

## The Concept of Scientific History

HISTORY, according to Aristotle, is an account of what individual human beings have done and suffered. In a still wider sense, history is what historians do. Is history then a natural science, as, let us say, physics or biology or psychology are sciences? And if not, should it seek to be one? And if it fails to be one, what prevents it? Is this due to human error or impotence, or to the nature of the subject, or does the very problem rest on a confusion between the concept of history and that of natural science? These have been questions that have occupied the minds of both philosophers and philosophically minded historians at least since the beginning of the nineteenth century, when men became self-conscious about the purpose and logic of their intellectual activities. But two centuries before that, Descartes had already denied to history any claim to be a serious study. Those who accepted the validity of the Cartesian criterion of what constitutes rational method could (and did) ask how they could find the clear and simple elements of which historical judgements were composed, and into which they could be analysed: where were the definitions, the logical transformation rules, the rules of inference, the rigorously deduced conclusions? While the accumulation of this confused amalgam of memories and travellers' tales, fables and chroniclers' stories, moral reflections and gossip, might be a harmless pastime, it was beneath the dignity of serious men seeking what alone is worth seeking – the discovery of the truth in accordance with principles and rules which alone guarantee scientific validity.

Ever since this doctrine of what was and what was not a science was enunciated, those who have thought about the nature of historical studies have laboured under the stigma of the Cartesian condemnation. Some have tried to show that history could be made respectable by being assimilated to one of the natural sciences, whose overwhelming success and prestige in the seventeenth and eighteenth centuries held out promise of rich fruit wherever their methods were applicable; others declared that history was indeed a science, but a science in some different sense, with its own methods and canons, no less exacting, perhaps, than those of the sciences of nature, but resting on foundations different

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from them; there were those who defiantly declared that history was indeed subjective, impressionistic, incapable of being made rigorous, a branch of literature, or an embodiment of a personal vision – or that of a class, a church, a nation – a form of self-expression which was, indeed, its pride and justification: it laid no claim to universal and eternal objectivity and preferred to be judged as an interpretation of the past in terms of the demands of the present, or a philosophy of life, not as a science. Still others have tried to draw distinctions between sociology, which was a true science, and history, which was an art or, perhaps, something altogether *sui generis*, neither a science nor an art, but a discipline with its own structure and purposes, misunderstood by those who tried to draw false analogies between it and other intellectual activities.

In any case, the logic of historical thought and the validity of its credentials are issues that do not preoccupy the minds of the leading logicians of our day. The reasons for this are not far to seek. Nevertheless it remains surprising that philosophers pay more attention to the logic of such natural sciences as mathematics and physics, which comparatively few of them know well at first hand, and neglect that of history and the other humane studies, with which in the course of their normal education they tend to be more familiar.

Be that as it may, it is not difficult to see why there has been a strong desire to regard history as a natural science. History purports to deal with facts. The most successful method of identifying, discovering and inferring facts is that of the natural sciences. This is the only region of human experience, at any rate in modern times, in which progress has indubitably been made. It is natural to wish to apply methods successful and authoritative in one sphere to another, where there is far less agreement among specialists. The whole trend of modern empiricism has tended towards such a view. History is an account of what men have done and of what has happened to them. Man is largely, some would say wholly, a three-dimensional object in space and time, subject to natural laws: his bodily wants can be studied empirically as those of other animals. Basic human needs for, say, food or shelter or procreation, and his other biological or physiological requirements, do not seem to have altered greatly through the millennia, and the laws of the interplay of these needs with one another and with the human environment can all in principle be studied by the methods of the biological and, perhaps, psychological sciences. This applies particularly to the results of man's collective activities, unintended by the agent, which, as the Historical

