6. The Pattern of Inquiry

The first chapter set forth the fundamental thesis of this volume: Logical forms accrue to subject-matter when the latter is subjected to controlled inquiry. It also set forth some of the implications of this thesis for the nature of logical theory. The second and third chapters stated the independent grounds, biological and cultural, for holding that logic is a theory of experiential naturalistic subject-matter. The first of the next two chapters developed the theme with reference to the relations of the logic of common sense and science; while the second discussed Aristotelian logic as the organized formulation of the language of Greek life, when that language is regarded as the expression of the meanings of Greek culture and of the significance attributed to various forms of natural existence. It was held throughout these chapters that inquiry, in spite of the diverse subjects to which it applies, and the consequent diversity of its special techniques has a common structure or pattern that this common structure is applied both in common sense and science, although because of the nature of the problems with which they are concerned, the emphasis upon the factors involved varies widely in the two modes. We now come to the consideration of the common pattern.

The fact that new formal properties accrue to subject-matter in virtue of its subjection to certain types of operation is familiar to us in certain fields, even though the idea corresponding to this fact is unfamiliar in logic. Two outstanding instances are provided by art and law. In music, the dance, painting, sculpture, literature and the other fine arts, subject-matters of everyday experience are transformed by the development of forms which render certain products of doing and making objects of fine art. The materials of legal regulations are transactions occurring in the ordinary activities of human beings and groups of human be-
ings; transactions of a sort that are engaged in apart from law. As certain aspects and phases of these transactions are legally formalized, conceptions such as misdemeanor, crime, torts, contracts, and so on arise. These formal conceptions arise out of the ordinary transactions; they are not imposed upon them from on high or from any external and a priori source. But when they are formed they are also formative; they regulate the proper conduct of the activities out of which they develop.

All of these formal legal conceptions are operational in nature. They formulate and define ways of operation on the part of those engaged in the transactions into which a number of persons or groups enter as “parties,” and the ways of operation followed by those who have jurisdiction in deciding whether established forms have been complied with, together with the existential consequences of failure of observation. The forms in question are not fixed and eternal. They change, though as a rule too slowly, with changes in the habitual transactions in which individuals and groups engage and the changes that occur in the consequences of these transactions. However hypothetical may be the conception that logical forms accrue to existential materials in virtue of the control exercised over inquiries in order that they may fulfill their end, the conception is descriptive of something that verifiably exists. The development of forms in consequence of operations is an established fact in some fields; it is not invented ad hoc in relation to logical forms.

The existence of inquiries is not a matter of doubt. They enter into every area of life and into every aspect of every area. In everyday living, men examine; they turn things over intellectually; they infer and judge as “naturally” as they reap and sow, produce and exchange commodities. As a mode of conduct, inquiry is as accessible to objective study as are these other modes of behavior. Because of the intimate and decisive way in which inquiry and its conclusions enter into the management of all affairs of life, no study of the latter is adequate save as it is noted how they are affected by the methods and instruments of inquiry that currently obtain. Quite apart, then, from the particular hypothesis about logical forms that is put forth, study of the objective facts of inquiry is a matter of tremendous import, practically and intellectually. These materials provide the theory of logical forms with a subject-matter that is not only objective but is ob-

jective in a fashion that enables logic to avoid the three mistakes most characteristic of its history.

1. In virtue of its concern with objectively observable subject-matter by reference to which reflective conclusions can be tried and tested, dependence upon subjective and “mentalistic” states and processes is eliminated.

2. The distinctive existence and nature of forms is acknowledged. Logic is not compelled, as historic “empirical” logic felt compelled to do, to reduce logical forms to mere transcripts of the empirical materials that anteced the existence of the former. Just as art-forms and legal forms are capable of independent discussion and development, so are logical forms, even though the “independence” in question is intermediate, not final and complete. As in the case of these other forms, they originate out of experiential material, and when constituted introduce new ways of operating with prior materials which ways modify the material out of which they develop.

3. Logical theory is liberated from the unobservable, transcendental and “intuitional.”

When methods and results of inquiry are studied as objective data, the distinction that has often been drawn between noting and reporting the ways in which men do think, and prescribing the ways in which they ought to think, takes on a very different interpretation from that usually given. The usual interpretation is in terms of the difference between the psychological and the logical, the latter consisting of “norms” provided from some source wholly outside of and independent of “experience.”

The way in which men do “think” denotes, as it is here interpreted, simply the ways in which men at a given time carry on their inquiries. So far as it is used to register a difference from the ways in which they ought to think, it denotes a difference like that between good and bad farming or good and bad medical practice.1 Men think in ways they should not when they follow methods of inquiry that experience of past inquiries shows are not competent to reach the intended end of the inquiries in question.

Everybody knows that today there are in vogue methods of farming generally followed in the past which compare very un-

favorably in their results with those obtained by practices that have already been introduced and tested. When an expert tells a farmer he should do thus and so, he is not setting up for a bad farmer an ideal drawn from the blue. He is instructing him in methods that have been tried and that have proved successful in procuring results. In a similar way we are able to contrast various kinds of inquiry that are in use or that have been used in respect to their economy and efficiency in reaching warranted conclusions. We know that some methods of inquiry are better than others in just the same way in which we know that some methods of surgery, farming, road-making, navigating or what-not are better than others. It does not follow in any of these cases that the "better" methods are ideally perfect, or that they are regulative or "normative" because of conformity to some absolute form. They are the methods which experience up to the present time shows to be the best methods available for achieving certain results, while abstraction of these methods does supply a (relative) norm or standard for further undertakings.

The search for the pattern of inquiry is, accordingly, not one instituted in the dark or at large. It is checked and controlled by knowledge of the kinds of inquiry that have and that have not worked; methods which, as was pointed out earlier, can be so compared as to yield reasoned or rational conclusions. For, through comparison-contrast, we ascertain how and why certain means and agencies have provided warrantably ascertainable conclusions, while others have not and cannot so do in the sense in which "cannot" expresses an intrinsic incompatibility between means used and consequences attained.

We may now ask: What is the definition of Inquiry? That is, what is the most highly generalized conception of inquiry which can be justifiably formulated? The definition that will be expanded, directly in the present chapter and indirectly in the following chapters, is as follows: Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole.

2. The word "situation" is to be understood in the sense already expounded, ante, pp. 72–3.

The original indeterminate situation is not only "open" to inquiry, but it is open in the sense that its constituents do not hang together. The determinate situation on the other hand, qua outcome of inquiry, is a closed and, as it were, finished situation or "universe of experience." Controlled or directed in the above formula refers to the fact that inquiry is competent in any given case in the degree in which the operations involved in it actually do terminate in the establishment of an objectively unified existential situation. In the intermediate course of transition and transformation of the indeterminate situation, discourse through use of symbols is employed as means. In received logical terminology, propositions, or terms and the relations between them, are intrinsically involved.

1. The Antecedent Conditions of Inquiry: The Indeterminate Situation. Inquiry and questioning, up to a certain point, are synonymous terms. We inquire when we question; and we inquire when we seek for whatever will provide an answer to a question asked. Thus it is of the very nature of the indeterminate situation which evokes inquiry to be questionable; or, in terms of actuality instead of potentiality, to be uncertain, unsettled, disturbed. The peculiar quality of what pervades the given materials, constituting them a situation, is not just uncertainty at large; it is a unique doubfulness which makes that situation to be just and only the situation it is. It is this unique quality that not only evokes the particular inquiry engaged in but that exercises control over its special procedures. Otherwise, one procedure in inquiry would be as likely to occur and to be effective as any other. Unless a situation is uniquely qualified in its very indeterminateness, there is a condition of complete panic; response to it takes the form of blind and wild overt activities. Stating the matter from the personal side, we have "lost our heads." A variety of names serves to characterize indeterminate situations. They are disturbed, troubled, ambiguous, confused, full of conflicting tendencies, obscure, etc.

It is the situation that has these traits. We are doubtful because the situation is inherently doubtful. Personal states of doubt that are not evoked by and are not relative to some existential situation are pathological; when they are extreme they constitute the mania of doubting. Consequently, situations that are disturbed and troubled, confused or obscure, cannot be straightened out,
cleared up and put in order, by manipulation of our personal states of mind. The attempt to settle them by such manipulations involves what psychiatrists call “withdrawal from reality.” Such an attempt is pathological as far as it goes, and when it goes far it is the source of some form of actual insanity. The habit of disposing of the doubtful as if it belonged only to us rather than to the existential situation in which we are caught and implicated is an inheritance from subjectivistic psychology. The biological antecedent conditions of an unsettled situation are involved in that state of imbalance in organic-environmental interactions which has already been described. Restoration of integration can be effected, in one case as in the other, only by operations which actually modify existing conditions, not by merely “mental” processes.

