ordering facts as evidential, and in formation and test of the hypotheses that are entertained. I add a few words upon the special topic of understanding facts. Understanding or interpretation is a matter of the ordering of those materials that are ascertained to be facts; that is, determination of their relations. In any given subject-matter there exist many relations of many kinds. That particular set of relations which is relevant to the problem in hand has to be determined. Relevant theoretical conceptions come into play only as the problem in hand is clear and definite; that is, theory alone cannot decide what set of relations is to be instituted, or how a given body of facts is to be understood. A mechanic, for example, understands the various parts of a machine, say an automobile, when and only when he knows how the parts work together; it is the way in which they work together that provides the principle of order upon and by which they are related to one another. The conception of “working together” involves the conception of consequences: the significance of things resides in the consequences they produce when they interact with other specified things. The heart of the experimental method is determination of the significance of observed things by means of deliberate institution of modes of interaction.

It follows that in social inquiry “facts” may be carefully ascertained and assembled without being understood. They are capable of being ordered or related in the way that constitutes understanding of them only when their bearing is seen, and “bearing” is a matter of connection with consequences. Social phenomena are so interwoven with one another that it is impossible to assign special consequences (and hence bearing and significance) to any given body of facts unless the special consequences are of the latter differentially determined. This differential determination can be affected only by active or “practical” operations conducted according to an idea which is a plan. Social phenomena are not unique in being complexly interwoven with another. All existential events, as existential, are in a similar state. But methods of experimentation and their directive conceptions are now so well established in the case of physical phenomena that vast bodies of facts seem to carry their significance with them almost on their face as soon as they are ascertained. For prior experimental operations have shown what their probable consequences will be
under specified conditions to a high degree of accuracy. No such state of affairs exists with reference to social phenomena and facts. A like state of affairs can be brought into existence, even approximately, only as social facts are related together and hence understood, on the basis of their connection with differential consequences that are effected by definite plans of dealing practically with the phenomena:—the plans, once more, being hypotheses directive of practical operations, not truths or dogmas.

CHAPTER XXV

THE LOGIC OF INQUIRY AND PHILOSOPHIES OF KNOWLEDGE

A two-way connection exists between logic and philosophical systems. On the one hand, the history of philosophy shows that every main type of philosophic system has developed its own special interpretation of logical forms and relations. Indeed, it is almost a convention to divide philosophy in general and special systems in particular into ontology or metaphysics on one side and a corresponding epistemology or theory of knowledge, on the other side. From another point of view, logic, esthetics and ethics are the traditional main branches of philosophy. It is not accidental that spiritualistic and materialistic, monistic, dualistic and pluralistic, idealistic and realistic philosophies have evinced predilections for one or another type of logical doctrine; and as they have become aware of the relations between their first principles and their methods, have developed a type of logical theory consonant with their theories of nature and man. It is to the credit of each main type of philosophy that it has attempted to make explicit its underlying logic.

It is, however, the other line of connection with which this chapter is concerned. In order to gain adherents and to endure, a philosophical system must not only maintain a reasonable degree of internal dialectical consistency but must square itself with some phases and conditions of the *methods* by which the beliefs that are entertained about the world have been reached. It does not suffice that a system have a consistent logic of discourse. It must also have a considerable measure of plausibility in application to things of the world if it is to gain and hold adherents. It follows that every main philosophical theory of knowledge must not