Although the preceding discussions have been concerned with "the limits of reason," I have not attempted to state what was common to the various positions I have examined, some of which were in complete and obvious opposition to one another. In fact, their presuppositions were so different that one might doubt there could have been any widely shared assumption, or common denominator, among them. Even if this had been so, and each had limited the scope of the human intellect in a wholly different way, the effect might have been cumulative, with each having given an added reason for challenging the intellectual powers of man. However, the sources of their criticisms were by no means so disparate as they initially seem.

While I should not wish to claim that there was any single assumption common to all of the nineteenth-century critics of the intellectual powers of man, I do find a characteristic which was very widespread in the thought of those with whom we have been concerned, and this particular feature tends to distinguish them from others, such as Locke and Hume and Kant, who had also set limits to the scope and powers of human reason. This feature is to be found in a distrust of the conceptual aspect of thought, a doubt that the concepts we employ in the sciences and in the practical affairs of everyday life are really adequate to the tasks which we ordinarily assume they perform. To be sure, none of the positions with which we have dealt denied that the conceptual element in empirical thought can be of use, in one way or another. The value attached to such uses varied, as we have seen, but all of those with whom we have been concerned agreed with respect to one point: our empirical concepts do not adequately delinate the characteristic features of what it is that we take them as representing. For example, our ordinary ways of conceptualizing experience were taken by some to be poor imitations of those species of knowledge which were genuine and concrete; they were regarded by others as ways in which, due to our limitations, we symbolize relationships which we cannot concretely apprehend; they were also interpreted as representing an order which we are led by our own needs to impose upon that which we experience. In none
of these cases was conceptual knowledge claimed to be adequate, even by those who regarded it as the only knowledge we have.

We have seen the various arguments and motives which led a highly diverse group of thinkers to reach the foregoing conclusions, but I now wish to focus attention on a very specific point which helps to explain the fact that, in spite of their differences, they did reach this common negative conclusion. There was, I believe, a widely shared, but erroneous, philosophic assumption which made these attacks on the adequacy of our empirical concepts seem plausible, or even obviously true. In the Romantic movement in the late eighteenth and nineteenth centuries, and subsequently in other movements as well, it was assumed that genuine knowledge necessarily involves some form of immediate apprehension, in which what we know must be both directly present and grasped in concrete detail. On this view, if one is to know anything with which one is not presently in immediate contact, it must originally have been immediately known and must now be "re-presented," that is, brought back again, in its immediacy, in all of its concreteness. If one accepts this assumption, any knowledge which merely represents an object, without re-presenting it, is never adequate: it merely stands for, or symbolizes, that which we seek to know.

It is to a critical examination of this assumption, which was common to those whose views I have discussed, that I now wish to turn.

1. IN DEFENSE OF ABSTRACTIONS

I should not wish it supposed that I am ready to defend all abstractions, nor that I have sympathy with all cases in which abstractions have been used as counters in the processes of thought. The following defense of abstractions will be limited in scope. Essentially, it consists of two theses which, although independent, help reinforce one another. First, I shall point out that it is mistaken to suppose that the elementary data of direct experience include only what is concrete and particular, and not elements which are general in character, covering a range of instances. Then, I shall argue that when we deal with some of the qualities and relationships of objects or events in abstraction from others, we are not necessarily distorting the actual nature of that which we are seeking to understand.1 If these two theses are accepted, the critiques of reason which have been examined will have lost much of their force.

Whether we take investigations of animal or of human discriminations as our point of departure, it is evident that, in many cases, what is immediately apprehended in direct sense experience are not the specific simple qualities which Locke, Berkeley, and Hume had regarded as the ultimate building blocks of knowledge. In the light of twentieth-century psychology, atomistic sensation-alism must be abandoned, and whatever can be said to be "given" must be taken to have some degree of complexity, if it is to allow for the relational determination which is evident in all—or, to be cautious, in almost all—per-ceptual processes.2 For example, we must now say that what is "given" in visual experience includes figure-ground relationships, and also includes contrasts of
brightness and color; it includes patternings and groupings, and the texture of surfaces, as well as a host of other features for which the theories of Locke, Berkeley, and Hume had no adequate place. Nor is vision unique among the sense-modalities in this respect: in all cases, what is given cannot be reduced to simple ideas (or to what Hume termed simple impressions), atomistically conceived. It is precisely at this point, when we examine what must be regarded as directly given, and not inferred, that we discover how deceptive it is to contrast the immediacy of perception with the "abstractness" of concepts.

To illustrate this fact, let us consider characteristics of shape. It must surely be acknowledged that all animals, including men, discriminate some configural patterns from others without benefit of prior training; in fact, much subsequent learning is dependent upon a native ability to do so. However, in the apprehension of a pattern, what is very frequently discriminated is not that pattern in its specificity, but a configuration of a particular type, that is, one which covers a range of instances. Thus, for example, we discriminate horizontal patterns from vertical ones, or triangles from squares, or S-curves from circles, but what we notice in these discriminations is not necessarily that which is unique and distinctive in a particular instance, but what is characteristic of patterns of that type. In other words, perceptual experience does not necessarily consist of the awareness of a specific determinate quality, but is often the awareness of what W. E. Johnson designated as "a determinable": that is to say, we are aware not of this triangular shape, but of the triangularity of this shape. Similarly, in the case of colors, we are often aware of something as being red, while not noticing the precise shade of its redness. Furthermore, we may have a more accurate impression of the relations between two qualities than we possess of the specific natures of these qualities themselves. For example, we may clearly perceive the difference in two shades of gray without being able to identify either shade when it is again presented. Such a direct and primitive apprehension of relationships, rather than an apprehension of the specific nature of presented qualia, may also be exemplified in sense-modalities other than vision, as is obvious when one considers our judgments of heavier-than, or louder-than, or the like.

All of these facts make it difficult to hold that, in sense experience, the given must be assumed to include only what is concrete and specific, and not traits which are general and apply to a wide range of instances. However, for those who may be unconvinced by appeals to psychological theory in questions which concern epistemological issues, a brief consideration of Berkeley's attack on abstract general ideas may prove useful.

In Section XII of the Introduction to his Principles of Human Knowledge, we find Berkeley offering the following account of how we arrive at general ideas:

An idea, which considered in itself is particular, becomes general by being made to represent or stand for all other particular ideas of the same sort.

The italics, we may note, are those of Berkeley; nonetheless, he did not specify what he meant by the phrase "of the same sort." Furthermore, he did not
comment on what is involved when we recognize that two particular ideas are of the same sort. To be sure, in the preceding paragraph he had said:

A word becomes general by being made the sign, not of an abstract general idea, but of several particular ideas, any one of which it indifferently suggests to the mind.