It is, accordingly, a mistake to suppose that a situation is doubtful only in a “subjective” sense. The notion that in actual existence everything is completely determinate has been rendered questionable by the progress of physical science itself. Even if it had not been, complete determination would not hold of existences as an environment. For Nature is an environment only as it is involved in interaction with an organism, or self, or whatever name be used.

Every such interaction is a temporal process, not a momentary cross-sectional occurrence. The situation in which it occurs is indeterminate, therefore, with respect to its issue. If we call it confused, then it is meant that its outcome cannot be anticipated. It is called obscure when its course of movement permits of final consequences that cannot be clearly made out. It is called conflicting when it tends to evoke discordant responses. Even were existential conditions unqualifiedly determinate in and of themselves, they are indeterminate in significance: that is, in what they import and portend in their interaction with the organism. The organic responses that enter into the production of the state of affairs that is temporally later and sequential are just as existential as are environing conditions.


4. Except of course a purely mentalistic name, like consciousness. The alleged problem of “interactionism” versus automatism, parallelism, etc., is a problem (and an insoluble one) because of the assumption involved in its statement—the assumption, namely, that the interaction in question is with something mental instead of with biological-cultural human beings.

The immediate locus of the problem concerns, then, what kind of responses the organism shall make. It concerns the interaction of organic responses and environing conditions in their movement toward an existential issue. It is a commonplace that in any troubled state of affairs things will come out differently according to what is done. The farmer won't get grain unless he plants and tills; the general will win or lose the battle according to the way he conducts it, and so on. Neither the grain nor the tilling, neither the outcome of the battle nor the conduct of it, are “mental” events. Organic interaction becomes inquiry when existential consequences are anticipated; when environing conditions are examined with reference to their potentialities; and when responsive activities are selected and ordered with reference to actualization of some of the potentialities, rather than others, in a final existential situation. Resolution of the indeterminate situation is active and operational. If the inquiry is adequately directed, the final issue is the unified situation that has been mentioned.

II. Institution of a Problem. The unsettled or indeterminate situation might have been called a problematic situation. This name would have been, however, proleptic and anticipatory. The indeterminate situation becomes problematic in the very process of being subjected to inquiry. The indeterminate situation comes into existence from existential causes, just as does, say, the organic imbalance of hunger. There is nothing intellectual or cognitive in the existence of such situations, although they are the necessary condition of cognitive operations or inquiry. In themselves they are precognitive. The first result of evocation of inquiry is that the situation is taken, adjudged, to be problematic. To see that a situation requires inquiry is the initial step in inquiry.

Qualification of a situation as problematic does not, however, carry inquiry far. It is but an initial step in institution of a problem. A problem is not a task to be performed which a person puts upon himself or that is placed upon him by others—like a so-called arithmetical “problem” in school work. A problem
represents the partial transformation by inquiry of a problematic situation into a determinate situation. It is a familiar and significant saying that a problem well put is half-solved. To find out what the problem and problems are which a problematic situation presents to be inquired into, is to be well along in inquiry. To mis-take the problem involved is to cause subsequent inquiry to be irrelevant or to go astray. Without a problem, there is blind groping in the dark. The way in which the problem is conceived decides what specific suggestions are entertained and which are dismissed; what data are selected and which rejected; it is the criterion for relevancy and irrelevancy of hypotheses and conceptual structures. On the other hand, to set up a problem that does not grow out of an actual situation is to start on a course of dead work, nonetheless dead because the work is "busy work." Problems that are self-set are mere excuses for seeming to do something intellectual, something that has the semblance but not the substance of scientific activity.

III. The Determination of a Problem-Solution. Statement of a problematic situation in terms of a problem has no meaning save as the problem instituted has, in the very terms of its statement, reference to a possible solution. Just because a problem well stated is on its way to solution, the determining of a genuine problem is a progressive inquiry; the cases in which a problem and its probable solution flash upon an inquirer are cases where much prior ingestion and digestion have occurred. If we assume, prematurely, that the problem involved is definite and clear, subsequent inquiry proceeds on the wrong track. Hence the question arises: How is the formation of a genuine problem so controlled that further inquiries will move toward a solution?

The first step in answering this question is to recognize that no situation which is completely indeterminate can possibly be converted into a problem having definite constituents. The first step then is to search out the constituents of a given situation which, as constituents, are settled. When an alarm of fire is sounded in a crowded assembly hall, there is much that is indeterminate as regards the activities that may produce a favorable issue. One may get out safely or one may be trampled and burned. The fire is characterized, however, by some settled traits. It is, for example, located somewhere. Then the aisles and exits are at fixed places. Since they are settled or determinate in existence, the first step in

institution of a problem is to settle them in observation. There are other factors which, while they are not as temporally and spatially fixed, are yet observable constituents; for example, the behavior and movements of other members of the audience. All of these observed conditions taken together constitute "the facts of the case." They constitute the terms of the problem, because they are conditions that must be reckoned with or taken account of in any relevant solution that is proposed.

A possible relevant solution is then suggested by the determination of factual conditions which are secured by observation. The possible solution presents itself, therefore, as an idea, just as the terms of the problem (which are facts) are instituted by observation. Ideas are anticipated consequences (forecasts) of what will happen when certain operations are executed under and with respect to observed conditions. Observation of facts and suggested meanings or ideas arise and develop in correspondence with each other. The more the facts of the case come to light in consequence of being subjected to observation, the clearer and more pertinent become the conceptions of the way the problem constituted by these facts is to be dealt with. On the one hand, the clearer the idea, the more definite, as a truism, become the operations of observation and of execution that must be performed in order to resolve the situation.

An idea is first of all an anticipation of something that may happen; it marks a possibility. When it is said, as it sometimes is, that science is prediction, the anticipation that constitutes every idea is grounded in a set of controlled observations and of regulated conceptual ways of interpreting them. Because inquiry is a progressive determination of a problem and its possible solution, ideas differ in grade according to the stage of inquiry reached. At first, save in highly familiar matters, they are vague. They occur at first simply as suggestions; suggestions just spring

6. The theory of ideas that has been held in psychology and epistemology since the time of Locke's successors is completely irrelevant and obstructive in logical theory. For in treating them as copies of perceptions or "impressions," it ignores the prospective and anticipatory character that defines being an idea. Failure to define ideas functionally, in the reference they have to a solution of a problem, is one reason they have been treated as merely "mental." The notion, on the other hand, that ideas are fantasies is a derivative. Fantasies arise when the function an idea performs is ruled out when it is entertained and developed.
up, flash upon us, occur to us. They may then become stimuli to
direct an overt activity but they have as yet no logical status.
Every idea originates as a suggestion, but not every suggestion is
an idea. The suggestion becomes an idea when it is examined
with reference to its functional fitness; its capacity as a means of
resolving the given situation.

This examination takes the form of reasoning, as a result of
which we are able to appraise better than we were at the outset,
the pertinency and weight of the meaning now entertained with
respect to its functional capacity. But the final test of its posses-
sion of these properties is determined when it actually func-
tions—that is, when it is put into operation so as to institute by
means of observations facts not previously observed, and is then
used to organize them with other facts into a coherent whole.

Because suggestions and ideas are of that which is not present
in given existence, the meanings which they involve must be em-
bodyd in some symbol. Without some kind of symbol no idea is
a meaning that is completely disembodied can not be entertained
or used. Since an existence (which is an existence) is the support
and vehicle of a meaning and is a symbol instead of a merely
physical existence only in this respect, embodied meanings or
ideas are capable of objective survey and development. To "look
at an idea" is not a mere literary figure of speech.

"Suggestions" have received scant courtesy in logical theory. It
is true that when they just "pop into our heads," because of the
workings of the psycho-physical organism, they are not logical.
But they are both the conditions and the primary stuff of logical
ideas. The traditional empiristic theory reduced them, as has al-
ready been pointed out, to mental copies of physical things and
assumed that they were per se identical with ideas. Consequently
it ignored the function of ideas in directing observation and in
ascertaining relevant facts. The rationalistic school, on the other
hand, saw clearly that "facts" apart from ideas are trivial, that
they acquire import and significance only in relation to ideas.
But at the same time it failed to attend to the operative and func-
tional nature of the latter. Hence, it treated ideas as equivalent to
the ultimate structure of "Reality." The Kantian formula that
apart from each other "perceptions are blind and conceptions
empty," marks a profound logical insight. The insight, however,
was radically distorted because perceptual and conceptual con-
tents were supposed to originate from different sources and thus
required a third activity, that of synthetic understanding, to bring
them together. In logical fact, perceptual and conceptual mater-
ials are instituted in functional correlativeity with each other, in
such a manner that the former locates and describes the problem
while the latter represents a possible method of solution. Both
are determinations in and by inquiry of the original problematic
situation whose pervasive quality controls their institution and
their contents. Both are finally checked by their capacity to work
together to introduce a resolved unified situation. As distinctions
they represent logical divisions of labor.