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School has emphasised since the days of Bossuet and Vico, play a decisive part in influencing his life, and which can surely be explained in purely mechanistic terms as fields of force or causal or functional correlations of human action and other natural processes. If only we could find a series of natural laws connecting at one end the biological and physiological states and processes of human beings with, at the other, the equally observable patterns of their conduct – their social activities in the wider sense – and so establish a coherent system of regularities, deducible from a comparatively small number of general laws (as Newton, it is held, had so triumphantly done in physics), we should have in our hands a science of human behaviour. Then we could perhaps afford to ignore, or at least treat as secondary, such intermediate phenomena as feelings, thoughts, volitions, of which men's lives seem to themselves to be largely composed, but which do not lend themselves easily to exact measurement. If these data could be regarded as by-products of other, scientifically observable and measurable, processes, then we could predict the publicly observable behaviour of men (what more can a science ask for?) without taking the vaguer and more elusive data of introspection much into account. This would constitute the natural sciences of psychology and sociology, predicted by the materialists of the French Enlightenment, particularly Condillac and Condorcet and their nineteenth-century followers – Comte, Buckle, Spencer, Taine, and many a modern behaviourist, positivist and 'physicalist' since their day.

What kind of science would history constitute? The traditional division of the sciences is into the inductive and the deductive. Unless one claimed acquaintance with *a priori* propositions or rules, derived not from observation but from knowledge, based on intuition or revelation, of the laws governing the behaviour of men and of their goals, or of the specific purposes of their creator – and few historians since the Middle Ages have openly professed to possess such knowledge – this science could not be wholly deductive. But is it then inductive? It is difficult or impossible to conduct large-scale experiments on human beings, and knowledge must therefore largely rest on observation. However, this disability has not prevented astronomy or geology from becoming flourishing sciences, and the mechanists of the eighteenth century confidently looked forward to a time when the application of the methods of the mathematical sciences to human affairs would explode such myths as those of revealed truths, the inner light, a personal deity, an immaterial soul, freedom of the will, and so forth; and so solve

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all social problems by means of a scientific sociology as clear, exact, and capable of predicting future behaviour as, to use Condorcet's phrase, the sciences that study the societies of bees or beavers. In the nineteenth century this claim came to be regarded as too sweeping and too extravagant. It became clear that the methods and concepts of the mechanists were not adequate for dealing with growth and change; the adoption of more complex vitalistic or evolutionary categories and models served to demarcate the procedures of the biological from those of the purely physical sciences; the former seemed clearly more appropriate to the behaviour and development of human beings. In the twentieth century psychology has begun to assume the role that biology had played in the previous century, and its methods and discoveries with regard both to individuals and to groups have in their turn transformed our approach to history.

Why should history have had so long to wait to become a science? Buckle, who believed in the science of history more passionately, perhaps, than any man who ever lived, explained this very simply by the fact that historians were 'inferior in mental power' to the mathematicians and physicists and chemists. He declared that those sciences advanced fastest which in the first instance attracted the attention of the cleverest men, and their successes naturally in their turn attracted other able heads into their services. In other words, if men as gifted as Galileo or Newton, or even Laplace or Faraday, had devoted themselves to dealing with the disordered mass of truth and falsehood that went by the name of history, they could soon have set it to rights and made a firmly built, clear, and fertile natural science of it.<sup>1</sup> This was a promise held out by those who were, very understandably, hypnotised

<sup>1</sup> 'In regard to nature, events apparently the most irregular and capricious have been explained, and have been shown to be in accordance with certain fixed and universal laws. This has been done because men of ability, and, above all, men of patient, untiring thought, have studied natural events with the view of discovering their regularity: and if human events were subjected to a similar treatment, we have every right to expect similar results . . . Whoever is at all acquainted with what has been done during the last two centuries, must be aware that every generation demonstrates some events to be regular and predictable, which the preceding generation had declared to be irregular and unpredictable: so that the marked tendency of advancing civilisation is to strengthen our belief in the universality of order, of method, and of law. This being the case, it follows that if any facts, or class of facts, have not yet been reduced to order, we, so far from pronouncing them to be irreducible, should

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by the magnificent progress of the natural sciences of their day. Intelligent and sceptical thinkers like Taine and Renan in France, not to speak of really passionate positivists like Comte, and, in some of their writings, Engels and Plekhanov, profoundly believed in this prospect. Their hopes have scarcely been fulfilled. It may be profitable to ask why this is so.