Although the qualifying adverb "indifferently" plays a crucial role in this sentence, its meaning is not wholly clear. While Berkeley might be taken to have meant that a word becomes general when it suggests any of a number of particular ideas to the mind, this interpretation is implausible, since a word may suggest a variety of utterly different ideas to the mind on different occasions. For example, in different contexts, "fire" may suggest ideas related to mortar-fire, or to a fire in a fireplace, or it may suggest "Run!". Rather than accept this implausible interpretation, the term "indifferently" must be taken to mean that a word becomes general if it does not matter which of several particulars its use suggests to the mind. If we then ask under what conditions this actually is a matter of indifference, the answer must be that it is indifferent only when the particular ideas are "of the same sort": that is, when they resemble one another in precisely that respect which the word is taken to signify. Thus, even though Berkeley avoided acknowledging the fact, his account of general ideas actually presupposed that we can and do recognize features which two or more particulars have in common. This involves acknowledging that general characteristics, such as "triangularity," and not merely specific particulars, such as "this figure" are immediately present and recognized in perceptual situations.

The significance of this conclusion is limited: it does not suggest that the resemblances and differences of which we take note in immediate experience provide the basis for all of the conceptual elements of which we make use in either the sciences or everyday life. It might therefore be argued that many of the latter do not reflect autochthonous elements within that which is experienced, but are determined by our needs, interests, biases, and socially acquired habits of mind. Nevertheless, although our conclusion is limited, it is not for that reason unimportant. The thesis that I have attempted to establish is that, even in those cases in which we may be said to have "knowledge-by-acquaintance," our experience is not confined to the specific and particular: general characteristics, or determinables, which are features common to a whole range of objects, are significant elements within direct experience, and are not addenda to it. Thus, although concepts are general, they need not for that reason be contrasted with that which is immediately given. Among them, some refer to characteristics which, although general, are as directly present to us as are any of the specific qualia in and through which we are aware of them.

To be sure, some critics of conceptual thought might acknowledge this fact and yet say that if we are to claim that we actually grasp the nature of a concrete individual thing, we must grasp it in its particularity and uniqueness: in so far as we describe it through the use of features which it has in common with a variety of other things, we are not really aware of its precise nature.
This conviction, rather than any theory of the actual origin of concepts, was undoubtedly what led Nietzsche to say that "every concept originates through equating what is unequal." In a similar vein, Bergson contended that

The concept can symbolize a particular property only by making it common to an infinity of things. Therefore it always more or less distorts this property by the extension it gives to it.\(^5\)

Shortly thereafter, in a related passage, he said:

An empiricism worthy of the name, an empiricism which works only according to measure, sees itself obliged to make an absolutely new effort for each new object it studies. It cuts for the object a concept appropriate to the object alone, a concept one can barely say is still a concept, since it applies only to that one thing.\(^6\)

If this view were to be accepted, conceptual thought could never adequately grasp concrete existents; and this conclusion was, of course, precisely the one that Nietzsche and Bergson, among others, sought to maintain. However, if one asks how it might be shown that conceptual thought necessarily distorts the nature of that which exists, the answer is obvious: we must possess another means of knowing objects in their full, concrete actuality. Both Nietzsche and Bergson believed that we do possess such means.

It is not part of my present purpose to criticize their views regarding the sources of the knowledge upon which they felt it necessary to rely: to do so would lead us far afield, since Nietzsche and Bergson were not in agreement with respect to the nature of this knowledge, and if we were to consider the views of Schopenhauer, or of Maine de Biran, further difficulties would arise. However, there was one assumption which was common to their views, and was also characteristic of Hegel and Kierkegaard: each held that whatever is ultimately real cannot be decomposed into a multiplicity of independently variable aspects or parts.\(^7\) From this conviction each drew the inference that reality cannot be grasped through concepts, since any concept refers to only one of the many aspects of any existing object. Conceptual thought must therefore proceed in piecemeal fashion, considering first one and then another of the various aspects or relationships of those objects with which it seeks to deal. But this, it is claimed, is precisely what destroys the unity of that which is real.

It must immediately be pointed out that this inference is fallacious. The unity of objects, or the interpenetration of their parts, does not entail that knowledge of such objects will necessarily be inadequate if acquired through first considering one aspect of the object and then another, tracing each of the interrelationships of these aspects as they exist in the whole. The assumption that such knowledge is necessarily inadequate rests on a confusion in which it is supposed that whatever is true of an object must also be true of our knowledge concerning that object.

It is not difficult to show this supposition to be mistaken: if it were accepted it would lead to ludicrous conclusions. For example, I may know that an
object weighs two pounds, but my knowledge weighs nothing at all. Similarly, I may know that I am now at home, sitting at my desk, and that yesterday I was in New York; however, to know this is not itself a matter of either sitting or traveling. Or, if these illustrations should be rejected as frivolous, one need merely point out that, when we come to know that some specific event occurred in the past, the date and the location at which that occurrence took place are different from the date and place at which we have acquired our knowledge concerning it. Once we draw this necessary distinction between characteristics pertaining to our knowledge and the characteristics of that which we know, the inference drawn by Bergson and others can be seen to be illegitimate: it does not follow from the fact that an object may not be made up of independently variable aspects or parts, that our knowledge of such an object cannot be made up of a series of independently known propositions referring to these aspects or parts.

In order to illustrate the contrast between the characteristics of knowledge and the features of that to which knowledge refers, let us briefly consider how it is that we gain knowledge of any object which has a high degree of internal relatedness among its parts—for example, a complex living thing. We may agree that if we were to attempt to decompose any complex organism by breaking it up into separate parts, we should have destroyed it. Furthermore, we may fully recognize that the attempt to alter some one of its parts would involve altering the characteristics possessed by many, or all, of its other parts. Nevertheless, our knowledge of its nature does not constitute the same sort of unitary whole. This may be suggested in at least two different ways. First, our knowledge concerning how organisms function, and how various of their parts are interrelated, has increased bit by bit, by a process of accretion, as biology, biochemistry, and biophysics have advanced. These advances have, in many cases, established the existence of previously unsuspected interrelationships among the parts of organisms: one case in point might be the growth of our knowledge of the regulatory functions of the endocrine glands. The demonstration of such interrelationships should be welcomed by those who insist on the unity of the organism as a whole. Yet the fact that these results have been achieved in a step-by-step fashion illustrates the difference between the characteristics of our knowledge and the characteristics of those objects and events which we seek to know: the growth of knowledge proceeds piecemeal, and will doubtless always remain incomplete, but that which we seek to know does not change its characteristics as our knowledge of it continues to grow.

A second way in which it may be shown that we must distinguish between the characteristics of our knowledge and the characteristics of that to which our knowledge refers lies in the fact that, even when we are dealing with objects such as organisms which have a high degree of internality of relationship among their parts, it is not only legitimate but necessary to consider their various features individually, in abstraction from one another, rather than to attempt to understand the object in all of its concreteness, as a single individual whole. This may be illustrated by the fact that, if we are to establish some specific inter-
relationship between, say, the functioning of heart and lungs, we must examine their functioning in a variety of different cases, in abstraction from whatever other differences may be present in these cases. For example, we must show that regardless of differences in skin color, or body weight, or differences between male and female—and, indeed, regardless of whether the subject is a human or non-human primate—the ways in which heart and lungs function are mutually dependent. This signifies that, in order to establish this close mutual dependence between two organs, we must consider these organs in abstraction from many of the other characteristics of the organism. In fact, if one were to reject all attempts at abstraction, regarding such abstractions as necessarily involving distortions of what actually exists, one could not establish the correct belief that the parts of many wholes do interact in specific ways, and one would have no basis for saying that their functioning as wholes depends upon a specific set of complex interactions among their parts.

