PHILOSOPHY AND PHENOMENOLOGICAL RESEARCH

A Quarterly Journal

VOLUME XX, No. 3 MARCH 1960

DETERMINISM IN HISTORY

Some thirty years ago, a historian of some eminence examined the apparently decisive influence exercised by a number of famous persons upon such important historical occurrences as the Protestant Reformation in England, the American Revolution, and the development of parliamentary government. He then assessed the supposedly critical role which the decisions and actions of these men played in bringing about those events, generalized his findings, and concluded as follows:

> These great changes seem to have come about with a certain inevitableness; there seems to have been an independent trend of events, some inexorable necessity controlling the progress of human affairs.... Examined closely, weighed and measured carefully, set in true perspective, the personal, the casual, the individual influences in history sink in significance and great cyclical forces loom up. Events come of themselves, so to speak; that is, they come so consistently and unavoidably as to rule out as causes not only physical phenomena but voluntary human action. So arises the conception of *law in history*. History, the great course of human affairs, has not been the result of voluntary efforts on the part of individuals or group of individuals, much less chance; but has been subject to law.
> (Edward P. Cheney, *Law in History and Other Essays*, New York, 1927, p. 7).

The view expressed in this quotation is a variant of a conception of human affairs that is familiar and continues to be widely held. It is a conception that has sometimes been advanced as ancillary to a theodicy; sometimes to a romantic philosophy of cosmic organicism; sometimes to an ostensibly "scientific" theory of civilization which finds the causes of human progress or decline in the operations of impersonal factors such as geography, race, or economic organization. Despite important differences between them, these various doctrines of historical inevitability share a common premise: the impotence of deliberate human action, whether individual or concerted, to alter the course of human history, since historical changes are allegedly the products of deep-lying forces which conform to fixed, though perhaps not always known, patterns of development.

It is not my aim here to discuss this doctrine of historical inevitability. That doctrine has not lacked effective critics, and in recent years it has been subjected to severe scrutiny by numerous historians and philosophers. I would like to say in passing, however, that I agree with its critics in

holding it to be untenable. In some of its variant forms the doctrine can indeed be shown to have no empirical content, since in those versions notions are employed such that no conceivable empirical evidence can ever be relevant for evaluating the doctrine as true or false. But even when it is formulated as a factually verifiable statement, the available evidence supports neither the thesis that all human events illustrate a unitary, transculturally invariant law of historical development, nor the thesis that individual or concerted human effort never operates as a decisive factor in the transformations of society. In asserting all this I am, of course, not denying that in many historical situations individual choice and effort may count for little or nothing. On the contrary, I want to affirm explicitly that frequently there are ascertainable limits to human power, whether individual or collective, for directing the course of historical changes – limits that may be set by facts of physics and geography, by biological endowment, by modes of economic production and available technological skills, by tradition and political organization, by human stupidity and ignorance, as well as by various antecedent historical occurrences.

On the other hand, many recent critics of historical inevitability have not stopped with denying the manifestly exaggerated claims of this doctrine. They have gone on to challange what they believe is the basic assumption underlying that doctrine, an assumption to which that doctrine is supposedly but an easy corollary. More specifically, a growing number of thinkers has been claiming that what is really at the bottom of beliefs in historical inevitability is the very notion that human events generally occur only under determinate and determining conditions. Many writers have in consequence argued that a thoroughgoing determinism is incompatible with the established facts of history as well as with a genuinely significant imputation to human beings of responsibility for their choices and actions. In the eyes of many, furthermore, it is this deterministic assumption which is ultimately behind current attempts at extending behavioristic (or more generally, naturalistic) methods of inquiry into the study of human affairs; and the undeniable crudities which have sometimes accompanied the use of such methods, have been therefore cited as the unavoidable fruits of the deterministic assumption itself. Accordingly, a number of critics of historical inevitability have also trained their fire on the putative deterministic premise of much current psychological and social research; they have challenged the worth of such research in effect because of its allegedly disruptive effects on vital beliefs in human freedom and in the validity of any judgment ascribing responsibility to individual persons for any of their actions.

It would not be difficult to suggest plausible explanations, psychological and sociological, based on the events of the past few decades, for the

current intellectual hostility toward the assumption of a thoroughgoing determinism in human history. It is not my aim, however, to propose such explanations. I wish, instead, to examine the major arguments as I have encountered them which have been advanced in criticism of determinism, and to indicate where they seem to be mistaken. I hope thereby to show that critics of historical inevitability who have argued for either a radical or a qualified indeterminism in human affairs, have rejected one extreme position only to adopt another one no less extreme and dubious.

I

I must, however, first state briefly what is to be understood by "determinism," and also indicate summarily what I believe to be the cognitive status of the general assumption of determinism.

There are writers, like the Dutch historian Pieter Geyl, who construe it as the doctrine "according to which we are helplessly caught in the grip of a movement proceeding from all that has gone before." (Pieter Geyl, *Debates with Historians*, New York, 1956, p. 236.) But if we adopt such a definition, and take strictly the phrase "helplessly caught" or its equivalents, we are committed from the outset not only to identifying determinism with a particular and even mistaken interpretation of historical processes. We are also committed to a formulation that makes the issue of determinism, as discussed traditionally as well as currently, of doubtful relevance to the analysis of most branches of knowledge. I think, however, that this issue is not foreign to such analyses; and it is therefore desirable to formulate the doctrine in a manner that does not preclude its pertinence to extensive areas of scientific inquiry.

Let me sketch a definition of "determinism" in terms of an example that is generally familiar, relatively simple, and commonly regarded as a deterministic one. I borrow the example from a discussion of a physiochemical system by the late physiologist. Lawrence J. Henderson. (*Pareto's General Sociology*, Cambridge, Mass., 1937, Chap. 3.) The system consists of a mixture of soda-water, whisky, and ice, contained in a sealed vacuum bottle. We assume for the sake of simplicity that no air is present in the bottle, or at any rate that if air is present it can be ignored. We also assume that the mixture is completely isolated from other systems, for example, from sources of heat in the environment, from the influence of electric and gravitational fields, and so on. It is of great importance to note, moreover, that the sole characteristics of the system which are of concern are its so-called thermodynamical ones, and that any other traits which the system may exhibit fall outside of this discussion. In particular, the factors (or "variables") to which attention is here directed include the following: the *number of components* of the system (the com-

ponents here are water, alcohol, and carbondioxide); the *phases* or types of aggregation in which the components occur (i.e., whether they occur in a solid, liquid, or gaseous phase); the *concentrations* of the components in each phase; the *temperature* of the mixture; its *pressure* on the walls of the container; and so on. Now it is well-known that under the stipulated conditions, and for a given temperature and pressure, each component will occur in the various phases with definite concentrations; and conversely, if the concentrations are fixed, the temperature and pressure will have a unique set of values. Thus, if the pressure of the mixture were increased (for example, by pressing down the stopper of the bottle), the concentration of water in the gaseous phase would be reduced, and its concentration in the liquid phase would be increased; and analogously for a change in temperature. It is therefore evident that the variables of the system which are under consideration stand to each in definite relations of interdependence. Accordingly, I propose to say that the value of a variable at any given time is "determined" by the values of the other variables at that time.