IV. Reasoning. The necessity of developing the mean-


g-contents of ideas in their relations to one another has been inci-
dently noted. This process, operating with symbols (constitut-
ing propositions) is reasoning in the sense of ratiocination or ra-
tional discourse. When a suggested meaning is immediately
accepted, inquiry is cut short. Hence the conclusion reached is
not grounded, even if it happens to be correct. The check upon
immediate acceptance is the examination of the meaning as a
meaning. This examination consists in noting what the meaning
in question implies in relation to other meanings in the system
of which it is a member, the formulated relation constituting a
proposition. If such and such a relation of meanings is accepted,
then we are committed to such and such other relations of mean-
ings because of their membership in the same system. Through
a series of intermediate meanings, a meaning is finally reached
which is more clearly relevant to the problem in hand than the
originally suggested idea. It indicates operations which can be per-
formed to test its applicability, whereas the original idea is usually
too vague to determine crucial operations. In other words, the
idea or meaning when developed in discourse directs the activities
which, when executed, provide needed evidential material.

The point made can be most readily appreciated in connection
with scientific reasoning. An hypothesis, once suggested and en-
tertained, is developed in relation to other conceptual structures
until it receives a form in which it can instigate and direct an ex-

7. "Reasoning" is sometimes used to designate inference as well as ratiocination.
When so used in logic the tendency is to identify inference and implication and
thereby seriously to confuse logical theory.
experiment that will disclose precisely those conditions which have
the maximum possible force in determining whether the hypo-
thesis should be accepted or rejected. Or it may be that the experi-
ment will indicate what modifications are required in the hy-
pothesis so that it may be applicable, i.e., suited to interpret and
organize the facts of the case. In many familiar situations, the
meaning that is most relevant has been settled because of the
eventuations of experiments in prior cases so that it is applicable
almost immediately upon its occurrence. But, indirectly, if not di-
rectly, an idea or suggestion that is not developed in terms of the
constellation of meanings to which it belongs can lead only to
over response. Since the latter terminates inquiry, there is then
no adequate inquiry into the meaning that is used to settle the
given situation, and the conclusion is in so far logically un-
grounded.

V. The Operational Character of Facts-Meanings. It was stated
that the observed facts of the case and the ideational contents ex-
pressed in ideas are related to each other, as, respectively, a clar-
ification of the problem involved and the proposal of some pos-
sible solution; that they are, accordingly, functional divisions in
the work of inquiry. Observed facts in their office of locating and
describing the problem are existential; ideational subject-matter
is non-existental. How, then, do they cooperate with each other
in the resolution of an existential situation? The problem is in-
soluble save as it is recognized that both observed facts and en-
tertained ideas are operational. Ideas are operational in that they
instigate and direct further operations of observation; they are
proposals and plans for acting upon existing conditions to bring
new facts to light and to organize all the selected facts into a co-
herent whole.

What is meant by calling facts operational? Upon the negative
side what is meant is that they are not self-sufficient and com-
plete in themselves. They are selected and described, as we have
seen, for a purpose, namely statement of the problem involved in
such a way that its material both indicates a meaning relevant to
resolution of the difficulty and serves to test its worth and valid-
ity. In regulated inquiry facts are selected and arranged with the
express intent of fulfilling this office. They are not merely resul-
ts of operations of observation which are executed with the aid of
bodily organs and auxiliary instruments of art, but they are the
particular facts and kinds of facts that will link up with one an-
other in the definite ways that are required to produce a definite
end. Those not found to connect with others in furtherance of
this end are dropped and others are sought for. Being functional,
they are necessarily operational. Their function is to serve as evi-
dence and their evidential quality is judged on the basis of their
capacity to form an ordered whole in response to operations pre-
scribed by the ideas they occasion and support. If "the facts of
the case" were final and complete in themselves, if they did not
have a special operative force in resolution of the problematic
situation, they could not serve as evidence.

The operative force of facts is apparent when we consider that
no fact in isolation has evidential potency. Facts are evidential
and are tests of an idea in so far as they are capable of being orga-
nized with one another. The organization can be achieved only
as they interact with one another. When the problematic situa-
tion is such as to require extensive inquiries to effect its reso-
lution, a series of interactions intervenes. Some observed facts
point to an idea that stands for a possible solution. This idea
evokes more observations. Some of the newly observed facts link
up with those previously observed and are such as to rule out
other observed things with respect to their evidential function.
The new order of facts suggests a modified idea (or hypothesis)
which occasions new observations whose result again determin-
es a new order of facts, and so on until the existing order is both
unified and complete. In the course of this serial process, the
ideas that represent possible solutions are tested or "proved."

Meantime, the order of facts, which present themselves in con-
sequence of the experimental observations the ideas call out and
direct, are (trial facts). They are provisional. They are "facts" if
they are observed by sound organs and techniques. But they are
not on that account the facts of the case. They are tested or
"proved" with respect to their evidential function just as much
as ideas (hypotheses) are tested with reference to their power to
exercise the function of resolution. The operative force of both
ideas and facts is thus practically recognized in the degree in
which they are connected with experiment. Naming them "opera-
tional" is but a theoretical recognition of what is involved when
inquiry satisfies the conditions imposed by the necessity for
experiment.
I recur, in this connection, to what has been said about the necessity for symbols in inquiry. It is obvious, on the face of matters, that a possible mode of solution must be carried in symbolic form since it is a possibility, not an assured present existence. Observed facts, on the other hand, are existentially present. It might seem therefore, that symbols are not required for referring to them. But if they are not carried and treated by means of symbols, they lose their provisional character, and in losing this character they are categorically asserted and inquiry comes to an end. The carrying on of inquiry requires that the facts be taken as representative and not just as presented. This demand is met by formulating them in propositions—that is, by means of symbols. Unless they are so represented they relapse into the total qualitative situation.

VI. Common Sense and Scientific Inquiry. The discussion up to this point has proceeded in general terms which recognized no distinction between common sense and scientific inquiry. We have now reached a point where the community of pattern in these two distinctive modes of inquiry should receive explicit attention. It was said in earlier chapters that the difference between them resides in their respective subject-matters, not in their basic logical forms and relations; that the difference in subject-matters is due to the difference in the problems respectively involved; and, finally, that this difference sets up a difference in the ends or objective consequences they are concerned to achieve. Because common sense problems and inquiries have to do with the interactions into which living creatures enter in connection with envoirning conditions in order to establish objects of use and enjoyment, the symbols employed are those which have been determined in the habitual culture of a group. They form a system but the system is practical rather than intellectual. It is constituted by the traditions, occupations, techniques, interests, and established institutions of the group. The meanings that compose it are carried in the common everyday language of communication between members of the group. The meanings involved in this common language system determine what individuals of the group may and may not do in relation to physical objects and in relations to one another. They regulate what can be used and enjoyed and how use and enjoyment shall occur.

Because the symbol-meaning systems involved are connected directly with cultural life-activities and are related to each other in virtue of this connection, the specific meanings which are present have reference to the specific and limited envoirning conditions under which the group lives. Only those things of the environment that are taken, according to custom and tradition, as having connection with and bearing upon this life, enter into the meaning system. There is no such thing as disinterested intellectual concern with either physical or social matters. For, until the rise of science, there were no problems of common sense that called for such inquiry. Disinterestedness existed practically in the demand that group interests and concerns be put above private needs and interests. But there was no intellectual disinterestedness beyond the activities, interests and concerns of the group. In other words, there was no science as such, although, as was earlier pointed out, there did exist information and techniques which were available for the purposes of scientific inquiry and out of which the latter subsequently grew.

In scientific inquiry, then, meanings are related to one another on the ground of their character as meanings, freed from direct reference to the concerns of a limited group. Their intellectual abstractness is a product of this liberation, just as the “concrete” is practically identified by directness of connection with environmental interactions. Consequently a new language, a new system of symbols related together on a new basis, comes into existence, and in this new language semantic coherence, as such, is the controlling consideration. To repeat what has already been said, connection with problems of use and enjoyment is the source of the dominant role of qualities, sensible and moral, and of ends in common sense.