The distinction which is to be drawn between the unity which may characterize any object and the ways in which we discover this unity might be illustrated in a host of other ways, but I shall select only one. I shall choose an example from perception. It is a fact that there are many cases in which some of the discriminable features of a perceived object affect one another, and yet we are only able to discover their connection by considering these features separately, relying upon precisely the sort of abstractive method of analysis which Nietzsche and Bergson, among others, would have us shun.

Such a case is as follows. We all know that, in attempting to match a color, the perceived shade of the color may vary according to the size of the sample, most colors appearing darker in small samples than large. The fact of this relationship—and of analogous relationships between size and shape, or, in tones, between pitch and loudness—does not mean that color and size, shape and size, or pitch and loudness are not discerned as different discriminable aspects of what we perceive. They clearly are, yet they also affect one another. When, in our example, we place the large and the small samples of the color side by side, we recognize them to be identical in shade; we then attribute our original mistake to the difference in the sizes of the samples, and not to a difference in their color. Thus, our grasp of the interrelationship between different attributes of a particular object involves abstraction from the object itself and consideration of its abstracted aspects under alternative sets of conditions. It is not immediate perception, apart from abstraction, nor is it immediate intuition that serves to reveal the hidden interplay of a perceived object’s various attributes. Rather, it is through a comparison of instances with respect to some of their features, and not with respect to others, that we must in such cases proceed. Thus, although the various perceived characteristics of an object may be intimately connected, and mutually dependent, our knowledge of these connections is in most cases acquired piecemeal, by abstraction, comparison, and generalization: in short, in precisely those ways which were disparaged by Nietzsche and Bergson, and by others before them who rejected the methods by means of which the analytic intellect proceeds.
Bearing in mind what I take it we may now regard as established—that a distinction is to be drawn between the characteristics of objects and our knowledge of these objects—we may return to a fact which has previously been noted: that, in direct experience, we are aware of general characteristics or determinables, and not merely of specific determinate qualia. Returning to this point, we are in a position to say that, while it is doubtless true that objects have determinate qualities, our knowledge need not be considered inaccurate because it does not include or reproduce these qualia, but deals with the determinables which are presented in and through them. Of course, if a person were to claim that he had, in his mind’s eye, a perfect replica of that which he had experienced, then his claim would be well-founded only if he did possess such an image, which was accurate down to the least detail. However, the knowledge which we claim concerning any object is rarely, if ever, of this kind. That fact may be illustrated by the following example which, although trivial, not only can serve to suggest that our claims to knowledge do not depend upon our being able to conjure up exact images of what we have experienced, but will also serve to emphasize once again that what is true of an object need not be true concerning our knowledge of that object.

On my desk there is a stapler which I recently bought, and which I used only a moment ago. I have a rough idea of how heavy it feels; I know that I would say that its color is grey; I can quite clearly recall the sort of sound it usually makes when I use it, and I can recognize another slightly different sound which signifies to me that I have just used the last staple it contains. I also have an idea of its shape and its size, and I could draw a rough sketch of its approximate outline. I know that it is a Bostitch stapler, and I assume that the name is imprinted somewhere on it, but I do not know how or where. I know something about its parts, but some are bolted together, and I do not know what is concealed; and even among those parts which I can see, and which I have now carefully inspected, there are some whose functions I do not understand.

In the foregoing remarks it should not be difficult to say where I am laying claim to knowledge, and where I am not. I can be said to know that my stapler is grey, and that it is relatively heavy compared with one which I formerly owned. However, when I claim that I know this much about it, I am not claiming to have so precise an idea of its color that I could pick out a shade of grey which would exactly match it, nor that I can recall just which of its parts are chrome, and not grey. Nor do I claim to have an accurate recollection of the exact shape and size of the stapler, nor of its heft. Thus, what I may be said to know about such an object is not necessarily determined by the clarity and the detail of the images which I can conjure up when I try to picture it. What I know respecting these characteristics may be said to be general: it is a knowledge of the general features of the object, not a knowledge of its precise details. Such knowledge is also in one sense relative: it is accurate only to the extent that it correctly states the difference between this particular object and other objects which differ from it in color, in shape and size, and in weight. However, knowledge which is both general and relative, in these
senses, may in another sense be both precise and absolute: the claim I make
that, for example, my stapler is grey, and not brown or green, is a very specific
claim about this particular stapler, and it is a claim which is not to be inter­
preted as being anything less than exactly true.

The same point may be made with reference to other aspects of what I claim
to know about the stapler, and what I admit that I do not know. When, for
example, I say that it is a Bostitch stapler, my knowledge is also general and
relative, for I know nothing about the manufacturer except this brand name,
and I use the name only to distinguish the type of stapler I own from those
bearing other names. Yet, this is knowledge which, in another sense, is also
both precise and absolute: it is knowledge on which I can rely when I next buy
a box of staples. Furthermore, the fact that I know my stapler is a Bostitch, and
yet do not know how or where the name is imprinted on it, clearly shows that
not all of our knowledge is directly related to our ability to conjure up distinct
images of what can be learned through sense-experience. This fact is even
more obvious in my statement that I have inspected all of the visible parts
of the stapler, and I do not understand the functions which some of them
serve. Any knowledge of an instrument, such as a stapler, must be said to
include some knowledge of how its parts function when it performs whatever
it was designed to do. However, even in the case of so simple an instrument as
a stapler, this is not knowledge which comes through inspection alone; it
presupposes familiarity with the ways in which objects of various kinds interact;
it is quite general, and is of the sort with which, in more exact form, the
science of mechanics is concerned. Such knowledge, being general, involves an
appeal to determinables, and does not merely refer to what is true of an
object having precisely these determinate characteristics. Nor should it be thought—as followers of Nietzsche and Bergson might be inclined to suppose—
that this is true only in those cases in which we are dealing with mechanical
contrivances: it is equally true of our getting to know how the organs of living
things function, for this knowledge, too, does not come through immediate
experience alone.

From the foregoing illustration we can extract the conclusion that knowing
is not to be identified with directly apprehending objects in all their specificity,
in complete and concrete detail; it is often a matter of understanding their
relations to other things, how they function under different conditions, and
the like. To be sure, there are occasions when the clarity, the accuracy, and the
degree of specificity of our images are highly important to us; they are important
when, for example, we are trying to sort objects which closely resemble one
another, or when we wish to buy something which will be aesthetically congruous
with objects we already possess. On the other hand, primary importance
often attaches to the recognition of the generic characteristics of an object:
to know in advance what is to be expected of something, we must know what
has occurred when other things of the same type have been placed in similar
situations. Thus, what we seek to know is frequently directed toward what is
common to many instances, not what is confined to any one case. While it
would be arbitrary to hold that such is always our goal, it would be equally arbitrary to claim that we have knowledge only if we are able to grasp the concrete individuality of specific instances in all of their detail.