Before an answer to this question is attempted, two further sources of the belief that history can, at least in principle, be transformed into a natural science may be noted. The first is perhaps conveyed best by the metaphors that, at any rate since the nineteenth century, all educated men have tended to use. When we speak of rational as opposed to Utopian policies, we tend to say of the latter that they ignore, or are defeated by, the 'inexorable logic of the (historical) facts' or the 'wheels of history', which it is idle to try to stay. We speak of the futility of defying the 'forces of history', or the absurdity of efforts to 'put the clock back' or to 'restore the past'. We speak of the youth, the maturity, the decay of peoples or cultures, of the ebb and flow of social movements, of the rise and fall of nations. Such language serves to convey the idea of an inexorably fixed time order – the 'river of time' on which we float, and which we must willy-nilly accept; a moving stair which we have not created, but on which we are borne, obeying, as it were, some natural law governing the order and shape of events – in this case, events consisting of, or at any rate affecting, human lives, activities,

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rather be guided by our experience of the past, and should admit the probability that what we now call inexplicable will at some future time be explained. This expectation of discovering regularity in the midst of confusion is so familiar to scientific men, that among the most eminent of them it becomes an article of faith: and if the same expectation is not generally found among historians, it must be ascribed partly to their being of inferior ability to the investigators of nature, and partly to the greater complexity of those social phenomena with which their studies are concerned.

' . . . The most celebrated historians are manifestly inferior to the most successful cultivators of physical science: no one having devoted himself to history who in point of intellect is at all to be compared with Kepler, Newton, or many others . . .

'[Nevertheless] I entertain little doubt that before another century has elapsed, the chain of evidence will be complete, and it will be as rare to find an historian who denies the undeviating regularity of the moral world, as it now is to find a philosopher who denies the regularity of the material world.' Henry Thomas Buckle, *History of Civilization in England* (London, 1857), vol. 1, pp. 6–7 and 31.

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and experiences. Metaphorical and misleading though such uses of words can be, they are pointers to categories and concepts in terms of which we conceive the 'stream of history', namely, as something possessing a certain objective pattern that we ignore at our peril. It is a short step from this to conclude that whatever has a pattern exhibits regularities capable of being expressed in laws; and the systematic interconnection of laws is the content of a natural science.

The second source of this belief lies deeper still. Patterns of growth, or of the march of events, can plausibly be represented as a succession of causes and effects, capable of being systematised by natural science. But sometimes we speak as if something more fundamental than empirical connections (which idealist philosophers call 'mechanical' or 'external' or 'mere brute conjunctions') give their unity to the aspects, or the successive phases, of the existence of the human race on earth. When we say, for instance, that it is absurd to blame Richelieu for not acting like Bismarck because it is obvious that Richelieu could not have acted like a man living in Germany in the nineteenth century; and that conversely Bismarck could not have done what Richelieu accomplished, because the seventeenth century had its own character, very different from the deeds, events, characteristics of the eighteenth century which it uniquely determined, and which in their turn uniquely determined those of the nineteenth; what we are then affirming is that this order is an objective order; that those who do not understand that what is possible in one age and situation may be wholly inconceivable in another fail to understand something universal and fundamental about the only way in which social life, or the human mind, or economic growth, or some other sequence, not merely does, but can, or perhaps must, develop. Similarly, when we say that the proposition that *Hamlet* was written at the court of Genghis Khan in Outer Mongolia is not merely false but absurd; that if someone acquainted with the relevant facts seriously supposes that it could have been written at that time and in that place he is not merely unusually ignorant or mistaken, but out of his mind; that *Hamlet* not merely was not, but could not have been, written there or then – that we can dismiss this hypothesis without discussion – what is it that entitles us to feel so certain? What kind of 'could not' is this 'could not'? Do we rule out propositions asserting possibilities of this kind as being false on scientific, that is, empirical-inductive grounds? It seems to me that we call them grotesque (and not merely implausible or false) because they conflict, not just with this or that fact or generalisation which we accept, but with presuppositions