But we can go one step further, and indicate what is to be understood by saying that the system as a whole is a deterministic one. Suppose that at some initial time, the system is in a definite *state* – i.e., the variables of the system have certain fixed values; suppose that because of a change induced in one or more of those values at that time, the system moves into another state after an interval of time t; and suppose, finally, that the system is brought back in some way to its initial state, that the same changes are induced in the variables as before, and that after the same interval of time t the system again is in the second state. If, now, the system behaves in this manner, no matter what state is taken to be the initial state and no matter what interval of time t is specified for the duration of its development into the second state, then the system will be said to be a deterministic one in respect to the indicated class of characteristics or variables. It is evident that if a deterministic system is in a definite state at a given time, the occurrence of that state at that time is determined – in the sense that the necessary and sufficient condition for the occurrence of that state at that time is that the system was in a certain state at a certain previous time. Moreover, if a variable of the system has a certain value at a given time, that value can be said to be determined by the state of the system at any prior time – that is to say, the necessary and sufficient condition for that variable of the system having that value at that time is that the system was in some definite state at some prior time.

This skeletal account of what is to be understood by a deterministic system can be generalized and made more precise. In particular, it can be extended to include systems whose characteristics are not (and perhaps

cannot be) represented by numerically measurable variables. It can also be broadened so as to cover systems whose "macroscopic" or "molar" characteristics may be said to be determined by the structures and characteristics of certain "microscopic" constituents of those systems – as in the case of the thermal properties of a gas being contingent on the occurrence of certain relations between the molecules of the gas. Space is lacking, however, for presenting a more generalized and technically more adequate definition of determinism, though enough has been said to suggest how such an analysis would proceed.

But there are several points in this account to which special attention must be directed. In the first place, it is immediately clear that when determinism is understood in the above sense, the assumption that a system is deterministic does *not* entail that the states of the system are *predictable* – whether from prior states of the system or from the states of the microscopic parts of the system. Accordingly, a system may be a deterministic one, though we may not know that it is such; and it is a mistake to identify, as some influential philosophers seem to have done, the meaning of "determinism" with the possibility of prediction with unlimited accuracy. On the other hand, both our practical and theoretical interests are directed toward discovering certain regularities in the operations of various systems, with a view to formulating laws or rules that may enable us to predict (or retrodict) the occurrences of events and their characteristics. Indeed, we have been remarkably successful, in the case of many systems, in constructing theories which are instrumental to highly precise predictions of many varieties of events. Moreover, we can rarely be certain in formulating such laws that all the necessary and sufficient conditions for the occurrence of events and processes have been enumerated. Nevertheless, most of our practical interests, and even some of our theoretical ones, are satisfied if we succeed in stating only some of the necessary conditions whose own existence is relatively impermanent or sporadic, provided that "other things are equal" and provided that when those conditions do become actualized (perhaps because we are able to control their occurrence) the events in question are also realized.

In the second place, it will also be clear that while a given system may be deterministic with respect to one set of properties, it need not necessarily be deterministic with respect to some other set. Moreover, while the occurrence of a given set of properties exhibited by one system may not be determined by a prescribed class of characteristics also exhibited by that system, the occurrence of those properties may be determined by other characteristics manifested in some other system. Accordingly, should we have reason to believe that a given system is not deterministic in respect to a specified set of properties, at least two alternatives are in principle open to us. We may have evidence to show that the system is

not an isolated one; and we may therefore either make allowences for the disturbing influences which play upon it from the "outside," or enlarge the system so that it is taken to be part of a more *inclusive* deterministic system. The other alternative is to attribute the apparent indeterminism of the system to an incomplete or incorrect analysis of the system itself. We may then, for example, come to regard it as made up of a differently specified set of parts or processes, and so perhaps discover that the macroscopic states of the system are determined by certain of its microscopic states.

In the third place, determinism in its most general form appears to be the claim that for every set of characteristics which may occur at any time, there is some system that is deterministic in respect to those occurrences. Now it is easy to see that determinism so construed has not been conclusively established, nor can it be conclusively refuted by the outcome of any empirical investigation. It has not been conclusively established, since there are perhaps an endless number of classes of events for which we do not yet know the determining conditions; and it is at least logically possible that for some of those classes of events no determining conditions in fact exist. On the other hand, determinism cannot be definitively disproved, since our failure to discover the determining conditions for some event (or type of event) does not prove that there are in fact no such conditions. In my view, therefore, a doctrine of universal determinism can be defended only partly on the ground that it is a correct generalized description of the world as we actually know it; and its operative role in inquiry seems to me to be that of a guiding principle, which formulates in a comprehensive fashion one of the major objectives of positive science.

It is worth noting, however, that determinism functions most effectively as a regulative principle, when the highly generalized formulation suggested above is replaced by a more specific one – one which stipulates more or less definitely what sort of characteristics are to be looked into in our search for the determining conditions of various types of events. For example, in the Laplacian version of determinism, the determining conditions for all occurrences are taken to be the positions and momenta of mass-particles, together with certain dynamic relations (classically called "forces") between the latter. It is a familiar fact that the Laplacian notion of determinism was for a time a fruitful guiding principle for an extensive class of investigations, although its fertility eventually became exhausted, and by the end of the 19th century physical scientists adopted other special forms of the deterministic assumption. No comparably fruitful specializations of this assumption have been proposed in the psychological and social sciences – although in these areas of study particular forms of determinism have also led to important findings, for

example, those which have directed attention to such determining factors as heredity, attitudes acquired by training, repetition of exposure to stimuli, modes of economic production or social stratification and social mobility.

Although such specializations of the deterministic assumption may have only a limited range of adequacy, enough has been said to make clear that the inadequacies of these special forms do not constitute a definite disproof of the general deterministic principle. Nor do I believe, though I cannot here advance any supporting arguments, and despite the almost unanimous opinion of contemporary physicists to the contrary, that current developments in quantum theory have established the untenability of a universal determinism as a generalized regulative principle.

These considerations, though somewhat abstract and initially remote from my theme, have a direct bearing on current objections to the use of deterministic assumptions in the study of human history. What, then, are the arguments which have led so many recent thinkers to reject such assumptions? I shall examine the main reasons that have been advanced for such rejection under the following convenient heads: 1) the argument from the non-existence of so-called "necessary laws of development" in human history; 2) the argument from the unpredictability and inexplicability of human events; 3) the argument from the emergence of novelties in human affairs; 4) the argument from the occurrence of chance events in human history; and 5) the argument from the incompatibility of determinism with the reality of human freedom and with the attribution of moral responsibility.

II

The first argument can be quickly dismissed. It is directed primarily against those grandiose philosophies of history, whether religious or secular in orientation, which claim to find either a definite pattern of development in the apparently chaotic story of the entire human race, or at any rate a fixed order of change repeatedly exhibited by each human society or civilization. On this view, accordingly, every human act has a definite place in an unalterable or timeless structure of changes, and each society must necessarily pass through a definite series of antecedent changes before it can achieve a subsequent stage. Moreover, though human individuals are the ostensible agents which bring about the movement of history, in most of these philosophies human actions are at best only the "instruments" through which certain "forces," operating and evolving in conformity with fixed laws, become manifest.