Once this is recognized, it is not necessary to treat with distrust those determinables which I should be inclined to call "perceptual universals." To be sure, they are general; however, as we have just remarked, not all knowledge involves the possession of exact replicas of objects before the mind's eye. Furthermore, they may be relative, for they may only be precise to the extent that they allow us to know an object in terms of the ways in which it resembles or differs from others; nevertheless, in recognizing the similarities and differences which are present in objects, we can be said to have knowledge of these objects. Nor need perceptual universals be distrusted because they refer only to certain aspects of objects, and are thus "abstractions": there is much that I can know about any object without knowing everything that is to be known about it—I may know its color better than I know its shape, or its shape better than its color, and I can also know how some parts of it function without knowing the functions which other parts perform. This may even be true, as we have noted, in those cases in which the parts are connected, and might not be able to function independently. There is surely nothing surprising about this fact, once one recognizes that the characteristics of our knowledge need not be the same as the characteristics which are possessed by the actually existing objects to which our knowledge refers.

There have been those in the history of thought who reject such a view, insisting that to have knowledge is to become one with the object, whether through loss of self as in the mystic experience or through self-assertion and an act of appropriation. Bergson and Nietzsche are striking examples of these disparate ways of emphasizing immediacy, but each type of position can be held in less extreme forms. For example, the Bergsonian contrast between intuition and intellect had a milder counterpart in Dilthey's distinction between understanding (Verstehen) and explanation (Erklärung); surprisingly enough, one can also note a resemblance between Nietzsche's assumptions concerning knowledge and the views of Croce and Collingwood regarding what is essential if we are to understand the past. However, the full force of the doctrine of immediacy, and an accompanying disdain for conceptual knowledge, has only been felt where the existentialist movement, with reliance upon Kierkegaard as well as upon Nietzsche, has gained a dominant position in twentieth-century thought. Yet, in one form or another, a distrust of conceptual knowledge has become characteristic of much recent thought: it has come to be widely claimed, in a variety of different contexts, that we only make use of abstractions, and that we only appeal to common traits within that which we experience, in order to render experience manageable. In short, it is assumed that we overlook the concrete in favor of the general, and we neglect the unique for the repeatable, only for the sake of an economy of thought which is directed not to understanding but to practice. When a view of this type is accepted, both the generalizations upon which we rely in daily life, and the generalizations which
it is crucial for the sciences to attain, are construed as reflections of subjective interests and needs, projected onto nature; they are not accepted as reflections of traits which belong to the world, being present whether we know them or not.

While there are many factors which help to explain why this general doctrine has become so widely diffused in contemporary thought, there is one which should not be overlooked: positivism itself turned toward a pragmatic-economical view of thought. Thus, we again find an instance in which philosophically incompatible tendencies within the nineteenth century served to reinforce each other, combining their influences to create a climate of opinion which, in this case, continues to maintain much of its authority today.

To be sure, when Ernst Mach and other positivists put forward a pragmatic-economical interpretation of thought, they did not do so for the sake of making room for an alternative method of knowledge; rather, Mach sought to loosen the bonds of common-sense assumptions and give the sciences free play to organize all experience in whatever ways might prove to be scientifically most fruitful. It was precisely this fact which has since provided arguments for those who wish to attack the adequacy of scientific modes of explanation: what is scientifically most fruitful need not, they claim, be identified with what is true. This form of argument has often been supported by appealing to evolutionary considerations not wholly different from those to which Mach appealed: the human mind is an instrument which serves to fulfill our needs, and cannot be regarded as an organ whose purpose it is to reveal the essential structure of the world. Of course, Mach rejected the supposition that, independently of human experience, there is any such structure inherent in nature to which knowledge must seek to conform. On his view, it is solely with respect to how successfully the organization of experience fulfils our needs that truth and falsity are to be judged. It is this cardinal tenet of Mach's view that I here wish to challenge. Of course, it is not possible at this point to examine all of the major philosophical issues which such a question involves, but there is, I believe, one relatively simple method of undercutting his position by showing that his assumption of two fundamentally different ways of organizing experience, corresponding to two different types of need, is false.

It will be recalled that Mach's analysis of experience aimed at overcoming the common-sense assumptions which he regarded as standing in the way of a unification of physics, psychology, and physiology. Chief among them was the distinction which we ordinarily draw between the self and material objects. To overcome this distinction Mach argued that all material objects are merely relatively permanent complexes of the simple elements of experience, and the self is only another such complex. Thus, it was not necessary to regard different sciences as dealing with fundamentally different kinds of data; psychology, physics, and physiology differed only with respect to which sets of relationships among these elements were selected for investigation. In such investigations, scientists were to confine themselves to what is directly observable, that is, to actual elements present in experience; for example, Mach claimed that physicists should not appeal to inferred entities, such as atoms, in order to
explain the relations among the phenomena they observe. He held that, if the sciences succeeded in purging themselves of all metaphysical assumptions, the relationships which they would be able to establish would cohere in a single unified system.⁹

Had this unity actually been achieved, it would have been purchased at a considerable cost, since it would have engendered a severe conflict between scientific modes of explanation and beliefs which we regard as fundamental in everyday life. Of course, there are conflicts between the sciences and our ordinary beliefs which are not particularly troublesome: anyone can think of instances in which he has accepted a scientific explanation even though it conflicted with a belief which had always seemed to him obviously true. In such cases, what is involved is merely giving up one belief for another. What Mach regarded as “metaphysical” in our ordinary conception of the world was the basic assumption that there are material objects existing in their own right, independently of experience, and that much of our experience itself depends upon them. Thus, what he asked that we relinquish were not merely particular beliefs about specific matters of fact, but the entire framework into which all aspects of our ordinary conceptions of experience fit. Mach was not, of course, unaware of how drastic a change he was introducing into conventional patterns of thought; he was, in fact, anxious to accept it as a means of bringing about a unification of the sciences. However, in his analysis of this change, he failed to take note of some of the consequences which his position actually entailed.