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which are entailed by our whole thinking about the world – the basic categories that govern such central concepts of our thought as man, society, history, development, growth, barbarism, maturity, civilisation, and the like. These presuppositions may turn out to be false or misleading (as, for example, teleology or deism are considered to have been by positivists or atheists), but they are not refuted by experiment or empirical observation. They are destroyed or transformed by those changes in the total outlook of a man or a milieu or a culture which it is the hardest (and the most important) test of the history of ideas (and, in the end, of history as such) to be able to explain. What is here involved is a deeply ingrained, widespread, long-lived *Weltanschauung* – the unquestioning (and not necessarily valid) assumption of one particular objective order of events or facts. Sometimes it is a vertical order – succession in time – which makes us realise that the events or institutions of, say, the fourteenth century, because they were what they were, of necessity (however we analyse this sort of necessity), and not just as a matter of fact – contingently – occurred earlier than those of the sixteenth, which were ‘shaped’, that is in some sense determined (some would say caused), by them; so that anyone who tries to date the works of Shakespeare before those of Dante, or to omit the fifteenth century altogether, fitting the end of the fourteenth into the beginning of the sixteenth century without a break, can be convicted of suffering from a defect different in kind, not degree, from (and less easily remediable than) ignorance or lack of scientific method. At other times we conceive of the order as ‘horizontal’; that is, it underlies the perception of the interconnections between different aspects of the same stage of culture – the kinds of assumptions and categories that the anti-mechanistic German philosophers of culture, Herder and his disciples (and before them Vico), brought to light. It is this kind of awareness (the historical sense) that is said to enable us to perceive that a certain type of legal structure is ‘intimately connected’ with, or is part of the same complex as, an economic activity, a moral outlook, a style of writing or of dancing or of worship; it is by means of this gift (whatever may be its nature) that we recognise various manifestations of the human spirit as ‘belonging to’ this or that culture or nation or historical period, although these manifestations may be as different from one another as the way in which men form letters on paper from their system of land tenure. Without this faculty we should attach no sense to such social-historical notions as ‘the typical’, or ‘the normal’, or ‘the discordant’, or ‘the anachronistic’, and consequently we should be unable

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to conceive the history of an institution as an intelligible pattern, or to attribute a work of art to its time and civilisation and milieu, or indeed to understand or explain how one phase of a civilisation 'generates' or 'determines' another. This sense of what remains identical or unitary in differences and in change (of which idealist philosophers have made altogether too much) is also a dominant factor in giving us our sense of unalterable trends, of the 'one-directional' flow of history. From this it is easy to pass to the far more questionable belief that whatever is unalterable is so only because it obeys laws, and that whatever obeys laws can always be systematised into a science.

These are among the many factors that have made men crave for a natural science of history. All seemed ready, particularly in the nineteenth century, for the formulation of this new, powerful, and illuminating discipline, which would do away with the chaotic accumulation of facts, conjectures, and rules of thumb that had been treated with such disdain by Descartes and his scientifically-minded successors. The stage was set, but virtually nothing materialised. No general laws were formulated – nor even moderately reliable maxims – from which historians could deduce (together with knowledge of the initial conditions) either what would happen next, or what had happened in the past. The great machine which was to rescue them from the tedious labours of adding fact to fact and of attempting to construct a coherent account out of their hand-picked material, seemed like a plan in the head of a cracked inventor. The immense labour-saving instrument which, when fed with information, would itself order it, deduce the right conclusions, and offer the proper explanations, removing the need for the uncertain, old-fashioned, hand-operated tools with which historians had fumbled their way in the unregenerate past, remained a bogus prospectus, the child of an extravagant imagination, like designs for a perpetual motion machine. Neither psychologists nor sociologists, neither the ambitious Comte nor the more modest Wundt, had been able to create the new mechanism: the 'nomothetic' sciences – the system of laws and rules under which the factual material could be ordered so as to yield new knowledge – remained stillborn.