Philosophies of history of this type often possess the fascination of great dramatic literature; and few of their readers would be willing to

deny the remarkable imaginative powers and amazing erudition that frequently go into their construction. As I have already indicated, however, the historical evidence, when such evidence is at all relevant for judging such philosophies, is overwhelmingly negative; and like most of their current critics I feel safe in rejecting them as false.

But does it follow from the falsity of the doctrine of historical inevitability that there are no causal connections in history, and that determinism in history is a myth? Those recent critics of the doctrine who believe that it does follow, offer no explicit grounds for their claim, and appear to base their contention on what I think is an extraordinarily narrow conception of what a deterministic system must be like. For they appear to assume that astronomy supplies the typical example of such a system; and they tacitly suppose that since human history does not exhibit the stability and the regular periodicity of the solar system, historical events cannot possibly be elements in a deterministic system. In point of fact, however, some of the familiar features of the solar system are not representative of most deterministic systems. For the relatively unchanging periodicity of planetary motions, for example, is contingent upon the continued relative isolation of the system from the influence of other bodies in remote regions of space, as well as from the effects of various changes within the system (such as chemical or biological ones) that are formally excluded from the province of celestial mechanics – a circumstance which is rarely encountered in connection with most deterministic systems even in the natural sciences. Thus, a straw flying in the wind exhibits no such familiar regularities as do the planets, not because we have reason to believe that the motion of the straw is not determined by definite dynamic properties, but because some of these determining factors are undergoing rapid (and indeed unknown) variations. The crucial point to note is that while a given system may fail to exhibit some special pattern of regular behavior, it may nevertheless manifest a more complex, because less uniform, pattern of changes; and it also may happen that certain apparently random changes in parts of the system depend on variable factors located in other parts of the system. Accordingly, even if there are no laws of historical development, as claimed by proponents of historical inevitability, it may still be the case, for example, that the rise of the towns in 10th century northern Europe was determined at least in part by the Mohammedan interruption of the Mediterranean trade, that the decline of Spanish power in the 17th century was in part the consequence of Spanish economic and colonial policy, or that a necessary condition for the entrance of the United States into the first World War was the adoption by Germany of an unrestricted submarine warfare. In short, the argument against determinism from the nonexistence of historical laws of development, does not achieve its objective.

III

Critics of determinism in history place much weight on the essential inexplicability and unpredictability of historical events. This argument is frequently coupled with a strong emphasis on the "creative novelties" which emerge from human actions and which constitute at least part of the ground for the alleged unpredictability of historical changes; but I shall postpone discussing this latter point. Even so, there are several dimensions to the present argument, and I shall consider them in turn.

1) Let me first quickly dispose of an argument, repeatedly used by Charles Beard, to support the conclusion that historical occurrences are basically inexplicable. In substance, the argument claims that all attempts at an explanation of what happens in human history lead to an endless regress, since even if we succeed in discovering the conditions for the occurrence of an event, the occurrence of those conditions will need to be explained in terms of the occurrence of another set of antecedent conditions, and so on without limit. (Thus Beard declared: "A search for the causes of America's entry into the [first World War] leads into the causes of the war, into all the history that lies beyond 1914, and into the very nature of the universe of which history is a part; that is, unless we arbitrarily decide to cut the web and begin at some point that pleases us." *The Discussion of Human Affairs*, New York, 1936, p. 79; cf. also pp. 68 ff.)

Such an objection to the possibility of explanation, however, is absurd. If it were sound, no explanations for the occurrence of events could be achieved, neither in the social nor in the natural sciences. But the retort to it is obvious. Although C may be the cause or a determining condition for B, where B is a condition for the occurrence of A, B is nonetheless a determining factor for A; and in stating the determinants for B, we are answering a different question from the one we are seeking to resolve when we ask for the determinants of A. In brief, an explanation can be completely satisfactory, even though in offering it we are assuming something which has not in turn been also explained.

2) There is another issue, largely verbal, which will also require only brief attention. It has already been mentioned that a number of recent writers have identified the meaning of "determined" as the possibility of making predictions with unlimited precision. Moreover, according to current quantum theory there are definite theoretical limits to the degree of precision with which subatomic processes can be predicted. These writers have therefore concluded that the general deterministic assumption must be judged as either false or as inapplicable to a large class of occurrences. (Cf., for example, Moritz Schlick, "Die Kausalität i.d. gegenwärtigen Physik," *Gesammelte Aufsätze*, pp. 73–4).

Is it plausible, however, to equate except by fiat the meanings of the

words "determined" and "predictable"? It is customary in this connection to distinguish two senses of "predictable" or its opposite "unpredictable." In one sense, an event is unpredictable if, because of the state of our knowledge and our technology at a given time, the event cannot be foretold at all, or only with some degree of precision. In the second sense of the word, an event is *theoretically* unpredictable if the assumption that its occurrence can be calculated in advance, either at all or with unlimited precision, is incompatible with some accepted theory of science. In neither of these senses, however, is "unpredictable" synonymous with "undetermined" (or "predictable" with "determined") – at any rate not when "determined" has the meaning I have suggested for it. For on that meaning the occurrence of solar eclipses, for example, may be determined, despite the fact that some primitive tribes lack the knowledge for anticipating them, and despite the fact that the ancient Babylonians were able to predict them with far less precision than we can. Moreover, even though quantum theory places an upper bound on the precision with which subatomic processes are predictable, it surely is not nonsense to hold, as Planck, Einstein, and De Broglie have in fact held whether correctly or mistakenly, that an alternative theory may eventually be constructed which will not impose such theoretical limits on precise predictions in that domain. Accordingly, the verbal gambit which stipulates the synonymy of "determined" and "predictable," does not dispose of the issue raised by critics of the assumption of determinism in human history.

3) Let us turn to more substantive problems related to the predicdictability of human events. Are such events utterly unpredictable in fact? It would be just silly to maintain that the whole of the human future is predictable by us, or that our present information suffices for retrodicting every event in the human past. But it would also be absurd to hold that we are completely incompetent to do any of these things with reasonable assurance of being correct. It is banal to note that our personal relations with other men, our political arrangements and social institutions our transportation schedules, and our administration of justice, could not be what they are, unless fairly safe inferences were possible about the human past and future. As I write this line, we cannot predict with certainty who will be the next president of the United States. But if we take for granted current American attitudes toward domestic and foreign powers, and also take into account the present alignment of the world-powers, we do have good grounds for confidence that there will be a presidential election this year, that neither major political party will nominate a Communist sympathizer, and that the successful candidate will be neither a woman nor a negro. These various predictions are indefinite in certain ways, for they do not foretell the future in a manner

to exclude all conceivable alternatives but one. Nevertheless, they *do* exclude an enormous number of logical possibilities for the coming year; and they do point up the fact that though the human beings who will participate in those coming events may have a considerable range of free choice in their actions, their actual choices and actions will fall within certain limits. The obvious import of all this is that not everything which is logically possible is also historically possible during a given period and for a given society of men; and the equally obvious interpretation of this fact is that there are determining conditions for both what has happened as well as what will happen in human history.