In science, since meanings are determined on the ground of their relation as meanings to one another, relations become the objects of inquiry and qualities are relegated to a secondary status, playing a part only as far as they assist in institution of relations. They are subordinate because they have an instrumental office, instead of being themselves, as in prescientific common sense, the matters of final importance. The enduring hold of common sense is testified to historically by the long time it took before it was seen that scientific objects are strictly relational. First tertiary qualities were eliminated; it was recognized that moral qualities are not agencies in determining the structure of nature.
Then secondary qualities, the wet-dry, hot-cold, light-heavy, which were the explanatory principles of physical phenomena in Greek science, were ejected. But so-called primary qualities took their place, as with Newton and the Lockeian formulation of Newtonian existential postulates. It was not until the threshold of our time was reached that scientific inquirers perceived that their own problems and methods required an interpretation of "primary qualities" in terms of relations, such as position, motion and temporal span. In the structure of distinctively scientific objects these relations are indifferent to qualities.

The foregoing is intended to indicate that the different objectives of common sense and of scientific inquiry demand different subject-matters and that this difference in subject-matters is not incompatible with the existence of a common pattern in both types. There are, of course, secondary logical forms which reflect the distinction of properties involved in the change from qualitative and teleological subject-matter to non-qualitative and non-teleological relations. But they occur and operate within the described community of pattern. They are explicable, and explicable only, on the ground of the distinctive problems generated by scientific subject-matter. The independence of scientific objects from limited and fairly direct reference to the environment as a factor in activities of use and enjoyment, is equivalent, as has already been intimated, to their abstract character. It is also equivalent to their general character in the sense in which the generalizations of science are different from the generalizations with which common sense is familiar. The generality of all scientific subject-matter as such means that it is freed from restriction to conditions which present themselves at particular times and places. Their reference is to any set of time and place conditions—a statement which is not to be confused with the doctrine that they have no reference to actual existential occasions. Reference to time-place of existence is necessarily involved, but it is reference to whatever set of existences fulfills the general relations laid down in and by the constitution of the scientific object.  

8. The consequences that follow are directly related to the statement in Ch. 4 that the elimination of qualities and ends is intermediate; that, in fact, the construction of purely relational objects has enormously liberated and expanded common sense uses and enjoyments by conferring control over production of qualities, by enabling new ends to be realistically instituted, and by providing competent means for achieving them.

Summary] Since a number of points have been discussed, it will be well to round up conclusions reached about them in a summary statement of the structure of the common pattern of inquiry. Inquiry is the directed or controlled transformation of an indeterminate situation into a determinately unified one. The transition is achieved by means of operations of two kinds which are in functional correspondence with each other. One kind of operations deals with ideational or conceptual subject-matter. This subject-matter stands for possible ways and ends of resolution. It anticipates a solution and is marked off from fancy because, or, in so far as, it becomes operative in instigation and direction of new observations yielding new factual material. The other kind of operations is made up of activities involving the techniques and organs of observation. Since these operations are existential they modify the prior existential situation, bring into high relief conditions previously obscure, and relegate to the background other aspects that were at the outset conspicuous. The ground and criterion of the execution of this work of emphasis, selection and arrangement is to delimit the problem in such a way that existential material may be provided with which to test the ideas that represent possible modes of solution. Symbols, defining terms and propositions, are necessarily required in order to retain and carry forward both ideational and existential subject-matters in order that they may serve their proper functions in the control of inquiry. Otherwise the problem is taken to be closed and inquiry ceases.

One fundamentally important phase of the transformation of the situation which constitutes inquiry is central in the treatment of judgment and its functions. The transformation is existential and hence temporal. The pre-cognitive unsettled situation can be settled only by modification of its constituents. Experimental operations change existing conditions. Reasoning, as such, can provide means for effecting the change of conditions but by itself cannot effect it. Only execution of existential operations directed by an idea in which ratiocination terminates can bring about the re-ordering of environing conditions required to produce a settled and unified situation. Since this principle also applies to the meanings that are elaborated in science, the experimental production and re-arrangement of physical conditions involved in natural science is further evidence of the unity of the pattern of inquiry. The temporal quality of inquiry means, then, something
quite other than that the process of inquiry takes time. It means that the objective subject-matter of inquiry undergoes temporal modification.

Terminological. Were it not that knowledge is related to inquiry as a product to the operations by which it is produced, no distinctions requiring special differentiating designations would exist. Material would merely be a matter of knowledge or of ignorance and error; that would be all that could be said. The content of any given proposition would have the values “true” and “false” as final and exclusive attributes. But if knowledge is related to inquiry as its warrantably assertible product and if inquiry is progressive and temporal, then the material concerned into reveals distinctive properties which need to be designated by distinctive names. As undergoing inquiry, the material has a different logical import from that which it has as the outcome of inquiry. In its first capacity and status, it will be called by the general name subject-matter. When it is necessary to refer to subject-matter in the context of either observation or ideation, the name content will be used, and, particularly on account of its representative character, content of propositions.

The name objects will be reserved for subject-matter so far as it has been produced and ordered in settled form by means of inquiry; proleptically, objects are the objectives of inquiry. The apparent ambiguity of using “objects” for this purpose (since the word is regularly applied to things that are observed or thought of) is only apparent. For things exist as objects for us only as they have been previously determined as outcomes of inquiries. When used in carrying on new inquiries in new problematic situations, they are known as objects in virtue of prior inquiries which warrant their assertibility. In the new situation, they are means of attaining knowledge of something else. In the strict sense, they are part of the contents of inquiry as the word content was defined above. But retrospectively (that is, as products of prior determination in inquiry) they are objects.

7. The Construction of Judgment

In terms of the ideas set forth in the last chapter, judgment may be identified as the settled outcome of inquiry. It is concerned with the concluding objects that emerge from inquiry in their status of being conclusive. Judgment in this sense is distinguished from propositions. The content of the latter is intermediate and representative and is carried by symbols; while judgment, as finally made, has direct existential import. The terms affirmation and assertion are employed in current speech interchangeably. But there is a difference, which should have linguistic recognition, between the logical status of intermediate subject-matters that are taken for use in connection with what they may lead to as means, and subject-matter which has been prepared to be final. I shall use assertion to designate the latter logical status and affirmation to name the former. Even from the standpoint of ordinary speech, assertion has a quality of insistence that is lacking in the connotation of the word “affirmation.” We can usually substitute the phrase “it is held” or “it is said” for “it is affirmed.” However, the important matter is not the words, but the logical properties that are characteristic of different subject-matters.

A literal instance of judgment in the sense defined is provided by the judgment of a court of law in settling some issue which, up to that point, has been in controversy. 1. The occurrence of a trial-at-law is equivalent to the occurrence of a problematic situation which requires settlement. There is uncertainty and dispute about what shall be done because there is conflict about the significance of what has taken place, even if there is agreement about what has taken place as a matter of fact—which, of course,

1. The word “construction” is here used to cover the operation of construction and the structure which results.
particularity. On the contrary, it is the capacity of the inferred idea to order and organize particulars into a coherent whole that is the criterion. (b) It is not held that inference by itself exhausts logical functions and determines exclusively all logical forms. On the contrary, proof, in the sense of test, is an equally important function.

Moreover, inference, even in its connection with test, is not logically final and complete. The heart of the entire theory developed in this work is that the resolution of an indeterminate situation is the end, in the sense in which "end" means end-in-view and in the sense in which it means close. Upon this view, inference is subordinate, although indispensable. It is not, as it is for example in the logic of John Stuart Mill, exhaustive and all-inclusive. It is a necessary but not a sufficient condition of warranted assertions.

9. Judgments of Practice: Evaluation

The previous chapter was devoted to enforcing the necessity of mediation in knowledge as warranted assertion. This necessity does not stand alone, for it is a necessary phase of the theory of inquiry and judgment that has been developed. It received separate development because of the traditional and still current doctrine of self-evident truths and self-grounded propositions. There is, however, another phase of our basic theory which stands equally (and possibly to a greater degree) in opposition to accepted logical theory, and which accordingly stands also in need of explicit treatment. For, contrary to current doctrine, the position here taken is that inquiry effects existential transformation and reconstruction of the material with which it deals; the result of the transformation, when it is grounded, being conversion of an indeterminate problematic situation into a determinate resolved one.