One of the criteria of a natural science is rightly regarded as being its capacity for prediction; or, in the case of a historical study, retrodiction – filling in gaps in the past for which no direct testimony exists with the aid of extrapolation performed according to relevant rules or laws. A method of this conjectural sort is employed in archaeology or palaeontology where vast gaps in knowledge exist and there is no better



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– more dependable – avenue to factual truth in the absence of concrete factual evidence. In archaeology we make efforts to link our knowledge of one remote period to our knowledge of another by trying to reconstruct what must, or at least may have, occurred to account for the transition from one stage to the other through many unknown intermediate phases. But this way of filling gaps is commonly regarded as a none too reliable method of discovery of the past, and one to which no one would wish to resort if he could find the more concrete kind of evidence (however the quality and extent of such concreteness is assessed) on which we base knowledge of the historical, as opposed to prehistoric, period of human life; still less as a ‘scientific’ substitute for it.

What would the structure of such a science be like, supposing that one were able to formulate it? It would, presumably, consist of causal or functional correlations – a system of interrelated general propositions of the type ‘Whenever or wherever  $\phi$  then or there  $\psi$ ’ – variables into which precise dates and places could be fitted; and it would possess two forms: the ‘pure’ and the ‘applied’. The ‘pure’ sciences of social statics or social dynamics, of which Herbert Spencer perhaps a little too optimistically proclaimed the existence, would then be related to the ‘applied’ science of history, somewhat as physics is to mechanics, or at least as anatomy applies to the diagnosis of specific cases by a physician. If it existed, such a science would have revolutionised the old empirical, hand-woven history by mechanising it, as astronomy abolished the rules of thumb accumulated by Babylonian star-gazers, or as Newtonian physics transformed older cosmologies. No such science exists. Before we ask why this is so, it would perhaps be profitable to consider some of the more obvious ways in which history, as it has been written until our day, differs from a natural science conceived in this fashion.

Let me begin by noting one conspicuous difference between history and the natural sciences. Whereas in a developed natural science we consider it more rational to put our confidence in general propositions or laws than in specific phenomena (indeed this is part of the definition of rationality), this rule does not seem to operate successfully in history. Let me give the simplest possible kind of example. One of the common-sense generalisations that we regard as most firmly established is that the normal inhabitants of this planet can see the sun rise every morning. Suppose a man were to say that on a given morning he had not, despite repeated attempts, seen the sun rise; and that since one negative instance

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is, by the rules of our ordinary logic, sufficient to kill a general proposition, he regarded his carefully carried out observation as fatal not merely to the hitherto accepted generalisation about the succession of night and day, but to the entire system of celestial mechanics, and indeed of physics, which purports to reveal the causes of this phenomenon. This startling claim would not normally be regarded as a conclusion to be unhesitatingly accepted. Our first reaction would be to try to construct an *ad hoc* hypothesis to save our system of physics, supported as it is by the most systematic accumulation of controlled observation and deductive reasoning made by men. We should suggest to the objector that perhaps he was not looking at the right portion of the sky; that clouds intervened; that he was distracted; that his eyes were closed; that he was asleep; that he was suffering from a hallucination; that he was using words in unfamiliar senses; that he was lying or joking or insane; we should advance other explanations, any one of which would be compatible with his statement, and yet preserve physical science intact. It would not be rational to jump to the immediate conclusion that if the man, in our considered judgement, had told the truth, the whole of our hard-won physics must be rejected, or even modified. No doubt, if the phenomenon repeated itself, and other men failed to perceive the sun rising under normal conditions, some physical hypotheses, or indeed laws, might have to be drastically altered, or even rejected; perhaps the foundations of our physical sciences would have to be built anew. But we should only embark on this in the last resort. Yet if *per contra* a historian were to attempt to cast doubt on – or explain away – some piece of individual observation of a type not otherwise suspect, say, that Napoleon had been seen in a three-cornered hat at a given moment during the battle of Austerlitz; and if the historian did so solely because he put his faith, for whatever reason, in a theory or law according to which French generals or heads of state never wore three-cornered hats during battles, his method, one can safely assert, would not meet with universal or immediate recognition from his profession. Any procedure designed to discredit the testimony of normally reliable witnesses or documents as, let us say, lies or forgeries, or as being defective at the very point at which the report about Napoleon's hat occurred, would be liable to be regarded as itself suspect, as an attempt to alter the facts to fit a theory. I have chosen a crude and trivial instance; it would not be difficult to think of more sophisticated examples, where a historian lays himself open to the charge of trying to press the facts into the service of a particular theory. Such historians are accused of being