4) It is nevertheless pertinent to ask why even our subsequent historical explanations of past human events, to say nothing of our forecasts of future ones, are almost invariably imprecise and incomplete. For our accounts of past occurrences, whether these be individual or collective acts, rarely if ever explain the exact details of what did happen, and succeed in exhibiting only the grounds which make *probable* the occurrence of a more or less vaguely (or precisely) formulated characteristic.

It will be helpful to recall the ideal logical structure of an explanation. That structure is usually described as that of a formally valid deductive argument, whose conclusion is a statement formulating the event to be explained, and whose premises contain one or more statements of universal laws (expressing some assumed invariable connections of attributes or relations), as well as relevent singular statements that specify the initial and boundary conditions for applying those laws to the case at hand.

This logical structure can be amply illustrated by examples of explanation in many areas of inquiry, especially when what is being explained is some *law* (rather than some particular *event*) on the basis of other laws or theories. But it is notorious that the explanations encountered in the study of human affairs do not conform strictly to this pattern; and it is at least a debatable question whether that pattern is fully embodied in explanations of concrete, individual occurrences even in the natural sciences – except perhaps in rare cases (as in the case of events occurring under carefully controlled laboratory conditions). The deductive structure of explanation thus appears to represent what may at best be a limiting or ideal case in historical study. I proceed to mention several reasons, most of them perhaps quite familiar, why this is so.

a) As just noted, an explanation of a particular event ideally includes among its premises the set of initial and boundary conditions for the application of assumed universal laws; and in specifying those conditions, the explanation states the sufficient conditions for the occurrence of the event. But even if we knew all the relevant laws pertaining to the traits of an event under study, we are rarely if ever in the position in historical investigations to specify more than a fraction of the initial conditions for

the application of those laws. Because of our ignorance of many if not of most of these initial data, we can therefore state only some of the *necessary* conditions for historical occurrences. For this reason alone, accordingly, explanations in history do not have the structure of a straightforward deductive argument.

Nevertheless, this circumstance hardly constitutes evidence against determinism in history; on the contrary, it testifies to the dependence of events on the occurrence of other contingencies additional to those we can usually identify. Indeed, explanations of particular happenings in the natural sciences face difficulties essentially comparable to those encountered in historical inquiry. These difficulties are often concealed even in physics, by the tacit assumption of a *ceteris paribus* clause, where the "other things" which are supposedly "constant" are frequently unknown or are only hazarded. For example, the path traversed by a bullet can be explained with the help of the Newtonian theory of mechanics and gravitation. That explanation may explicitly mention such items as the muzzle-velocity of the projectile or the resistance of the air; but it will not mention the position of the earth in relation to our own and other galactic systems. The explanation ignores this latter fact, because on the theory which it employs the mass of the bullet is constant, and independent not only of the velocity of the body but also of its distances from other bodies. However, as Mach pointed out in his critique of Newtonian theory, it may well be that the inertia of a body is a function of its distance from all other bodies in the universe. This observation, baptized as "Mach's Principle," receives serious attention in current physical cosmology, though the possibility which it notes apparently was never considered prior to Mach. One important difference between explanations of particular events in the natural and social sciences thus seems to be that while in the former we frequently have no good reasons for supposing that the conditions we mention for the occurrence of an event is not sufficient, in the latter we are usually acutely aware that the conditions we cite are only necessary.

b) There is, however, a further point about explanations in history that is perhaps even more important. In the ideal pattern of explanation, the generalizations included in the premises are assumed to be strictly universal in form. But in historical studies the generalizations we tacitly invoke are rarely if ever plausible if they are asserted with strict universality; they are credible only if they are construed as formulating statistical regularities. Moreover, the characterizations employed in those generalizations are usually vague; and if they are defined at all, in order to introduce greater precision into our account of things, they are made more definite only in some quasi-statistical manner. In consequence, in applying such generalizations to particular occurrences, there may be considerable

uncertainty whether the given occurrence properly falls under those generalizations. Accordingly, and quite apart from the question whether we can specify all the requisite initial conditions for the application of assumed laws, the statement asserting the occurrence of the event to be explained does not follow *deductively* from the premises; that statement stands to the explanatory premises which we can assert with a measure of warrant, only in some relation of probability.

The point is important enough to merit an illustration. At the time of his death Henry VIII's official style read essentially as follows: By the Grace of God, King of England, Ireland and France, Defender of the Faith and Only Supreme Head of the Church of England and Ireland. But when Elizabeth succeeded to the throne in 1558, eleven years later, she proclaimed herself: By the Grace of God, Queen of England, Ireland and France, Defender of the Faith, *etc.*, and she was the first English sovereign to *etcetrate* herself in an unabbreviated official title. Why did she do so? F. W. Maitland, the legal historian, offered an explanation. He produced evidence to show that the introduction of the "etcetra" was not a slip, but was a deliberate act which sought to conceal her plans, for the time being at least, concerning the difficult Roman question. Maitland in effect argued that because the alignment of political forces both at home and abroad was unsettled, and because a clear stand by her on the future relation of the English Church to Rome was fraught with grave perils no matter how she decided, she won for herself freedom of action by employing a style in which her eventual decision on this issue was ambiguously stated.

Now an examination of Maitland's discussion shows beyond doubt that the event he sought to explain does indeed logically follow from the explanatory premises, provided these include an assumption essentially as follows: Whenever anyone acquires a position of great political power, is faced with an issue fraught with peril, but is required to announce immediately a policy, then such a person will make a statement that is momentarily noncommittal. However, such an assumption, if asserted universally, is clearly false; and it is plausible only if it is construed as holding either for the most part or in some appreciable fraction of cases. But if this emended generalization is adopted, the fact to be explained no longer follows strictly from the premises. Furthermore, even in the emended form the generalization makes use of the notion of a policy decision involving uncertain dangers; and it is clear that this notion is a vague one. Indeed, though we might conceivably agree that a policy is dangerous to a maximal degree only if it possesses a certain set of specified traits, we would ordinarily classify a policy as dangerous even if it possessed only some undetermined fraction of those traits. In subsuming the decision which Elizabeth was required to make under the heading "being fraught

with peril," we are thus characterizing it in an essentially statistical fashion; and we may be therefore not at all sure that the generalization, even in its emended form, is actually applicable to the case under discussion.

5) There is accordingly little doubt that typical explanations in history are in an obvious sense incomplete, since they specify what is at best only some of the necessary conditions for the occurrence of events. But before commenting on the import of this point for the issue of determinism, let us consider one further crucial issue: Granted that we have not succeeded in discovering strictly universal laws which would account completely for historical events, and which would indicate the sufficient conditions for their occurrence, are there reasons of principle for our failure, or are there reasons for believing that our failures may be only temporary?