This emphasis upon requalification of antecedent existential material, and upon judgment as the resulting transformation, stands in sharp contrast with traditional theory. The latter holds that such modifications as may occur in even the best controlled inquiry are confined to states and processes of the knower—the one conducting the inquiry. They may, therefore, properly be called "subjective," mental or psychological, or by some similar name. They are without objective standing, and hence lack logical force and meaning. The position that is here taken is to the contrary effect; namely, that beliefs and mental states of the inquirer cannot be legitimately changed except as existential operations, rooted ultimately in organic activities, modify and requalify objective matter. Otherwise, "mental" changes are not only merely mental (as the traditional theory holds) but are arbitrary and on the road to fantasy and delusion.
The traditional theory in both its empiristic and rationalistic forms amounts to holding that all propositions are purely declaratory or enunciative of what antecedently exists or subsists, and that this declarative office is complete and final in itself. The position here taken holds, on the contrary, that declarative propositions, whether of facts or of conceptions (principles and laws) are intermediary means or instruments (respectively material and procedural) of effecting that controlled transformation of subject-matter which is the end-in-view (and final goal) of all declarative affirmations and negations. It is not, be it noted, the occurrence of purely declarative propositions that is denied. On the contrary, as will be shown later in detail, the existence of such propositions, setting forth relationships that obtain between factual data on one hand and between conceptual subject-matter on the other hand, is expressly affirmed. The point at issue concerns not their being but their function and interpretation.

The position may be stated in the following language: All controlled inquiry and all institution of grounded assertion necessarily contains a practical factor: an activity of doing and making which reshapes antecedent existential material which sets the problem of inquiry. That this view is not assumed ad hoc but represents what certainly occurs (or is a vera causa) in at least some cases, will be shown by considering some forms of common sense inquiry which aim at determining what is to be done in some practical predicament.

Inquiries of this type are neither exceptional nor infrequent. For the stock and staple of common sense inquiries and judgments are of this sort. The deliberations of daily life concern in largest measure questions of what to make or to do. Every art and every profession is faced with constantly recurring problems of this sort. To put their existence in doubt is equivalent to denying that any element of intelligence enters into any form of practice; to affirming that all decisions on practical matters are the arbitrary products of impulse, caprice, blind habit, or convention. Farmer, mechanic, painter, musician, writer, doctor, lawyer, merchant, captain of industry, administrator or manager, has constantly to inquire what it is better to do next. Unless the decision reached is arrived at blindly and arbitrarily it is obtained by gathering and surveying evidence appraised as to its weight and relevancy; and by framing and testing plans of action in their capacity as hypotheses: that is, as ideas.

By description, the situations which evoke deliberation resulting in decision, are themselves indeterminate with respect to what might and should be done. They require that something should be done. But what action is to be taken is just the thing in question. The problem of how the uncertain situation should be dealt with is urgent. But as merely urgent, it is so emotional as to impede and often to frustrate wise decision. The intellectual question is what sort of action the situation demands in order that it may receive a satisfactory objective reconstruction. This question can be answered only, I repeat, by operations of observation, collection of data and of inference, which are directed by ideas whose material is itself examined through operations of ideational comparison and organization.

I did not include the scientist in the list of persons who have to engage in inquiry in order to make judgments upon matters of practice. But a slight degree of reflection shows that he has to decide what researches to engage in and how to carry them on—a problem that involves the issue of what observations to undertake, what experiments to carry on, and what lines of reasoning and mathematical calculations to pursue. Moreover, he cannot settle these questions once and for all. He is continually having to judge what it is best to do next in order that his conclusion, no matter how abstract or theoretical it may be as a conclusion, shall be grounded when it is arrived at. In other words, the conduct of scientific inquiry, whether physical or mathematical, is a mode of practice; the working scientist is a practitioner above all else, and is constantly engaged in making practical judgments: decisions as to what to do and what means to employ in doing it.

The results of deliberation as to what it is better to do are, obviously, not identical with the final issue for the sake of which the deliberative inquiries are undertaken. For the final issue is some new situation in which the difficulties and troubles which elicited deliberation are done away with; in which they no longer exist. This objective end cannot be attained by conjuring with mental states. It is an end brought about only by means of existential changes. The question for deliberation is what to do in order to effect these changes. They are means to the required existential

*For Dunn, the issue of inquiry is always the outcome of the use of a tool and not of the tool itself. Dunn holds that the tool is always practical and works on a situation rather than a problem.
reconstruction; *a fortiori*, the inquiries and decisions which issue in performance of these acts are instrumental and intermediate. But what should be done depends upon the conditions that exist in the given situation and hence require a declarative or enunciatory proposition: "The actual conditions are so-and-so." These conditions are the ground of inference to a declarative proposition that such and such an act is the one best calculated to produce the desired issue under the factual conditions ascertained. Declarative propositions as to the state of facts involved set forth the obstacles and resources to be overcome and administered in reaching the intended goal. They state potentialities, positive and adverse. They function as instrumentalities. The propositions which set forth the way existing conditions should be dealt with stand in functional correlation with the enunciatory propositions which state existing conditions. The propositions as to procedure are not carriers of existential or factual materials. They are of the general form: "If such and such a course is adopted under the existing circumstances, such and such will be the probable result." Logically, the formation of these hypotheses as to methods of action involves reasoning, or a series of declarative propositions stating relationships of conceptual materials. For it is only rarely that the idea of the procedure which first suggests itself can be directly set to work. It has to be developed; this development constitutes rational discourse, which in scientific practice usually takes the form of mathematical calculation.

Preliminary to offering illustrations of what has been said, I shall summarize formally what is logically involved in every situation of deliberation and grounded decision in matters of practice. There is an existential situation such that (a) its constituents are changing so that in any case something different is going to happen in the future; and such that (b) just what will exist in the future depends in part upon introduction of other existential conditions interacting with those already existing, while (c) what new conditions are brought to bear depends upon what activities are undertaken, (d) the latter matter being influenced by the intervention of inquiry in the way of observation, inference and reasoning.

The illustration I shall employ to exemplify these four conditions is that of a person who, being ill, deliberates about the proper course to adopt in order to effect recovery. (1) Bodily changes are already going on which in any case will have *some* existential issue. (2) It is possible to introduce new conditions that will be factors in deciding the issue—the question for deliberation being whether they should be introduced and if so, which ones and how. (3) Deliberation convinces the one who is ill that he should see a physician. A proposition to this effect is equivalent to the conclusion that the consequences of the visit are calculated to introduce the interacting factors which will yield a desired issue. (4) Hence, the proposition when executed actually introduces intervening conditions which interact with antecedent existing conditions to modify their course and thus influence the issue. The latter is different from what it would have been if inquiry and judgment had not intervened—even if recovery of health is not attained.

Whenever there is genuine deliberation, there are alternatives at almost every step of the way. There is something to be said or tentatively affirmed at each step on both sides of the questions that come up. Reflection on past experience indicates that it is often well to let "nature take its course." But is the present case of that kind? The question of financial expense may enter in; that of whether a competent physician is available or what physician to consult; the question of the patient's engagements for the next few days and weeks, and the bearing of the physician's advice upon the patient's possibility of fulfilling them, etc., etc.

Such factual matters as these are examined and formulated in propositions. Each state of facts presented in a proposition suggests its own alternative course of action, and if there is genuine inquiry the suggestion has to be formulated. The formulation or proposition has then to be developed in terms of the probable consequences of adopting it. This development occurs in a series of *if-then* propositions. If the man finally decides to see such and such a doctor, the resulting proposition represents, in effect, an inference that this mode of procedure stands the better chance of introducing those factors which will yield, in their inter-action with existing conditions, a desired future existential situation: an inference that it will give to factors already in operation a direction that they would not take if left to themselves.

The contents of the propositions framed about matters of fact and about alternative courses of action (including the one adopted) are neither self-determined nor self-sufficient. They are
determined with reference to an intended future issue and hence are instrumental and intermediate. They are not valid in and of themselves, for their validity depends upon the consequences which ensue from acting upon them as far as these consequences actually ensue from the operations the propositions dictate and are not accidental accretions. Let the factual proposition be represented by "I am seriously ill." In the context indicated, the proposition is without point if taken to be final and complete. Its logical force consists in its potential connection with a future situation. The declarative proposition "I should or shall see a doctor" is similarly functional. It formulates the possible operation which, if performed, will aid in existential production of a future situation different in quality and significance from that which will exist if the indicated action is not taken. The same considerations will be found to apply to declarative propositions made by the attending physician about the facts which locate and describe the illness on the one hand, and the course of action he prescribes for dealing with the illness on the other.

This analysis, if accepted, carries with it recognition that declarative propositions (themselves the results of judgments of provisional appraisal) are factors which enter actively into the actual constitution of the existential subject-matter of the final judgment. This final subject-matter may not be that which was hoped for and intended. But in any case it is somewhat different from what it would have been if the operations, dependent upon intervening instrumental propositions, had not taken place. According to the commonly accepted interpretation of declarative propositions it is a straight contradiction that they should enter into the ultimate structure of the very situation they are "about." But the contradiction results from the theory which is accepted, not from the propositions themselves; it is a consequence of ignoring the intermediary and operational force of the propositions that are formed.