To become aware of these consequences, one should first note that the scientist himself lives in the everyday world. This is not only true whenever he is outside his study or his laboratory, but is also true when he is working in them: his pen, his desk, his laboratory equipment, all appear to him as permanent material objects, existing in their own right. Furthermore, the objects on which he performs his experiments are not the ultimate “elements” of which Mach spoke, for we never encounter any such element except as being embedded with other elements in a complex whole. Thus, when Mach remarks that in physics one correlates a color with a luminous source, his statement stands in need of expansion: what is correlated is the color-aspect of a surface, located at a particular place, with some aspect of the light originating from a particular source, such as a sodium lamp or a lithium lamp. Similarly, when one correlates the color which one sees with the stimulation of the retina, which is identified by Mach as a specifically psychological problem, one is again not speaking of a correlation between two ultimately simple, immediately presented “elements,” but is speaking of some aspect of the relationship between a visible surface and light focussed on the retina after having been reflected from that surface.¹⁰ Thus, the correlation of elements, which Mach considered to be the essential task of any science, actually takes place within a more complex matrix of relationships. When this is recognized, and one does not speak as if the sciences correlated free-floating, isolated bits of experience called “elements,” there is in fact no such sharp contrast as that which Mach drew between the ways in which the
In addition to Mach's misleading characterization of the sciences as dealing only with relationships among "elements," there is a further feature of his discussions of scientific inquiry which tends to conceal the similarities which exist between the organization of our everyday experience and the relationships with which the sciences deal. In stressing the unity of the sciences, Mach spoke of how the differences between physics, psychology, and physiology were simply differences in the ways each organized experience, not differences in the ultimate nature of the materials with which they dealt. At least so far as the present discussion is concerned, let this contention be granted. In granting it, we are not committed to any particular view regarding the ways in which physical, psychological, and physiological explanations are themselves related. Therefore, even though it may be true that the materials of all three sciences are similar, and all three types of explanation can consequently fall into place within a single system, the relationships among these types of explanation might be determined by the nature of experience, and not be under our control. Yet Mach's discussion of the unity of the sciences never brings this fact to light. In speaking of how one can pass back and forth among the sciences, first establishing one set of relationships among elements and then establishing another, he did not point out that, when we come to link up these relationships with one another, there is in each instance a definite order in which we must proceed, regardless of what had been the order of their discovery. For example, in the case already mentioned, in which one correlates red with the fact that the luminous source is a lithium and not a sodium lamp (a physical explanation), and one also correlates the sensation of red with retinal stimulation (a psychological explanation), these explanations are coherent: however, they are only coherent if ordered in an appropriate way. It is not the sensation red, as correlated with retinal stimulation, nor is it the red surface that I see, which is used to explain the luminous source. In fact, it is clear although it is not made explicit in Mach's own account that the luminous source provides the explanation of the color, of the retinal stimulation, and of the sensation "red." When the existence of such an order is recognized, the supposed disparities between the organization of our everyday experience and the organization of the elements of experience by the sciences tend to disappear.

In considering Mach's general position, it becomes apparent that one reason why he insisted so strongly on there being a fundamental difference between the forms of organization characteristic of the world as it appears in everyday experience and the relationships which scientists discover when they analyze experience was that he believed that our ordinary experience is dominated by the practical adaptive needs of the organism, whereas thought in the sciences is dominated by purely theoretic needs. If this contrast were accepted, there would, in fact, be two different and fundamentally opposed accounts of the relationships among the elements given in experience, and two different and
opposed criteria of truth. Mach often spoke as if this were so, and one can see how easy it is to fall into this manner of speaking when one contrasts all that we take for granted in ordinary experience with the careful way in which individual factors are isolated and analyzed in the experimental sciences. Regardless of this contrast, it is not reasonable to suppose that there is in fact an opposition between the patterns of thought and standards of truth used in laboratories, and the ways in which we think and sift evidence in the ordinary concerns of everyday life. Clearly, scientists do not lead a Dr. Jekyll-Mr. Hyde existence: if they did, this fact would be thoroughly familiar through the accounts of scientific inquiry which have been written by practicing scientists. Also, it is clear that the problems scientists set themselves often arise in the course of everyday experience; furthermore, in a vast majority of cases, one test of the answers which are proposed is whether they are confirmed by direct experience. Nevertheless, Mach was insistent that the world of science should be kept separate from the everyday world. One reason was his belief that the explanation of why the world appears to us as it does in everyday experience is to be found in the Darwinian theory: were it not for our vital needs, our sensations would not be grouped as they are, as if they constituted objects independent of us, and so on. On the other hand, scientists structure experience in terms of specifically scientific needs, not as a means of adjustment. Therefore, Mach held that the two worlds must be kept separate.

However, this is a most implausible account of why our experience is organized as it is. It would only be tenable if one were to assume that the way in which the world appears to us is a cumulative heritage, bequeathed to us by the experiences of our remote ancestors: no individual, in the course of his own early development, would be able to acquire, through a process of trial and error, the complex structuring of experience which Mach describes as characteristic of our everyday beliefs. To be sure, the fact that we survive does show that the way in which we apprehend the world is not disastrously maladaptive. However, in seeking to explain why, in everyday experience, the world appears as it does, one should not resort to general speculation concerning the evolutionary process: instead, one should make use of the experimental findings of the interlocking sciences of physics, physiology, and psychology, since it is a false interpretation of Darwinian theory to assume that whatever does in fact serve our practical needs must have originated in order to do so.¹²

The foregoing considerations should serve to cast considerable doubt on Mach's assumption that the element of order in our experience, whether in the sciences or in everyday life, is a function of our own purposes or needs. At the same time, they lend support to the views of Helmholtz and Spencer, both of whom held that there are close connections between the order which is present in everyday experience and the forms of order which can be established by the empirical sciences. Unlike Mach, they treated these connections as causal: our experience reflects relationships which exist in nature because it is upon the existence of these relationships that the structure of experience depends. Once this view had been accepted by them, it may seem surprising that both Helm-
holtz and Spencer should have insisted that we can never justifiably claim to know what nature is truly like in itself. Their argument was based on the fact that, as soon as nature is reflected within our experience, we know only what we experience, not nature itself. They justified this restrictive argument by holding that, since all knowledge is ultimately based upon sense-experience, it will be limited by, and in fact be determined by, the nature of our sense-organs. Therefore, when we take into account the fact that we might have had quite different sense-organs, which would have pictured the world in quite different ways, it is not legitimate for us to assume that the world, in itself, has those particular characteristics which we are inclined to attribute to it.

This theme is a familiar one, but taken as an argument regarding the limits of knowledge, it is not—as I shall show—one which either Helmholtz or Spencer should have used. Nor would they have used it, had they not shared the common assumption that all "genuine" knowledge must include an immediate apprehension of something directly given, that is, an intuition of the concrete, and not merely an understanding of relationships which have been established by inference. Kant, it will be recalled, had held that concepts are empty whenever they lack concrete content furnished by sensibility, and in this respect Helmholtz's views replicated his: since we do not directly apprehend the relationships which underlie the forms of order present within our experience, we cannot be said to know these relationships, no matter how well attested their modes of operation may be. In the case of Spencer, the same assumption was operative. He held that we constantly attempt to stretch what was originally presented in sense-experience, but the symbolic conceptions we form only maintain their validity in so far as a concrete, sensuous element is still included in them. Thus, for both Helmholtz and Spencer, the fact that what we directly experience is relative to the nature of our sensing organs led to the conclusion (without further argument) that we can never adequately grasp the nature of objects as they exist in their own right, independently of us.

This was a strange and, indeed, a self-contradictory conclusion for them to have drawn. Both Helmholtz and Spencer had insisted that what we directly experience never portrays the characteristics of that which exists independently of us. This fact they took to have been adequately established by the combined efforts of the sciences. However, having trusted the inferential methods of the sciences to establish this point, both Helmholtz and Spencer then reversed themselves and spoke as if it were a defect in knowledge that we do not directly experience the world as it exists independently of us. Instead of speaking in this way, it would have been more consistent, and also more accurate, if each had given praise to the sciences for having established the fact that it is only through inquiry and inference, and not through direct experience, that we attain precise and well-authenticated knowledge of those relationships which give structure to nature and define our own place in the world.