An adequate answer to these questions must take into account the frequently neglected though familiar point that in providing explanations for historical events, historians usually operate on certain typical (and often conventionally set) levels of analysis – despite the possibility that causal determinants for those events may be found on various other levels of analysis. Historians are in the main habitually interested in accounting for the occurrence of only a somewhat limited class of traits; and they normally also seek to explain them in terms of a comparably restricted set of traits characterizing events. Thus, Maitland was concerned with explaining the *ambiguity* occurring in Elizabeth's title; and he evidently did not set himself the task of explaining her use of the *specific* locution "etcetra," rather than some other form of ambiguity. Nor was he interested in explaining the occurrence of Elizabeth's particular facial expression or the amount of her blood pressure, which were also parts or phases of the event in which she conceived the ambiguous locution. Furthermore, Maitland explained her adoption of an ambiguous title in terms of Elizabeth's political intelligence and the alignment of politically powerful groups. It evidently did not occur to him to account for the ambiguous form of her title in terms of such factors as the details of her individual psychology or her particular physiological constitution. These things did not occur to him, not necessarily because they were known by him to be irrelevant to the facts under inquiry, but most likely because their consideration belongs to a level of analysis that normally falls outside the range of the historian's interests, and outside the scope of the historian's competence.

For convenience of reference, and for lack of better labels, let me call those phases of historical occurrences to which historians usually pay attention the "common-sense molar characteristics" of events; and let me refer to other characteristics of events which may be of possible causal relevance to their occurrence as "analytic molecular character-

istics." I hasten to add that I realize this distinction to be a loose one, and that I know no way of sharpening it. Nevertheless, the distinction is a serviceable one, and permits me to state briefly why, as I see it, the actual explanations of human affairs will most likely continue to specify only some of the necessary conditions for the occurrence of events.

The point is that our customary formulations of common-sense molar characteristics are not only vague; they also cover an indefinite number of *specific variant forms* of such characteristics, which have never been exhaustively codified and catalogued in some systematic fashion. In consequence, only a statistical concomitance between common-sense molar traits can be reasonably expected. It is as if a physicist, after recognizing a gross distinction between metals and nonmetals, were to investigate the electrical conductivity of different objects without, distinguishing further between different kinds of metals. Would it be surprising, in the light of what we know, if the generalizations he would then obtain about the variation of conductivity with, say, the temperature of metal objects, would be only statistical in form? Would we not agree that on such a level of analysis nothing more could be expected, and that to obtain more exact relations of dependence the physicist must refine his distinctions, and perhaps even undertake a detailed molecular analysis of his materials? On the other hand, the explanations which the historian usually offers for historical occurrences are in large measure controlled by those interests we all normally have in human affairs – interests which in a broad sense are practical, even if they are sometimes disinterested. I venture the opinion that if someone were to succeed in stating the sufficient conditions for Elizabeth's proclamation of her ambiguous title, but explained that occurrence in terms of analytic molecular characteristics – which included mention of, say, her detailed biological and genetic traits, the condition of her neural synapses, and the specific physical stimuli supplied by her environment – we would all turn away from such an account as not being the sort of history to which we are accustomed or in which we are interested. Accordingly, I see no genuine prospect for explanations in human history which will indeed state the necessary and sufficient conditions for the traits of events in which we are actually interested

But it would certainly be unwarranted to conclude from all this that common-sense molar characteristics do not have determinate conditions for their occurrence. For it is conceivable that those conditions may need to be specified, at least in part, in terms of some analytic molecular characteristics. We are admittedly ignorant of just what the full complement of those conditions is; and even if there are in fact such conditions, it is possible that we shall never discover the complete set. On the other hand, the existence of sufficient conditions on some analytical molecular level of analysis cannot be excluded *a priori*. I therefore conclude that

neither the *de facto* incomplete form of historical explanations, nor the restricted scope of our actual predictions of human events, is cogent evidence against determinism in history.

IV

I now turn to the argument which offers as ground for the rejection of determinism the production in the human scene of new ideas, novel modes of behavior, and unprecedented works of imagination and skill, and which attributes the unpredictability of human actions in part at least to the "creative advance of nature" manifested in the life of man.

The issues raised by this argument are identical with those associated with the doctrine of emergence; and I have time to discuss them only summarily. Two forms of this doctrine must be distinguished. The first form, which for convenience will be called "the doctrine of emergent levels." is atemporal. It maintains that many complex systems exhibit traits and modes of action which cannot be explained or predicted in terms of the properties that the component parts of those systems possess when not members of these systems. The second form of the doctrine, commonly known as "emergent evolution," is a temporal or historical thesis. It asserts that novel forms of organization appear in time, new traits are exhibited, and types of activities are manifested which did not previously exist, and which cannot be understood in terms of what had preceded them. I shall now argue that both versions of the doctrine of emergence are fully compatible with determinism.

Consider first a standard illustration for the thesis of emergent levels: the water molecule, many of whose traits are allegedly not predictable from the properties of its component hydrogen and oxygen atoms – that is, predictable neither from the properties of these atoms when they exist uncombined with other atoms, nor from the properties they possess in other chemical unions. Such formulations of illustrative examples are misleading, as could easily be shown. For the alleged "unpredictability" of emergent traits is not absolute, but is always relative to a particular theory that is adopted for the components of the systems exhibiting those emergent traits. For example, many properties of water are indeed emergents, relative to Dalton's theory of the atom; but some of these very properties are predictable, and hence not emergents, relative to the current quantum theory of atomic structure. But waiving this point, what do such examples of emergent levels really show? Do they establish the untenability of determinism? On the contrary, they clearly testify to the fact that, for example, certain distinctive properties of water come into existence only when hydrogen and oxygen atoms combine in a certain definite manner. More generally, the evidence seems to be overwhelming

that even in those cases in which we cannot deduce the properties of complex wholes from the properties of their components, those complexes and their various traits come into existence or continue to exist only under determinate conditions.

The import of the doctrine of emergent evolution is essentially no different. There are various analytical and empirical difficulties which must be surmounted, before many specific claims of the doctrine can be regarded as established. For example, criteria must be stated for judging whether two traits are "really" the same or different, as a preliminary to the empirical question whether one of them is temporally novel; indications must be given of the sort of evidence that is to be deemed relevant for supporting the frequently voiced claim that laws of nature themselves undergo change; and our present knowledge of the past must in many cases be enormously enlarged, if we are to assert with warrant that certain traits of events are temporally unprecedented. But despite such difficulties, no one can seriously question the main thesis that human beings are perennial sources of temporal novelties.

It must also be admitted that the emergence of many of these novelties could not have been predicted in advance. No one could have predicted the invention of the telephone prior to the work of Faraday and Henry; and no one could have predicted that Faraday was to make the scientific discoveries he did make. Nevertheless, there is nothing mysterious about the impossibility of such predictions, and the impossibility can indeed be shown to be a matter of formal logic. For to predict an event, the traits of that event must be formulated in a statement; and unless the predicates describing those traits occur in the premises of the predictive argument, that statement can follow from the premises neither deductively nor with any significant measure of probability. However, if some trait of an event is radically novel (and hence not definable in terms of previously existing traits), there will be no antecedently known regularities (or laws) connecting the former with the latter. In consequence, the predicate describing such a novel trait will not occur in any premises from which a predictive inference could be made. In short, our inability to predict a radically novel future is simply the consequence of a logical truism.