The standard account of the example discussed on the basis of traditional theory would be somewhat as follows: The propositions "I am ill" and "When one is ill, one should consult a doctor" are taken respectively as the minor and major premises of a syllogism from which the conclusion "I should see a doctor" necessarily follows. This interpretation rests upon taking advantage of an ambiguity. It may be but a linguistic rendering of a genuine judgment already made. In this case, the analysis of the text is confirmed. For then both major and minor state decisions reached in inquiry as to what the state of affairs should be in order to modify them in a given direction. Taken literally, however, the interpretation means that there was no inquiry and no judgment. It only means that the person in question, whenever he fancies he is ill has the habit of going automatically to a physician. There is no element of doubt or indeterminateness, no inquiry and no forming of propositions. There is a direct stimulus and it is responded to in accord with a previously formed habit. The alleged syllogism is but an externally imposed account of what has taken place in action in which no logical forms are involved.

This situation is of significance because it brings out by contrast the situations in which judgment does occur. A man may have a regular habit of consulting physicians because he is valetudinarian and on that account does not exercise judgment. Or he may have the tendency to go whenever his symptoms are severe and yet on this particular occasion be in doubt whether he is sufficiently ill to justify going. Then he engages in reflection. Moreover, in the concrete a man does not decide to see a doctor; he decides to see some given doctor, and he may need to investigate what physician to see. He may have reasons for thinking his financial state renders it better to take a chance about getting well, etc. The account which reduces a proposition of practice to a formal combination of a singular and a general proposition thus applies only to ex post facto linguistic analyses of either an act performed from habit without the intermediation of judgment or else of a judgment that has been completed. If deliberation and appraisals involving propositions actually intervene in reaching the decision "I shall see a physician," then a judgment of practice is a factor in the ultimate determination of the existential material which the preliminary judgments of appraisal are about.

The particular instance chosen can hardly be supposed to settle the larger question at issue. This problem is so important that I shall continue its discussion through a series of instances.

1. There are cases in which judgments of practice have to determine what to do next, "right away," in order to produce a spe-
specific existential situation as the result of the activity the judgment prescribes. One notes, for example, a motor car bearing down upon him. He may automatically swerve. In this case, there is no judgment and no proposition. But the situation may be such as to evoke deliberation. In this case, there will be observation of existing conditions (locating the problem) and formation of a plan of action to meet the emergency (solve the problem). The decisions made by an umpire in the course of a game afford an even better illustration. He has to form propositions about observed facts and about the rule that is applicable to their interpretation. Both his estimate of facts and of the rule that is applicable may be questioned, but in any case the final judgment of "Safe" or "Out" enters as a determining factor in the subsequent existential course of events. This fact shows that the action and position of, say, a runner in a baseball game are not that which is judged. The object of judgment is the total situation in which action occurs. Propositions about just what a batter or runner has done and about the rule (conception) which is applicable, are intermediate and instrumental, not final and complete.

Two instances cited illustrate what is meant by the phrase "procedural means" applied to the predicate of judgment. The subject-matter of the predicate represents an end-in-view, which is an anticipation of an existential consequence, an end in the sense of a fulfilling close and termination. The end-in-view of the man who sees an automobile approaching him is getting to a place of safety, not safety itself. The latter (or its opposite) is the end in the sense of close. Unless the anticipation or end-in-view is an idle fantasy, it takes the form of an operation to be performed. Similarly, the proposition "Out" or "Safe" in the case of the runner in the game is operational in that it decides what the runner shall then proceed to do and how the game shall go on. If the existential end in the sense of final outcome or close, were a term in a proposition, it would be taken to be already completed. Only if the end figures as a directive means to perform the action by which the actual termination is brought about is it other than self-defeating.

The predicate is not a "realistic" apprehension and enunciation of something already in existence; it is an estimate, based on realistic observation of facts as conditions of possible issues, of something to do. Likewise, the ideas of a goal for a runner in a race or of a target for an archer are obstructive not helpful unless they are translations of the final mark as an existence into means whereby—procedural means. The runner employs the thought of the goal as means of regulating his pace, etc., at different stages of his running; the archer uses the thought of the target, in connection with observations of the direction and force of wind, etc., as a guide or direction in taking aim. The difference between the two senses of end, namely, end-in-view and end as objective termination and completion, is striking proof of the fact that in inquiry the termination is not just realistically apprehended and enunciated but is stated as a way of procedure. Confusion of the two senses of "end" is the source of the notion that a judgment of practice is either purely declarative or else is so merely practical that it has no logical status.

Moral evaluation are also a case in point. The common, perhaps prevailing, assumption is that there are objects which are ends-in-themselves; that these ends are arranged in a hierarchy from the less to the more ultimate and have corresponding authority over conduct. It follows from this view that moral "judgment" consists simply in direct apprehension of an end-in-itself in its proper place in the scheme of fixed values. It is assumed that apart from this hierarchy of fixed ends, a moral agent has no alternative save to follow his desires as they come and go. According to the position here taken, ends as objective terminate or as fulfilsments function in judgment as representative of modes of operation that will resolve the doubtful situation which evokes and demands judgment. As ends-in-view they denote plans of action or purposes. The business of inquiry is to determine that mode of operation which will resolve the predicament in which the agent finds himself involved, in correspondence with the observations which determine just what the facts of the predicament are.

The notion that a moral judgment merely apprehends and enunciates some predetermined end-in-itself is, in fact, but a way of denying the need for and existence of genuine moral judgments. For according to this notion there is no situation which is problematic. There is only a person who is in a state of subjective moral uncertainty or ignorance. His business, in that case, is not...
to judge the objective situation in order to determine what course of action is required in order that it may be transformed into one that is morally satisfactory and right, but simply to come into intellectual possession of a predetermined end-in-itself. Goods previously experienced assuredly are material means of reaching a judgment as to what to do. But they are means, not fixed ends. They are material to be surveyed and evaluated in reference to the kind of action needed in the existing situation.

The position which holds that moral judgment is concerned with an objective unsettled situation and that ends-in-view are framed in and by judgment as methods of resolving operations is consistent with the fact that, because of recurrence of similar situations, generic ends-in-view, as ways of acting, are built up and have a certain prima facie claim to recognition in new situations. But these standardized "prepared" propositions are not final; though highly valuable means, they are still means for examining the existing situation and appraising what mode of action it demands. The question of their applicability in the new situation, their relevancy and weight with respect to it, and the weight with respect to it, may and often does lead to their being re-appraised and re-framed.

Interrogative Propositions. Whether questions are propositions in any logical sense is not a matter often discussed. Logicians who do raise the problem usually take the position that they are not genuine propositions. Upon the position here taken, all propositions as distinct from judgment have an interrogative aspect. Since they are provisional, they are not only subject to being questioned but they themselves raise questions of pertinency, weight and applicability. When either facts or concepts are taken to be completely assured (whether because of earlier successful use or for any other reason), direct action, not judgment, ensues. It is a matter of great practical convenience that many facts and ideas may be so taken and directly used. But conversion of this practical value into assured logical status is one of the commonest ways of establishing the dogmatism which is the great enemy of free and continued inquiry.

Bosanquet is one of the comparatively few writers who has dealt expressly with the logical status of interrogations. He says they are only tentative and that "a tentative judgment lacks the differentia of judgment. It does not assert; it does not claim truth; a question as such cannot be an object of thought as such....it is not an attitude which the intellect can maintain within itself....It is a demand for information; its essence is to be directed to a moral agent in which it may produce action."

The passage quoted involves a point previously discussed, namely, the double character of judgment as provisional appraisal or estimate and as conclusive or final. What Bosanquet said evidently applies to judgment in its latter capacity. In ruling out from the meaning of judgment all preliminary estimates and evaluations concerning the force and relevancy of facts and ideas, his view leads to the conclusion he draws; namely, that inquiry is not a form of judgment and therefore as such is not logical in status. This position is of crucial significance in its far-reaching implications.

It is surely not unscientific to regard the actual work of science as one of inquiry. A position which rules science out of the field and scope of logic, save as a body of propositions that are accepted independently of the methods of inquiry by which they are reached, is with equal certainty not one to be lightly accepted. Ordinary language uses the expression "the matter in question" as a synonym for the subject-matter with which inquiry is occupied. From the standpoint of both science and common sense, it would seem more correct to say that a question (in the sense of a questionable and questioned subject-matter) is the object of "thought," than to say, with Mr. Bosanquet, that "a question cannot be the object of thought."

That a question is a demand for action on someone's part is a statement which, taken in isolation, is in full agreement with the position of this work. Judgment as appraisal may enter even into the formation of questions addressed to another person, since just the question which should be asked is far from being a self-evident matter. Nevertheless, the statement that a question by its nature is something addressed to another person, ignores the basic fact that questions are addressed to existential subject-matter. A scientific inquiry may be regarded as a request "for information." But the needed information is not handed out ready-made by nature. It requires judgment to decide what questions.

should be asked of nature, since it is an affair of formulating the best methods of observation, experimentation and conceptual interpretation.