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prisoners of their theories; they are accused of being fanatical or cranky or doctrinaire, of misrepresenting or misreading reality to fit in with their obsessions, and the like. Addiction to theory – being doctrinaire – is a term of abuse when applied to historians; it is not an insult if applied to a natural scientist. We are saying nothing derogatory if we say of a natural scientist that he is in the grip of a theory. We may complain if we think that his theory is false, or that he is ignoring relevant evidence, but we do not deplore the fact that he is trying to fit the facts into the pattern of a theory; for that is his business. It is the business of a natural scientist to be a theorist; that is, to formulate doctrines – true rather than false, but, above all, doctrines; for natural science is nothing if it is not a systematic interlacing of theories and doctrines, built up inductively, or by hypothetical-deductive methods, or whatever other method is considered best (logically reputable, rational, publicly testable, fruitful) by the most competent practitioners in the field. It seems clear that whereas in history we tend, more often than not, to attach greater credence to the existence of particular facts than to general hypotheses, however well supported, from which these facts could in theory be deduced, in a natural science the opposite seems more often to be the case: there it is (in cases of conflict) often more rational to rely upon a properly supported general theory – say that of gravitation – than on particular observations. This difference alone, whatever its root, must cast *prima facie* doubt upon any attempt to draw too close an analogy between the methods of history and those of natural science.

It may be objected at this point that the only logical justification for belief in particular facts must involve general propositions, and therefore always in the end rests on some form of induction. For what other way of justifying beliefs about facts have we? The first of these assertions is true, but the second is not, and their conflation leads to confusion. It needs no deep reflection to realise that all our thought is shot through with general propositions. All thinking involves classification; all classification involves general terms. My very notion of Napoleon or hats or battles involves some general beliefs about the entities which these words denote. Moreover, my reasons for trusting an eye-witness account or a document entail judgements about the reliability of different kinds of testimony, or the range within which the behaviour of individuals is or is not variable and the like – judgements which are certainly general. But in the first place, it is a far cry from the scattered generalisations implicit in the everyday use of words (or ideas) to the systematic structure

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of even the most rudimentary science;<sup>1</sup> and in the second place, I am certain, for example, that I am not at this moment the Emperor of Mars dreaming a dream in which I am a university teacher on the earth; but I should find it exceedingly hard to justify my certainty by inductive methods that avoid circularity. Most of the certainties on which our lives are founded would scarcely pass this test. The vast majority of the types of reasoning on which our beliefs rest, or by which we should seek to justify them if they were challenged, are not reducible to formal deductive or inductive schemata, or combinations of them. If I am asked what rational grounds I have for supposing that I am not on Mars, or that the Emperor Napoleon existed and was not merely a sun myth, and if in answer to this I try to make explicit the general propositions which entail this conclusion, together with the specific evidence for them, and the evidence for the reliability of this evidence, and the evidence for that evidence in its turn, and so on, I shall not get very far. The web is too complex, the elements too many and not, to say the least, easily isolated and tested one by one; anyone can satisfy himself of this by trying to analyse and state them explicitly. The true reason for accepting the propositions that I live on earth, and that an Emperor Napoleon I existed, is that to assert their contradictories is to destroy too much of what we take for granted about the present and the past. Any given generalisation may be capable of being tested or refined by inductive or other scientific tests; but we accept the total texture, compounded as it is out of literally countless strands – including both general and particular beliefs – without the possibility, even in principle, of any test for it in its totality. For the total texture is what we begin and end with. There is no Archimedean point outside it whence we can survey the whole of it and pronounce upon it. We can test one part in terms of another, but not the whole, as it were, at one go. When the proposition that the earth was flat was abandoned, this wrought great havoc in the assumptions of common sense; but it could not in principle destroy them all. For in that case nothing would have remained that could be called thinking or criticism. It is the sense of the general texture of experience – the most rudimentary awareness of such patterns – that constitutes the foundation of knowledge, that is