On the other hand, once a novel characteristic or novel object has come into existence, we are in the position to inquire, and often do inquire, into the conditions upon which the occurrence of that novelty is contingent. We may not always succeed in discovering those conditions, and we may perhaps never succeed in doing so in many cases. But we do not always fail entirely, nor is it just unintelligible to pursue such a quest.

Let me cite two examples of recent inquiries in this connection, though neither of them is especially favorable for my case. The sociology of science seeks, among other things, to ascertain the social conditions which are

favorable to successful scientific research, as well as to the general acceptance of scientific discoveries. Its findings are thus far relatively meager; and given the level of analysis upon which its inquiries operate, it is hardly suprising that no sufficient conditions have yet been found for the occurrence or acceptance of a great scientific achievement. These inquiries have nevertheless established some things: for example, that a measure of free discussion and communication is a minimal requirement for progress in science, or that there are various necessary conditions, individual and social, for the occurrence of scientific innovations and their subsequent acceptance. Again, there has been some study of the psychology of creative thinking, directed to specifying the circumstances under which mathematicians, composers, and other inventive minds have achieved their creative successes. Here again the findings are slight. Certainly nothing has yet been discovered which would explain such remarkable feats as Mozart's writing of *The Magic Flute* or Newton's deduction of the Keplerian laws from gravitation theory; and it may well be that much more will have to be known about the genetic and physiological constitution of individual men, as well as about the effects of various types of environmental stimuli, before we can hope to account for even lesser achievements. But my point is that these diverse attempts at pushing back the frontiers of our ignorance are not inherently absurd, and that no antecedent limits can be fixed as to how far they may be pushed back. But the assumption of determinism in effect simply codifies our general objective as inquirers, to make those frontiers recede. To abandon that assumption would be tantamount to setting prescribed limits to inquiry itself.

V

The next argument against determinism I wish to consider is based on the claim that there is a fortuitous or chance element in history. But the word "chance" is far from univocal in the writings of historians and philosophers, and several of its more prominent senses must be distinguished.

In the first place, the word is frequently used to signify the absence of a pervasive and unified "design, plan, and order in human affairs," and in effect to deny that each historical event is relevantly related to every other. Those who employ "chance" in this sense, clearly intend to controvert those philosophies of history already mentioned, which descry in the apparently chaotic happenings of the human scene the impress of some timeless Reason, or a unitary pattern of cumulative development. So used, the word obviously does not denote any agency or instrumentality that brings events into being, and in this sense it has no explanatory value

whatsoever. On the other hand, it is also evident that on this meaning of "chance," the affirmation of chance happenings does not entail the denial of causal determinants for historical events, nor does such affirmation imply the futility of all inquiry into the conditions upon which specific historical occurrences may be contingent.

In the second place, "chance" is sometimes equated with "the unexpected and the unforeseen," where what is unforeseen may be a purely physical event or the social consequence of an action deliberately undertaken. Thus, the shift in the winds which contributed to the destruction of the Spanish Armada was apparently not anticipated by the Spaniards when they set sail for England. The disappearance of slave economy in the United States, which seemed to many southern landowners to be part of the permanent social order, was not foreseen by most of them even as late as 1859. And few if any of those who contributed to the development of the internal combustion engine or to the production of moderately priced automobiles, envisaged in advance the enormous changes which resulted from these innovations in modes of urban and rural living, in individual and public morals, or in domestic politics and foreign relations. More generally, none of us can fully anticipate the unintended consequences of our choices and actions; and we are frequently inclined to label any striking departure from what is expected to happen normally as an "accident." However, "chance" in this sense is on the face of it but a name for our *de facto* ignorance. Clearly, the tenability of determinism is not being challenged when an event is designated as a "chance" occurrence in this meaning of the word.

In the third place, an event is often said to occur by chance if, to use a familiar formula, it occurs at the "intersection of two or more independent causal series." It is in this meaning of "chance" or "accident" that Bismarck is reported to have once remarked, after reflecting on the role of accident in ruining the plans of wise men, that there is a special providence for drunkards, fools, and the United States. For example, the military situation in 1781 during the American Revolutionary War made it imperative for Cornwallis to retreat from Yorktown. The disposition of the superior American and French forces prevented him from moving his troops by land, and he sought to escape by water. He did in fact transport some of his men across the York River, when a storm arose making the passage of the rest impossible – so that he was eventually compelled to surrender and in effect thereby to terminate the war. Commenting on these events, a recent historian remarks that "the atmospheric conditions that brought on the storm and the military conditions that caused Cornwallis's army to retreat were the products of altogether seperate chains of causes and effects" (Oscar Handlin, *Change or Destiny*, p. 192). Cornwallis's surrender is thus credited to chance, since it occurred at the

juncture of two independent causal sequences – one of which was the chain of events that terminated in the distribution of the British and Franco-American forces, while the other was the different sequence which terminated in the storm. The two sequences themselves are said to be "independent," because no elements in either determined any elements in the other; and accordingly, the events in no one of the series determined the conjuncture consisting in the defeat of Cornwallis.

This notion of chance, as is well-known, has an ancient lineage; and despite the unclarities that surround the metaphoric phrase "independent causal chains," it directs attention to the important if obvious point that while the occurrence of one phase of an event may be determined by one set of conditions, the latter may not suffice to determine some more inclusive phase of the event. But does it follow that an event which is the juncture of two independent causal lines is not determined at all? Does it even follow, as some writers have asserted, that the juncture "cannot be predicted from the laws determining any or all of the series?" These are patently gratuitous claims. For let us assume that an event is a "chance" occurrence in the present sense of the word – i.e., it occurs at the juncture of several independent causal chains; then it is quite plain that the event *does* occur under the *determinate* conditions which are mentioned when the causal chains are specified at whose "intersection" the event lies. Moreover, it is surely a mistake to maintain that the point of juncture is *necessarily* unpredictable from the laws of "any or all the series," even if the detailed outcome of the juncture may not be predictable in *some* cases. A billiard ball moving along a given line under the impact of a blow from a cue, can certainly be predicted to collide with a steel ball travelling in the opposite direction along that line because of the presence of a strong magnet. More generally, and indeed more precisely, a statement asserting the occurrence of some event may not be deducible from either of two sets of premises; nevertheless, that statement may be deducible (and the event it describes predictable) from the logical conjunction of those sets of premises. Accordingly, to be a chance event in this sense of the word, is relative to the explanatory premises that happen to be adopted; and the characterization of an event as a chance occurrence is thus based on a purely logical distinction. But surely nothing in this distinction is prejudicial to the adequacy of the deterministic assumption.