Perhaps it is too much to expect that they should have done so, for it is difficult to acknowledge that beliefs which rest only on inference, and which must be acknowledged to be fragmentary in their scope, can not only be more
inclusive, but also more accurate and detailed, than beliefs which appear as self-authenticating because they refer to our immediate experience. Yet, if we do not falsely identify the characteristics of knowledge with the characteristics of that which we seek to know, there is no reason to assume that scientific knowledge distorts reality merely because it does not reproduce it; nor any reason to suppose that we should be able to say in advance that there are limits beyond which it would be impossible to extend our knowledge of ourselves and the world.

2. A Critique of Voluntarism

It is now time to turn from the widespread dissatisfaction with man's reason which was based on a distrust of conceptual thought, and consider the radical voluntarism which, although it was to be found in only a few nineteenth-century thinkers, has subsequently become a powerful intellectual influence on our time.

In the last half-century the rebellion against reason has taken many forms; to an alarming degree, unreason may be said to have permeated our lives. To what extent this could have been due to the theories with which I shall here be dealing, I am unprepared to say. Many who write intellectual history seem to attribute a direct social efficacy to ideas which I find it doubtful that ideas, in most cases, possess. However, it is undeniable that the ideas with which we shall now be concerned have had a considerable influence, for they have become standard assumptions in many disciplines, and have directly and profoundly influenced literature, religion, and the arts. Under these circumstances, it is surely the case that their effects, channeled through these media, have been felt in more ways, and in subtler forms, than one can now readily trace. It is no part of my task to show how this may have come about. The view with which I am here concerned is restricted in scope, no matter how widespread its ramifications have been. What I wish to consider is the doctrine represented in different forms by Schopenhauer, Kierkegaard, and Nietzsche, that our thought is always to be interpreted in terms of its relation to the goals of the will.

This doctrine had obvious, even though mistaken, connections with nineteenth-century evolutionary theory; these connections will later occupy us. However, if we are to understand its present influence, we must connect it with two more recent tendencies which have, for some time, dominated psychology. The first has been the assumption that motivational forces underlie all other psychological processes, exerting a hidden but controlling influence on them. It has been because of this assumption that psychological views such as those held by Schopenhauer, Kierkegaard, and Nietzsche have not only been revived but have seemed to be of special contemporary relevance. In this revival it has been necessary to excise the metaphysical pessimism of Schopenhauer, the Hegelian background of Kierkegaard, and the egoism of Nietzsche, in order to refashion their thought to the mood of the times. What has not needed altera-
tion has been their anti-intellectualism, their insistence that reason is not, and cannot be, disinterested. That this insistence should have struck a familiar chord is understandable when one considers recent psychology. Not only has the widespread influence of Freudian theory made this seem obviously true, but experiment after experiment has been designed to show the ways in which motivational factors influence perception and learning, and only rarely has emphasis been placed on the ways in which motivation is relative to that which is perceived, and to that which is believed.

In addition, under the influence of Freud, and under the quite different influence of Dewey, personality theory and American social psychology have emphasized the view that human nature is not to be understood in terms of specific, discrete modes of reaction, but as a whole. In such a whole, the elements have been taken to be mutually dependent and mutually compensatory. This has led to an almost wholesale rejection of earlier views, which had accepted a variety of motivational forces, largely independent of one another. When the autonomy of different facets of human nature is minimized in this way, and when this doctrine is coupled with a motivational bias, it becomes obvious that thought must be interpreted in terms of that which satisfies the needs of the self: any independence which we are inclined to ascribe to our thought-processes, and which they often seem to possess, will be denied. Because of this denial, the psychological views of Schopenhauer, Kierkegaard, and Nietzsche appear up-to-date, even though—if one examines their views in any detail—their assumptions and arguments are riddled with error.16 In what follows, I shall not be concerned with such errors; rather, I wish to deal with the central thesis itself—that we must assume thought to be dominated by the forces of will.

There are many ways in which such a position can be criticized. The particular path which I here wish to follow is to show that it is not plausible to assume that all of the characteristics of human nature are to be interpreted as expressions of any single underlying force, such as voluntarism identifies with "the will." As I have already pointed out, it is mistaken to assume that we can explain either animal or human behavior without appealing to a plurality of drives, propensities, needs, or desires.17 In that connection I used curiosity as an example of an autonomous motivational factor on the basis of which experiments in animal conditioning have been successfully carried out.18 Once we regard curiosity in this way (and if we can assume that members of the human species also, under some conditions, behave in a way that exhibits curiosity), then the interest which we take in our environment need not be construed as an expression of some other, more basic, practical or psychic need. Curiosity would itself be one of our propensities, and its satisfaction would be a need. Or, if one wishes to avoid the term "curiosity," then the exploratory behavior or inquisitiveness of animals and of humans might be substituted for it: the need to satisfy these propensities would not call for further explanation in terms of the concept of "will." Thus, on the view I am here suggesting, I am not seeking to get rid of the hormic side of behavior: on the contrary, in these particular cases I am emphasizing it.19 What I am rejecting is the appeal to a further expla-
nation of these propensities through invoking some different and supposedly more basic propensity. In short, I wish to hold that they—no less than hunger and thirst—may be regarded as autonomous.

This, I submit, is wholly in line with evolutionary theory. To be sure, there was a time when it was held that most (or all) specific drives, such as hunger and thirst, are expressions of another more basic instinct, the instinct of self-preservation. One even finds that Darwin occasionally used that term. However, there was a basic confusion in appeals to an instinct of self-preservation: that which followed from being able to satisfy a drive was mistakenly regarded as the goal of the drive itself. To illustrate the distinction that should have been drawn, one may note that we do not normally eat in order to preserve our lives, but the fact that hunger leads us to eat does serve to keep us alive. Similarly, it is not in order to preserve the human race that we have sexual relations, although it is true that the continuity of the human race depends upon the existence of sexual impulses. In fact, it was never made clear just how the generalized instinct of self-preservation in the individual, or in the race, was related to specific instincts or drives; furthermore, it would be difficult to think of any inherited mechanism which could be responsible for self-preserving actions which are as different from one another as are eating and sleeping or breathing and jumping out of the path of an oncoming vehicle.

Fortunately, we are no longer forced to cope with those who appealed to an instinct of self-preservation to account for the actual behavior of animals or men. However, another form of pseudo-teleology is still to be found in popular thought concerning evolutionary theory. It consists in the assumption that traits only originate and become established in so far as they have some value as a means to survival; therefore, their continued presence suggests that, if we are to understand them, we must do so with reference to biologically based needs. Applying this position to human thought, our intellectual capacities would have to be interpreted in terms of the needs they fulfill: they would have to be regarded as tools for survival. Thus, thought would be viewed not in terms of ends of its own, but in terms of what it contributes to various forms of adjustment.