<sup>1</sup> This can be put in another way by saying that the generalisations of history, like those of ordinary thought, are sometimes unconnected; so that a change in the degree of belief in any one of these does not, as in a natural science, *automatically* affect the status of all the others. This is a crucial difference.

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itself not open to inductive or deductive reasoning; for both these methods rest upon it. Any one proposition or set of propositions can be shaken in terms of those that remain fixed; and then these latter in their turn; but not all simultaneously. All my beliefs cannot be overthrown. Even if the ground beneath one of my feet is crumbling, my other foot must rest securely planted, at least for the time being; otherwise there is no possibility of thought or communication. It is this network of our most general assumptions, called commonsense knowledge, that historians to a greater degree than scientists are bound, at least initially, to take for granted: and they must take a good deal of it for granted, since their subject-matter can be detached from it to a far smaller degree than that of natural science.

Let us look at this from another angle. The natural sciences largely consist of logically linked laws about the behaviour of objects in the world. In certain cases these generalisations can be represented in the form of an ideal model – an imaginary entity whose characteristics are by definition what they must be if the entity in question obeys the general laws in question, and can be exhaustively described solely in terms of obeying these laws; that is, it consists of nothing but what instantiates such laws. Such models (or deductive schemata) exhibit most vividly and clearly the laws which we attempt to apply to reality; the objects of the natural world can then be described in terms of the degree of deviation that they exhibit from the ideal model. The degree to which these differences can be systematically described, the simplicity of the models, and the range of their application largely determine the success or failure of a given science to perform its task. The electron, the chromosome, the state of perfect competition, the Oedipus complex, the ideal democracy, are all such models; they are useful to the degree to which the actual behaviour of real entities in the world can be represented with lesser or greater precision in terms of their deviation from the frictionless behaviour of the perfect model. This is the purpose for which the model is constructed; its usefulness corresponds to the degree to which it fulfils it.

Such a model or deductive schema is not much in evidence in normal historical writing; if only because the general propositions out of which it must be constructed, and which, if they existed, would require to be precisely formulated, turn out to be virtually impossible to specify. The general concepts that necessarily are employed by historians – notions like state or development or revolution or trend of opinion or economic decline or political power – enter into general propositions of far lesser

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range or dependability (or specifiability) than those that occur in even the least developed natural science worthy of its title. Such historical generalisations turn out too often to be tautological, or vague or inaccurate; 'All power tends to corrupt', 'Every revolution is followed by a reaction', 'Change in the economic structure leads to novel forms of music and painting', will yield, taken with some specified initial conditions, e.g. 'Cromwell had a great deal of power' or 'A revolution broke out in Russia in 1917' or 'The United States went through a period of radical industrialisation', scarcely any reliable historical or sociological deductions. What is lacking here is an interconnected tissue of generalisations which an electronic brain could mechanically apply to a situation mechanically specifiable as relevant. What occurs in historical thinking seems much more like the operation of common sense, where we weave together various *prima facie* logically independent concepts and general propositions, and bring them to bear on a given situation as best we can. The capacity to do this successfully – the ability to 'weave together', 'bring to bear' various concepts – is a skill, an empirical knack (sometimes called judgement) which electronic brains cannot be given by their manufacturers.