There is one remaining sense of "chance" I want to note. According to it, an event happens by chance, if there are absolutely no determining conditions for its occurrence. *If* there are such events (or traits of events), they are not merely unexpected and unforeseen, but are *inherently* unforeseeable; and their occurrence could not be explained, even *after* they had happened, no matter how extensive our knowledge may become. It is, however, at best an unsettled question whether there *are* such chance

events – and I venture this opinion despite the well-known rumor that it has been affirmatively settled by modern physics. For as I have already argued, such a question cannot, in the nature of the case, be answered definitively, since even repeated failure to find any causal conditions for some type of event can always be construed as evidence for human stupidity. Would we not ordinarily interpret a competent historian's readiness to label as "chance event" (in the present sense of the word) an occurrence which he is unable to explain, as simply an expression of his weariness or despair? On the other hand, if there are indeed chance events in this meaning of the word, there certainly is a definite limit to what can be explained. But since we cannot be sure for which specific events this limit is in force, we cannot be certain in connection with any of them that we really have an impregnable excuse for stopping our inquiries into their determinants.

VI

The final argument I must consider consists in the claim that imputation of genuine responsibility to human beings for any of their actions, is incompatible with a thoroughgoing determinism. I turn to this issue with a measure of dislike, for I would prefer not to stir up what ought to be dead ashes. If I nevertheless propose to discuss it, it is because the issue has been recently revived, not only by writers who make a career out of muddying clear waters, but also by sensitive thinkers of great acumen.

I shall take for my main text the recent book by Mr. Isaiah Berlin on *Historical Inevitability* (London and New York, 1954). This book is primarily a critique, and in my opinion a devastating critique, of philosophies of history which view the changes in human life as the unfolding of an inevitable destiny, and which therefore deny that human effort is of any avail in altering the ultimate course of events. However, Mr. Berlin also maintains that such philosophies are but the direct products of a consistent application of the deterministic assumption to human affairs. He therefore believes there are sufficient reasons for rejecting determinism, partly because it leads to such untenable philosophies of history, and partly because of several further difficulties he adduces. I shall ignore the former of these considerations, for I have already tried to show that determinism does not entail any doctrine of historical inevitability; and it is with Mr. Berlin's two additional arguments against determinism that I shall deal.

1) Berlin takes his point of departure from the commonplace that an individual is morally responsible for an act he performs, only if the individual has not been coerced into doing it, and only if he has elected to do it of his own free volition. Accordingly, if a man is genuinely responsible for some act of his, he *could* have acted differently had his choice been differ-

ent. So much perhaps everyone will be willing to grant. However, Mr. Berlin appears to hold that on the deterministic assumption (which he construes to deny that there are any areas of human life which cannot be exhaustively determined by law), the individual *could not* have chosen differently from the way he in fact did choose; he could not have done so, presumably because his choice at the time he made it was determined by circumstances over which he had no control – circumstances such as his biological heritage, his character as formed by his previous actions, and the like. Mr. Berlin therefore maintains that on the deterministic premise, the supposition that a man could have chosen otherwise than he in fact did, is ultimately an illusion, resting on an ignorance of the facts. In consequence, Berlin concludes that determinism entails the elimination of individual responsibility, since it is not a man's *free* choice, but the conditions which determine his choice, that must be taken to explain a man's action. So Berlin declares:

> Nobody denies that it would be stupid as well as cruel to blame me for not being taller than I am, or to regard the color of my hair or the qualities of my intellect or my heart as being due principally to my own free choice; these attributes are as they are through no decision of mine. If I extend this category without limit, then whatever is, is necessary and inevitable.... To blame and praise, consider possible alternative courses of action, damn or congratulate historical figures for acting as they do or did, becomes an absurd activity (p. 26).

And he adds:

> If I were convinced that although choices did affect what occurred, yet they were themselves wholly determined by factors not within the individual's control (including his own motives and springs of action), I should certainly not regard him as morally praiseworthy or blameworthy (pp. 26–7, footnote).

I have two comments to make on this. *a*) In the first place, it is difficult to obtain a clear idea of the notion of the human self with which Mr. Berlin operates. For on his view, the human self is apparently not only to be distinguished from the human body, but also from any of the choices an individual makes – insofar as a choice is dependent on a man's dispositions, motives, and springs of action.

Now no doubt, when I deliberate and finally seem to choose between alternatives, I am usually not aware that the choice may be the expression of a set of more or less stable dispositions, more transient impulses, and the like – anymore than I am usually aware of my heartbeat or of the organ which produces it. But should I become aware of these things, as I sometimes am aware, does my choice or my heart cease to be mine? If I understand Mr. Berlin, he requires me to answer in the negative, though for no obviously good reason. On the contrary, he appears to have an irresolvable puzzle on his hands of how to identify the human self – a

puzzle that arises from his so construing the nature of that self, that any trait or action which stands in relations of causal dependence to anything whatever, is automatically cut off from being a genuine phase of the self. It is as if a physicist in analyzing the performance of a baseball, and noting that the shape, the surface quality, and the elastic properties of the ball are partly determinative of its behavior when it is struck by a bat, were to declare that these traits do not properly belong to the ball, but are as much external to it as the impulse imparted by the bat. Just how and where the boundaries of the individual human self are drawn, may vary with different contexts of self-identification, and there may even be important cultural differences in this respect. But however they are drawn, they must not be so drawn that nothing finally can be identified as the self. They must not be so drawn that an insoluble puzzle is made of the fact that we conceive ourselves to be acting freely (i.e., without external constraints), even though we may recognize that some of our choices are the products of our dispositions, our past actions, and our present impulses.

b) This brings me to my second comment. Mr. Berlin's argument seems to be unwittingly patterned on the model used so typically by Eddington – namely, that since physics analyzes common-sense objects like tables into a large number of rapidly moving minute particles, with relatively large distances between them, it is therefore illusory to regard tables as hard solids with continuous surfaces. This argument is fallacious, as has often been noted, and involves among other things a confusion of types or categories. In any event, it does not follow that because terms like "solid," "hard," and "continuous" are not applicable in their ordinary senses to a cloud of molecules, they are therefore not correctly applicable to macroscopic objects like tables.

But Mr. Berlin's argument suffers from a similar flaw. For it is a similar mistake to claim that men cannot be genuinely responsible for any of their acts, just because there are conditions inherent in the biological and psychological structure of the human body, under which such responsibility is manifested. Now it is an empirical fact, as well-attested as any, that men often do deliberate and decide between alternatives; and whatever we have discovered, or may in the future discover, about the conditions under which men deliberate and choose, cannot be taken, on pain of a fatal incoherence, as evidence for *denying* that such deliberative choices *do* occur.

On the other hand, the imputation of responsibility is an empirically controllable matter, and we may be mistaken is some of the imputations we make. We may discover, for example, that an individual continues to be a petty thief, despite our best efforts to educate him by way of praise and blame, rewards and punishments, and despite his own apparently serious attempts to mend his ways. We may then conclude that the indi-

vidual suffers from a mild derangement and cannot control certain of his acts. In such a case, the imputation of responsibility to that individual for those acts would be misplaced. But the fact nevertheless remains that the distinction between acts over which a man does have control and those over which he does not, is not thereby impugned – even if we should discover that there are conditions under which the capacity for such control is manifested and acquired. In short, an individual is correctly characterized as a responsible moral agent, if he behaves in the manner in which a normal moral agent behaves; and he is correctly characterized in this way, even if all the conditions which make it possible for him to function as a moral agent at some given time are not within his control on that occasion.