The last statement brings our discussion face to face with the problem concerning the relation of inquiry to judgments of practice. For determination of what questions to ask and how to ask them is an affair of judging what should be done in order to secure the material, factual and conceptual, which is necessary and sufficient to resolve an unsettled situation. One has only to bring to mind the procedure of a lawyer or a physician in any given case, to see how fundamentally his problem is one of framing right questions—the criterion of "rightness" being capacity to bring out the material which is relevant and effective in settling the situation that evokes inquiry.

(4) Deliberation is involved in all the instances considered. But one aspect of deliberation, in its emphatic sense, is so important that it is advisable to treat the topic in a separate heading. Genuine deliberation proceeds by institution and examination of alternative courses of activity and consideration of their respective consequences. This fact throws light upon the functional nature of disjunctive and hypothetical propositions. Taxonomic systems, such as are exemplified in botany and zoology, are large scale examples of disjunctive propositions. They were once regarded as marking the final goal of science—a view that followed consistently from the classic conception of fixed species. They are now treated as useful means for the conduct of inquiry and of value only in this function; for any given taxonomic system is treated as flexible and subject to constant revision. But unfortunately, logical texts are given to treating disjunctive propositions as a separate theme. Consequently they employ, as illustrative material, disjunctions established by prior inquiry without reference to the inquiries by which they are established and without reference to those in which they further operate; while in the actual work of science taxonomic disjunctions are so regularly treated as purely instrumental devices as to lose all independent standing. It would hardly be an exaggeration to say that emphatic regard for taxonomy exposes a given scientific worker to something approaching contempt on the part of scientific workers in more advanced fields.

Disjunctive propositions are connected with practical judg-

ment, for deliberation upon matters of policy requires (a) that alternative possibilities be instituted and explored, and (b) that they be such as to be readily comparable with one another. For example, a man who has come into possession of a large sum of money proceeds to deliberate as to what he shall do with it. His deliberation gets nowhere unless it takes the form of setting up alternative possible uses for the funds at command. Shall it be placed in a savings bank to draw interest? Invested in stocks, in bonds, in real estate? Or shall it be used for purposes of travel, or to buy books, apparatus, etc.? The problematical situation is made relatively determinate by analysis into alternatives, each of which is represented in a disjunctive proposition as a member of a system.

In the example given it is clear that each proposition is formed as a means of determining what to do, and that the resulting determination is a means of bringing into existence a certain eventual situation. Experts in special fields soon establish a set of alternatives. For new cases these alternatives are prepared materials, just as an artisan has at hand a set of tools relevant to his line of activity. In such cases, judgment goes rather to the question which one of the disjunctive set to employ rather than to formation of disjunctive propositions. But, nevertheless, the latter remain instruments. Hypostatization of instruments into something final and complete places a restriction on further inquiry. For it subjects the conclusion to be reached to a preconception which is assumed to be beyond question and examination.

The relation of hypothetical to disjunctive propositions needs only to be suggested at this point. The meaning of each alternative mode of action is constructed in terms of the consequences which acting upon it will produce. The development of this meaning takes place through reasoning in the form "If such an alternative be adopted, then such and such and such consequences may be expected to follow." The derived consequences, compared with the consequences of other hypothetical propositions, provide the ground for tentative acceptance or rejection. In actual practice, the development of if-then propositions of this sort is often not carried far. But from the standpoint of warranted final judgment as to what should be done, disjunctives should be exhaustively and development of each disjunctive member of the system, as a hypothesis, should be thorough.
Evaluation. A standing ambiguity in the word value, both as verb and noun, has frequently been pointed out. In one of its meanings "to value" is to enjoy and the resulting enjoyment is figuratively called value. There is neither reflection nor inquiry in these cases of enjoyment as far as they occur spontaneously. The fact of an enjoyment may, however, be recorded and communicated linguistically. The resulting linguistic expression will have the outward form of a proposition. But unless a question has arisen it is a social communication rather than a proposition, unless the communication is made to provide a datum in resolving a new situation. If, however, the question is raised whether the subject-matter is worthy of being directly enjoyed; if, that is, the question is raised as to the existence of adequate grounds for the enjoyment, then there is a problematic situation involving inquiry and judgment. On such occasions to value means to weigh, appraise, estimate: to evaluate a distinctly intellectual operation. Reasons and grounds one way and the other have to be sought for and formulated.

That such situations arise regarding persons once loved and admired, regarding objects upon which esteem (as distinct from estimation) was once lavished, is as indisputable as it is significant for the point at issue. For their occurrence shows that we evaluate only when a value, in the sense of material enjoyed, has become problematic. The propositions in this case are of a very different logical order from verbally sentences which only record and communicate the fact that a certain enjoyment, admiration or esteem has actually taken place. The latter "propositions" indeed record an occurrence, but if they have any logical status it is when they are material of an investigation conducted to reach a decision whether they were justified when they were enjoyed, or are justifiable in the present situation. Should we now commit ourselves to such an attitude? If we do, may we not regret it later?

Such questions arise in a wide range and variety of cases, from cases of eating a food which one knows from past experience will be immediately enjoyed, to serious moral predicaments. The only way of answering the questions, of resolving the doubts that have arisen, is to review the existential consequences which will probably occur if esteem, admiration, enjoyment are engaged in. For attitudes, esteem, etc., are active attitudes; they are ways of acting which produce consequences, and consequences can be groundedly anticipated only as consequences of conditions that are operative. The fact of enjoyment is only one of the operative conditions. It produces consequences—as in the act of eating the immediately enjoyed food—only through interaction with other existential conditions. The latter must, therefore, be independently surveyed. There is no way to estimate their probable consequences save in terms of what has happened in similar cases in the past, either one's personal past or in the recorded experience of others. On their bare face, existing conditions do not tell what their consequences will be. We have to investigate connections—usually that of cause-effect. Connections are then formulated in abstract generalized conceptual propositions, in rules, principles, laws. But the question of the applicability of the rules and principles at hand (however tested they have been) to the special situation in question always enters in. Choice has to be made among them. Consequently, in order to obtain a grounded final judgment there also has to be evaluation or appraisal of principles.

An evaluative proposition is not, then, merely declarative with respect either to facts or to conceptual subject-matter. The facts may be undoubted; I certainly have enjoyed this object in the past; I will get immediate enjoyment from it now. Certain general principles may be accepted as standards. But neither the facts nor the standardized rules as they present themselves are necessarily decisive in the evaluation being made. They are, respectively, material and procedural means. Their relevancy and weight in the present situation is the matter to be determined by inquiry before an evaluative appraisal can be grounded.

Such evaluative judgments are clearly an instance of judgments of practice; or, more strictly, all judgments of practice are evaluations, being occupied with judging what to do on the basis of estimated consequences of conditions which, since they are existential, are going to operate in any case. The more it is emphasized that direct enjoyment, liking, admiration, etc., are themselves emotional-motor in nature, the clearer is it that they are modes of action (of interaction). Hence a decision whether to engage or indulge in them in a given situation is a judgment of practice—of what should be done.

A point still more important for logical theory is that these
evaluative judgments (as was brought out in the earlier discussion of judgment) enter into the formation of all final judgments. There is no inquiry that does not involve judgments of practice. The scientific worker has continually to appraise the information he gathers from his own observations and from the findings of others; he has to appraise its bearing upon what problems to undertake and what activities of observation, experimentation and calculation to carry out. While he “knows,” in the sense of understanding, systems of conceptual materials, including laws, he has to estimate their relevancy and force as conditions of the particular inquiry undertaken. Probably the greatest source of the relative futility—or at least infertility—of that part of many logical texts which deal with scientific method, is failure to relate the material which they expound to the operations by which they are reached and the further operations they suggest, indicate and serve to direct.

(6) Appreciation. The fact has been emphasized that a judgment of value is not identical with a statement that such and such a person arouses admiration and liking or that such and such an event or object was or is enjoyed. Such “propositions” have the property of truth only in a moral sense; that is, in opposition to being deliberate lies. Such propositions may, however, become constituents of a judgment of value, or an evaluation. They take on this status when they are employed as material means of determining whether a given person or action should be admired or a given object enjoyed. When the statement “I like this picture” is changed into the proposition “This picture is beautiful,” the issue shifts to the picture as object. To be valid, the latter proposition must be grounded upon discernible and verifiable qualities of the picture as an object. It depends, on one hand, upon discrimination of observable qualities and, on the other, upon the conceptual meanings which constitute, when they are made explicit, the definition of beauty. These statements are so far from being inconsistent with the existence of immediate non-judgmental esthetic experience that esthetic judgment must, to be genuine, grow out of the latter. But the immediate experience is not expressed in the statement “I like it.” Its natural expression is rather the attitude of the observer or an interjection.