This widely held view, which has long been associated with evolutionary theory, does not in fact derive any support from that theory. Any propensity, or other trait, might arise and be preserved even if it failed to contribute to the adjustment of a specific type of organism in its environment. As Darwin himself came to recognize, it is not necessary that a particular trait have positive survival-value; the theory of natural selection only requires that none of the traits which characterize a species shall have consequences which consistently interfere with the survival and the self-reproduction of individuals possessing those traits. Seen from this point of view, it should be obvious that curiosity might be a basic and enduring characteristic of animals and men, whether or not it had any positive survival-value for the species possessing it. All that evolutionary theory requires is that—in any given environment—curiosity, or any similar trait, should not have consequences which markedly interfere with
the continuing survival and the self-reproduction of individuals possessing that trait.

Once this lesson has been learned, much that has been written concerning the intellect as a tool for survival will be acknowledged to need re-thinking. However, not all who have stressed the practical nature of thought, and the influences which our needs, our desires, and our values have upon it, have emphasized merely biological survival. Thus, we shall have to consider their views in more general terms, and not with special emphasis on evolutionary theory.

Let us then go back to the point which I earlier made: that we cannot interpret animal or human behavior without appealing to a plurality of drives, propensities, needs, or desires. Not all of these will, of course, have anything to do with understanding man's intellectual powers. However, if we may assume curiosity to be one among the native propensities of man, it would presumably be a factor to take into account when analyzing the nature of thought. Naturally, it would not have to be considered the only such factor. It might, for example, elicit a process of thought without controlling it. Furthermore, it might not be the only factor capable of eliciting thought, and I should reject the assumption that it is. For example, there obviously are cases in which thought is called forth by our need to escape from some situation which is immediately painful. In other cases it may be oriented toward remote ends, and its function may be to calculate the means by which these ends can be attained. In still other cases we may merely be curious. That it may be mere curiosity which, in some cases, originally arouses thought can be illustrated by two well-known examples which Dewey used for another purpose: (a) we may seek to understand why, in the bow of a ferry-boat, there is an odd sort of pole, resembling a flagpole, but jutting out almost horizontally; or (b) we may be curious to know why, when one is washing dishes, soap bubbles first form outside the rim of an inverted glass and then slip back into it.22 While both examples were designed by Dewey to establish the view that thinking is problem-solving, they also show that, in some cases, it may be nothing more than curiosity which originally sets the problem which is to be solved.

At this point, we can take one further step which leads even farther from the goal-oriented interpretation of thought which Dewey, as well as the radical voluntarists, held to be true. What we have termed "curiosity" may be viewed as a hormic aspect of man's nature, that is, as some form of propensity or drive. However, like other propensities and drives in human and animal nature, it is not always present and active; it often evinces itself only when it is triggered by a factor in the environment. For example, although it is true that we begin looking for food when we are hungry, it is also sometimes the case that the sight of food leads to a craving to eat; similarly, the sex drive of animals is, in many cases, triggered by very specific perceptual cues. When we consider the case of curiosity, the strangeness of an object may be one such cue. This, however, directly relates the source of our curiosity to our knowledge and our beliefs, not to another propensity, drive, or need. This illustration, however crude, can serve
as a paradigmatic case of the manner in which our motivation is often directly affected by our immediate perception and by what we have learned. Such cases stand in contrast to those occasions in which motivation is basic, modifying both perception and learning. As I have pointed out, recent psychology has unfortunately tended to emphasize only the latter sort of case.

In opposition to this tendency, we may further note that whatever may be the inciting reasons for our thinking, the manner in which thought actually proceeds is not necessarily a function of the factors which served to evoke it. When we try to extricate ourselves from a painful situation, we may need to rely on conjectures, assumptions, a careful scrutiny of evidence, deductive inference, and the like, no less than when we are attempting to solve a scientific problem. This fact is important to note, for it indicates that, in interpreting the nature of thought, one cannot assume that what gives rise to it will also control it. Thus, even if (contrary to fact) it were true that the source of all thinking lies in the will, neither the way that we think, nor what determines the validity of our thought, can be assumed to be determined by characteristics of willing. To be sure, what has been referred to as "the will" may sometimes lead us to accept or reject the conclusions of our thought: some thoughts are—sometimes, for some persons—too unpalatable to bear, and they are denied in one way or another. Here, it would seem, the will exerts itself, just as Schopenhauer, Kierkegaard, and Nietzsche insisted. However, it would obviously be false to attribute all error to the effects of the will, as if fatigue, or dizziness, or arteriosclerosis had no consequences for thinking. It would be even more misguided to forget that we draw a distinction between valid and invalid forms of thinking. Schopenhauer himself acknowledged the distinction, although he held, as we have seen, that in the end the demands of the will overcome the intellect. Kierkegaard, in his own way, also recognized a domain in which the intellect was, for a time, free of the influence of the will, that is, when our thought is directed to possibilities only, not to existence. However, both rejected the principles which guide thought in these realms, regarding these principles as being out of touch with reality. In part, this was because they insisted that there must be a fundamental unity in the nature of man: one force alone must dominate him. Since it was obvious to them (as it also must be to us) that men do not live by intellect alone, they identified this force with the individual's will.

Similarly, as I have suggested, there has been a marked tendency among social psychologists, and among those psychologists who are concerned with personality theory, to assume that, if the self is to constitute an integral whole, our actions cannot spring from a great variety of diverse sources, as earlier psychologists had assumed. They have instead sought to establish the view that there is a fundamental unity underlying all different propensities, each of which is related to the others in an interlocking system of forces. As a consequence of this assumption, thought cannot be supposed to proceed along lines of its own, according to its own principles: it too expresses the whole system of the individual's needs.
There is, of course, no reason to assume that an individual human being might not achieve integration of his impulses, even if they spring from wholly different sources and even though, in many instances, there may be potential conflicts among them. It should be remembered that not all propensities are at every moment active, since each is capable of being temporarily satisfied. Furthermore, in many cases they only arise because of the presence of specific inciting conditions in the environment. When these facts are recognized, it is not necessary to assume that individuals will be constantly torn to pieces merely because they possess a host of different drives. To be sure, in some cases, persons may suffer extremely because there are conflicts among their drives; in other cases, individuals are able to achieve a measure of integration in their lives. In neither of these cases can one plausibly assume that all facets of human nature are mutually connected, and that all act to fulfil an interconnected set of biological and psychological needs. Instead, it would seem more in accord with the facts to hold that there is a pluralism of motives and forces in human beings, and that many of them are relatively independent of the others. This, I submit, would also be more consistent with evolutionary theory, which has recently been given lip service more often than it has been treated with the respect it deserves. On strictly evolutionary grounds it would seem implausible to assume that the forms of behavior characteristic of all species are to be interpreted, as Schopenhauer and Nietzsche supposed, as variant forms of a single force, rather than being unique combinations of different factors which, taken together, happened to make them viable in the particular conditions surrounding them. Once this point of view is adopted, there is no reason to suppose that intelligence is not itself a special principle which has evolved, enabling the higher animals and men to fulfil their needs under the conditions imposed by their environments. That it will be adequate to our present needs must be our hope, but it is more difficult to preserve this hope than was once the case. This helps account for the fact that the rebellion against reason has become so pervasive an influence in our time.