2) But Mr. Berlin has one further argument against determinism, upon which he apparently sets great store. He claims that irrespective of the truth of determinism, belief in it does not color the ordinary thoughts of the majority of men. If it did, so he argues, the language we employ in making moral distinctions and in expressing moral suasions would not be what it actually is. For this language in its customary meaning tacitly assumes that men are free to choose and to act *differently* from the way they *actually* choose and act. But if determinism were sound and we really believed in it, Mr. Berlin therefore concludes, our ordinary moral distinctions would not be applicable to anything, and our moral experience would be unintelligible.

Mr. Berlin puts his case as follows:

> If determinism were a valid theory of human behavior, these distinctions [like 'you should not (or need not) have done this,' and 'I could do it, but I would rather not,' which plainly involve the notion of more than the merely logical possibility of the realization of alternatives other than those which were in fact realized, namely of differences between situations in which individuals can be reasonably regarded as being responsible for their acts, and those in which they can not] would be as inappropriate as the attribution of moral responsibility to the planetary system or the tissues of a living cell.... Unless we attach some meaning to the notion of free acts, i.e., acts not wholly determined by antecedent events or by the nature and 'dispositional characteristics' of either persons or things, it is difficult to see how we come to distinguish acts to which responsibility is attached from mere segments in a physical, psychical, or psycho-physical causal chain of events.... If the determinist hypothesis were true and adequately accounted for the actual world, there is a clear sense in which (despite all the extraordinary casuistry which has been employed to avoid this conclusion) the notion of human responsibility, as ordinarily understood would no longer apply to any actual, but only to imaginary or conceivable, states of affairs.... To speak, as some theorists of history (and scientists with a philosophical bent) tend to do, as if one might accept the determinist hypothesis, and yet to continue to think and speak much as we do at present, is to breed intellectual confusion (pp. 32–3).

I have already examined those parts of this critique which, as I see it, thoroughly confound the notion of "free acts" with that of "determined

acts"; and my readers must decide where the real intellectual confusion is to be found. But I do want to consider whether, as Mr. Berlin claims, a consistent determinist cannot employ ordinary moral discourse in its customary meanings.

a) Is this claim to be decided on the basis of straightforward empirical evidence, as Berlin sometimes hints it ought to be? If so, then although no statistical data are available and the available information is doubtless not conclusive, the evidence we do have does not appear to support his contention. The language of many devout religious believers, to say nothing of philosophers like Spinoza, provides some ground for maintaining that many men find no psychological obstacles to making normal moral appraisals, despite their explicit and apparently wholehearted adherence to a thoroughgoing determinism. I cite one instance out of a large number that could be mentioned. As is well-known, Bishop Bossuet composed his *Discourse on Universal History* with the intent to offer guidance to the Dauphin on the proper conduct of a royal prince. In it, however, he maintained that

> the long concatenation of particular causes which make and undo empires depends on the decrees of Divine Providence. High up in His heavens God holds the reins of all kingdoms. He has every heart in His hand. Sometimes He restrains passions, sometimes He leaves them free, and thus agitates mankind. By this means God carries out His redoubtable judgments according to ever infallible rules. He is it who prepares results through the most distant causes, and who strikes vast blows whose repercussion is so wide-spread. Thus it is that God reigns over all nations. (*Discourse on Universal History*, Part XIV, Chap. 8; quoted by Renier, G. J., *History: Its Purpose and Method*, p. 264.)

The relevant question to ask at this point is not whether Bossuet was sound in his claims, nor whether he was correct in holding that the reconciliation of human freedom with the operation of a Divine Providece is a transcendent mystery. The relevant question is whether Bossuet did in fact subscribe to a Providential (and therefore deterministic) conception of history, and yet employ ordinary moral language to express familiar moral distinctions. There seems to me little doubt that the answer is clearly affirmative, contrary to Mr. Berlin's assumption that the answer ought to be negative.

b) Let us suppose, however, that Mr. Berlin is right in claiming that if we really did come to believe in a thoroughgoing determinism, the meanings of our moral discourse would be altered. But just what would this assumed fact establish? There are indeed comparable cases in other domains of thought in which, because of the influence of new theoretical ideas the meanings of older but surviving locutions have to some extent been revised. Thus, most educated men today accept the heliocentric theory of planetary motions, but continue to use the language of the sun rising and setting;

and it is safe to suppose that they do not associate with such locutions the precise meanings those expressions doubtless had when the Ptolemaic theory was dominant. Nevertheless, some of the distinctions which this older language codified are not without foundation even today, for in many contexts of observation and analysis it is not incorrect to describe the facts by saying that the sun rises in the east and sinks in the west; and we have learned to use this language so as to express these distinctions, without committing ourselves to a number of others that depend on an acceptance of a geocentric theory of the heavens.

Analogously, however, should the majority of men accept the deterministic assumptions – perhaps because all human acts had in fact been discovered to have determinate conditions for their occurrence – the difference would not thereby be wiped out between those acts which we now describe in our current language as freely chosen and those acts which are not, between those traits of character and personality over which an individual manifestly has control and whose over which he has not. When the assumed shifts in linguistic meanings are completed, moreover, it still will be the case that certain types of acts will be affected by praise and blame, that men will continue to be able to control and modify by suitable discipline some of their impulses but not others, that some men will be able by making the effort to improve certain of their performances while other men will not be able to do so, and so on. To deny this, and to maintain the contrary, is to suppose that men would be transformed, by a mere change in theoretical belief, into creatures radically different from what they were prior to that alteration in belief; and such a supposition is hardly credible. But if such a supposition *is* rejected, our ordinary moral language with its associated customary meanings will survive at least partially a general acceptance of the deterministic assumption. Belief in determinism is therefore not incompatible, either psychologically or logically, with the normal use of moral discourse or with the significant imputation of moral responsibility. The alleged incompatibility can be established, so it seems to me, only if the question-begging premise is introduced that our making moral distinctions at all entails disbelief in determinism.

Let me say in conclusion what I have already asserted earlier. I do not believe that determinism is a demonstrable thesis, and I think that if it is construed as a statement about a categorial feature of everything whatsoever it may even be false. I have spent much time in this paper defending it against various types of criticism because, were those criticisms mistakenly accepted as sound, there would be a strong likelihood that premature limits would be set on the possible scope of scientific inquiry. For on my construction of determinism, it is in effect a regulative principle

which formulates the general objective of science as a search for explanations – as a quest for ascertaining the conditions upon which the occurrence of events is contingent. I do not wish to disguise the fact that the dogmatic adoption of various *special* forms of the deterministic principle has often hindered the advance of knowledge, or that much iniquitous social practice and much doubtful social theory has been defended in the name of *particular* versions of determinism. Nevertheless, to abandon the deterministic principle itself, is to withdraw from the enterprise of science. And I do not believe that however acute is our awareness of the rich variety of human experience, and however sensitive our concern for the fuller development of human individuality, our best interests will be served by stopping objective inquiry into the various conditions which determine the existence of human traits and actions, and by thus shutting the door to the progressive liberation from illusion that can come from the achievement of such knowledge.

ERNEST NAGEL.

COLUMBIA UNIVERSITY.