The last remarks bear upon the topic of appreciation. It is not bare enjoyment but enjoyment as consummation of previous processes and responses that constitutes appreciation. These previous states and operations involve reflective observation that partakes of the nature of analysis and synthesis, of discrimination and integration of relations. Appreciation, if genuine, is toward a subject-matter that is representative. It is not representative of something outside the appreciated object. The object in question is representative of that which has led up to it as fulfillment or consummatory close. Appreciation thus differs in a fundamental way from casual enjoyments that are just hit upon or let drop.

Words such as climax, peak, culmination, refer to consummatory objects. Any object or event that can be called by such names has an intrinsic reference to what went before. The words indicate that what preceded did not merely occur before the time of the peak but that they were such as to have the climacteric outcome as their own issue. Wherever there is appreciation there is the heightened quality produced by intrinsic connection of the object appreciated with its causal conditions. Its opposite is not dis-like or dis-enjoyment but de-appreciation—disparagement of a result or product in its connection with the conditions and efforts of which it is the fruit. A man may take a drink of water almost automatically to quench thirst. If he is journeying in a barren land and forms an estimate of where he may find water and upon going to the spot quenches his thirst, he has a heightened quality of experience. Water is appreciated as he does not appreciate it when all he has to do is to turn a faucet and hold a tumbler under the stream that flows out. His experience has the representative quality of being an eventuation, a consummation.

There is, accordingly, an element of evaluation involved in appreciation. For such objects are not ends in the sense of being merely termini, but in the sense of being fulfiliements: satisfactions in the literal sense in which that word means “making suf-ficient” something de-ficient. Consequently, judgments of appreciation are found wherever subject-matter undergoes such development and reconstruction as to result in a satisfying complete whole. Consider the following quotation as an illustration of this point: “Classical thermo-dynamics forms a self-consistent and very elegant theory, and one might be inclined to think that no modification of it would be possible which did not introduce arbitrary features and completely spoil its beauty. This is not so since quantum mechanics has now reached a form in which it can be

* appreciation is a function of temporal process
based on general laws, and is, although not yet quite complete, even more elegant and pleasing than the classic theory in the problems with which it deals.\footnote{2}

The words \textit{beauty}, \textit{elegance}, show clearly that here is a case of appreciation. Even slight analysis of the passage shows that the theory is elegant and has beauty because its subject-matter presents a consummated harmonious ordering of diverse facts and conceptions. Intellectual activity, science, has its phases of appreciation as truly as have the fine arts. They arise whenever inquiry has reached a close that fulfills the activities and conditions which led up to it. Without these phases, sometimes intense, no inquirer would have the experiential sign that his inquiry had reached its close.

Judgments of appreciation are not confined, however, to the final close. Every complex inquiry is marked by a series of stages that are \textit{relative} completions. For complex inquiries involve a constellation of sub-problems, and the solution of each of them is a resolution of some tension. Each such solution is a heightening of subject-matter, in direct ratio to the number and variety of discrepant and conflicting conditions that are brought to unification. The occurrence of these judgments of completion, not different in kind from those ordinarily called \textit{esthetic}, constitutes a series of landmarks in the progress of any undertaking. They are signs of the achieved coherence of factual material and the consistency of conceptual material. They are indeed so important in their function of being clues and giving direction that the sense of harmony which attends them is too readily taken as evidence of \textit{truth} of the subject-matter involved. This error is due to isolating the feeling of harmony and congruity from the operations by which discrepant material is brought into harmonious union. The immediate experience of congruity, which is a valuable guide \textit{in conduct of inquiry}, is converted into a criterion of \textit{objective truth}.

This hypostatization has affected the three most generalized forms of appreciation and produced the concepts of the \textit{Good}, the \textit{True} and the \textit{Beautiful} as ontological absolutes. The actual basis of these absolutes is appreciation of concrete consummatory ends. In the case of intellectual, esthetic and moral experiences, the objective completion of certain unsettled existential conditions is brought about with such integrity that the final situation is possessed of peculiar excellence. There is the judgment “This is true, beautiful, good” in an emphatic sense. Generalizations are finally framed on the ground of a number of such concrete realizations. \textit{Being} true, beautiful, or good, is recognized as a common character of subject-matters in spite of great differences in their actual constituents. They have, however, no meaning save as they indicate that certain subject-matters are outstanding consummatory completions of certain types of previously indeterminate situations by means of the execution of appropriate operations. Good, true, beautiful, are, in other words, abstract nouns designating characters which belong to three kinds of actually attained ends in their consummatory capacity.

Classic theory transformed ends attained into \textit{ends-in-themselves}. It did so by ignoring the concrete conditions and operations by means of which the fulfillments in question are brought about. The traits which marked subject-matters in virtue of their being successful resolutions of problems of intellectual inquiry, of artistic construction and of moral conduct, were isolated from the conditions which gave them their standing and significance. Being thus isolated, they were necessarily hypostatized. In isolation from the means by which consequences are reached, they were taken to be the external ideals and standards of the very operations of inquiry, artistic creation and moral endeavor, of which in fact they are generalized results. This hypostatization always happens when concrete ends in their terminal nature are erected into \textit{ends-in-themselves}.

The generalized and abstract conceptions of \textit{truth}, \textit{beauty} and \textit{goodness} have a genuine value for inquiry, creation and conduct. They have, like all genuine ideals, a limiting and directive force. But in order to exercise their genuine function they must be taken as reminders of the concrete conditions and operations that have to be satisfied in actual cases. In serving as such generalized instruments, their meaning is exemplified in their further use, while it is also clarified and modified in this use. The \textit{abstract meaning of truth}, of \textit{being} true, for example, has changed with development of the methods of experimental inquiry.
In conclusion, the paradox that seems to attend the conception of judgments of practice which has been presented, will be recurred to. Irrespective of the question of paradox, there are but two alternatives regarding the intellectual status of deliberation: Either the intermediate and tentative propositions formed during the course of deliberation must be admitted to exercise a determining influence upon the very subject-matter they are about, or else all intellectual standing and bearing must be denied to them. The apparent paradox enters if the first interpretation is adopted. The idea is paradoxical, moreover, only from the standpoint of a prior conception of the nature of propositions: viz., that they are purely declaratory and are final and complete in this declaratory capacity. The problem takes on a very different aspect if it be admitted, even as a hypothesis, that what they declare is the need and advisability of performing certain operations as means of attaining a final subject-matter which may be groundedly asserted. For upon this basis, the idea that propositions are factors in determining the very subject-matter they are about is exactly what is to be expected instead of being paradoxical.

The issue will perhaps be clarified if we note in this connection that a certain ambiguity is attached to the word "about." On the one hand, a proposition is said to be about something which does not appear as a term in the proposition. On the other, it is said to be about one of the terms of the proposition, usually about that term which is the grammatical subject of the sentence which expresses the affirmation or denial in question. For example, a man inquires into the subject-matter which relates to some perplexing question of foreign relations—his inquiry as a whole is about the perplexing situation. In the course of the inquiry, he makes propositions about states of fact and about rules of international law; the facts and rules are explicit constituents of the propositions. But these propositions are about (or refer to) subject-matters which are not a constituent of any of the propositions. Their point and force lies in that which they are about, the situation they serve to determine, and a situation that does not appear as a term in any proposition.

The net conclusion is that evaluations as judgments of practice are not a particular kind of judgment in the sense that they can be put over against other kinds, but are an inherent phase of judgment itself. In some cases, the immediate problem may so directly concern appraisal of existences in their capacity as means, positive-negative (resources and obstacles), and so directly concern appraisal of the relative importance of possible consequences that offer themselves as ends-in-view, that the evaluative aspect is the dominant one. In that case, there are judgments which in a relative sense may be called valuations in distinction from the subject-matter of other judgments where this aspect is subordinate. But since selection of existences to serve as subject-data and of ideas to serve as predicate-possibilities (or ends in view) is necessarily involved in every judgment, the valuation operation is inherent in judgment as such. The more problematic the situation and the more thorough the inquiry that has to be engaged in, the more explicit becomes the valutational phase. The identity of valutational judgment with judgments of practice is implicitly recognized in scientific inquiry in the necessity of experiment for determination of data and for the use of ideas and conceptions—including principles and laws—as directive hypotheses. In substance, the present chapter is then a plea that logical theory be made to conform with the realities of scientific practice, since in the latter there are no grounded determinations without operations of doing and making.