3. Conclusion: The Nineteenth Century and the Present

If there has been any one factor which, more than others, has led to a revolutionary shift in twentieth-century thought and which has involved a break with those nineteenth-century movements which still dominated the earlier years of this century, it has been the loss of belief in Progress. If we look for the causes of this change, we of course find a number of doctrines which constituted challenges to progressivist assumptions. For example, social evolutionism had been generally abandoned by the leading schools of anthropology; we can also say that, in so far as scientists and philosophers had given up the idea that laws govern events rather than merely describe them, there was no longer reason to suppose that human history necessarily followed a definite, determined course. However, these specifically intellectual reasons, even if multiplied many
times, are surely not adequate to explain the disappearance of a belief which had been as pervasive as had the belief in Progress throughout the nineteenth and early twentieth century. To account for its disappearance, one must take cognizance of the experience of the first World War, especially in Germany, and of the widespread social and political upheavals which began in the 1930s and have continued unabated ever since. Such experiences have left little room for the earlier forms of optimism which, on the whole, dominated Western thought since the Enlightenment.

With the loss of belief in Progress, historicism also lost a hold on recent thought, and this connection has not been accidental. To be sure, historicism was not originally associated with the doctrine of Progress, as that doctrine had been present in the Enlightenment. In fact, the two positions had been opposed, with those who adopted historicist views challenging the methods of explanation and the standards of evaluation which were characteristic of the Enlightenment. Nevertheless, when faith in Progress was lost, historicist modes of thought likewise tended to disappear. Why this should have been the case is readily explained.

Consider the mode of evaluation of historical events which historicism entails. Its evaluative thesis demands that we refrain from setting up any form of external standard against which to judge the historical process, but that we be reconciled to those tendencies which dominate historical change; in short, that we accept the view that the history of the world is the world's court of judgment. However, insofar as we cannot in fact be reconciled to that which has occurred and is occurring, this standard will not only appear to us as false, but as shameful. We then find ourselves forced to seek an explanatory understanding of historical events which differs from that of historicism: it is no longer possible to view such events simply as phases in some larger tendency of history. One looks instead for mistaken choices, unfortunate accidents, and a host of other critical factors, in order to explain how something which might have been attainable has escaped use; one attempts to establish, in concrete detail, why particular events occurred as they did. Seen in this way, history no longer appears as a single developmental process in which each phase plays an essential role, subservient to the whole. Thus, when belief in Progress is abandoned, historicist explanations also tend to be abandoned. Or, to put the same point in a different way: the nineteenth-century form of the doctrine of Progress had emerged from an acceptance of historicism, and was widely taken to be one of its necessary corollaries. The fact that this corollary subsequently proved to be unacceptable is at least one major reason why the whole historicist system of which it had been a part has also been rejected as unacceptable. In this respect, at least, there appears to be a sharp break between the intellectual presuppositions of the nineteenth and early twentieth century, and those which dominate thought today.

On the other hand, loss of faith in Progress has not seriously undercut belief in the malleability of man, which is still generally accepted. However, the ways in which the doctrine of malleability has been used have drastically altered
because of loss of faith in Progress, Formerly, malleability in each of its forms had offered hope for the future: since man's nature was not unalterably fixed, it seemed possible that through education and social reform, through the growth of civilization, and through the evolutionary process itself, there could be ever-increasing accomplishment for each and for all. However, in the light of the devastating experiences of this century, the social forces which shape men no longer appear as benign, nor as being subject to control; consequently, the fact that the social environment exercises a formative influence on human nature is not seen as a reason for hope but as a reason for dismay. In short, the doctrine of malleability has recently come to be regarded as a threat to the individual, not as a foundation for the future progress of Mankind.

In order to find examples of the view that the accepted norms of social life pose a threat to all that is essential in the individual, one need not confine one's attention to doctrines which developed in the mid-twentieth century: among those whom we have discussed, Kierkegaard and Nietzsche also provide striking examples. To be sure, neither accepted the doctrine of man's malleability: both regarded human nature as having characteristics which neither society nor experience can change. Nonetheless, each held that, if intensity of passion or of will is lacking, the effects of society completely distort the individual: for Kierkegaard, individuals then become transformed into a crowd, and for Nietzsche, all that is noble in man becomes hopelessly corrupt. This anti-social individualism seems to me to account for a good deal of the present influence of both Kierkegaard and Nietzsche. However, those who have accepted this aspect of their doctrines have also tended to suppose that we are formed by our environments; and these two positions seem ill-suited to each other. To be sure, those who currently hold the doctrine of man's malleability regard it only as a theory concerning a matter of fact, and not a doctrine involving any judgment of value, whereas their rejection of any social norm which threatens the inviolability of the individual constitutes a moral appraisal. It may be worth commenting that, when beliefs concerning matters of fact stand in such sharp opposition to moral convictions, it is not surprising that those who accept both positions should feel themselves engaged in a desperate personal struggle against the society which they regard as having formed them. Such was not the view of those who had earlier accepted the doctrine of man's malleability, for whom it offered hope for the future.

Finally, we turn to the question of how the limits placed on reason in the nineteenth century are related to the dominant views of our time. Here I detect no essential change, Unlike historicism, which has been abandoned, and unlike the doctrine of man's malleability which, although still espoused, no longer retains its earlier significance, there seems to be continuity with respect to what are taken to be the uses and the abuses of reason. For example, the views of both Jacobi and Kierkegaard have obvious counterparts in contemporary theology; similarly, intuitionist and existentialist critiques of objectivity, and of all conceptual thought, remain prominent; even within the philosophy of science, the similarities between presently dominant views and the positivism
and pragmatism of the late nineteenth and early twentieth century are more obvious than are the differences which separate them. Since these are tendencies which I have been inclined to criticize, I do not find the lack of change encouraging, any more than I find hope in those more recent movements in Anglo-American philosophy which possess somewhat greater novelty.24

My dissatisfaction stems from the fact that I fail to find in any of these positions an adequate appreciation of what the analytic understanding, using abstraction and generalization, has been able to accomplish. Among those who attempted to set limits to reason, attention was focused on whatever factors supposedly limit the range and the power of the intellect; equal attention was not paid to the question of why the analytic understanding has enabled us to attain the knowledge which we in fact possess. To account for the range and the exactitude of our knowledge is, I submit, no less serious a question for a theory of knowledge than are any questions concerning the limits which human knowledge may not be able to transcend. In fact, it may be said that theories of knowledge which rest on assumptions incompatible with giving an adequate account of why we have been able, through observation and inference, to extend the scope and the accuracy of our empirical knowledge, are theories which cannot in the end be maintained. For this reason, I believe that the nineteenth-century views of the intellect which have here been examined will, before long, be unacceptable. When this occurs, our philosophic horizon will be radically altered, and we shall then be free of still another aspect of nineteenth-century thought.