At this point we may be told that the mysterious capacity of weighing or assessing a concrete situation, the arts of diagnosis and prognosis (the so-called faculty of judgement) is not unique to history and the other humane studies, or to thinking and decision-making in ordinary life; for in the natural sciences too the capacity for perceiving the relevance of one rather than another theory or concept to the solution of a given problem, and the 'bringing to bear' (sometimes with the most dramatic effect) upon a given body of data of notions sometimes derived from very remote fields, is nothing if not the peculiar skill of a gifted investigator, sometimes amounting to the insight of genius, which techniques or machines cannot in principle be made to replace. This is, of course, true; yet there exists one striking difference between the canons of explanation and logical justification used by the sciences and the humanities that will serve to indicate the difference between them. In a developed work of natural science – say a textbook of physics or biology (I do not refer to speculative or impressionistic discourses which are to be found in scientific treatises) – the links between the propositions are, or should be, logically obvious; the propositions follow from each other; that is to say, the conclusions are seen logically to follow from premises, either with demonstrative certainty, or else with varying degrees of probability which, in the sciences which use statistical methods, should

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be capable of being estimated with a fair degree of precision. Even if such symbols of inference as 'because', or 'therefore', or 'hence' were omitted, a piece of reasoning in mathematics or physics or any other developed natural science (if it were clearly set out) should be able to exhibit its inner logical structure by the sheer meaning and order of its component propositions. As for the propositions that are stated without argument, these are, or should be, such that, if challenged, their truth or probability could be demonstrated by recognised logical steps from truths established experimentally and accepted by virtually all the relevant specialists. This is very far from being the case in even the best, most convincing, most rigorously argued works of history. No student of the subject can, I think, fail to note the abundance in works of history of such phrases as 'small wonder if', 'it was therefore hardly surprising when', 'the inevitable consequences swiftly followed', 'events took their inexorable course', 'in the circumstances', 'from this it was but a short step to', and most often of all the indispensable, scarcely noticeable, and deeply treacherous 'thus', 'whereupon', 'finally', and the like. If these bridges from one set of facts or statements to another were suddenly withdrawn from our textbooks, it is, I think, not too much to say that the transition from one set of statements to the other would become a great deal less smooth: the bald juxtaposition of events or facts would at times be seen to carry no great logical force in itself, and the best constructed cases of some of our best historians (and lawyers) would begin – to minds conditioned by the logical criteria of natural science – to seem less irresistible.

I do not mean to imply that the humanities, and particularly history, take their readers in by a species of confidence trick – by simulating the outer shell, the logical structure, of scientific method without its substance; only that the force of such convenient, and perhaps indispensable, links as 'because' and 'therefore' is not identical in the two spheres; each performing their own legitimate – and parallel – functions, and leading to difficulties only if they are regarded as performing logically identical tasks in both spheres. This point will, I hope, become clearer still if it is further developed.

Let us assume that an historian who is attempting to discover and explain the course of a large historical phenomenon, such as a war or a revolution, is pressed to state those laws and general propositions which alone (at least in theory) could justify his constant use of such logical links as 'hence', 'therefore', 'the unavoidable result was', 'from this there was no turning back', and the rest of his stock-in-trade, what

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could his answer be? He might hesitantly trot out some general maxims about the influence of environment or a particular state of affairs – a bad harvest, or an inflationary spiral, or a wound to national pride – as it affects men in general or a specific group of human beings in particular; or he might speak about the influence of the interests of this or that class or nation, or the effect of religious convictions or social habits or political traditions. But if he is then pressed about the evidence for these generalisations, and upon marshalling what he can, is then told that no self-respecting natural science would tolerate so vague, unsifted, and above all exiguous a body of factual evidence, nor such impressionistic methods of surveying it or deriving conclusions from it, he would not (if he were honest or wise) insist on claiming the authority of the methods of a fully-fledged natural science for his activity. At this point someone might quite correctly point out to him that not all social sciences are in so deplorable a condition; that, for example, there exist disciplines – economics is perhaps the best known – where something resembling scientific procedure does appear to take place. In economics concepts can, we are assured, be defined with a fair measure of precision: there is here to be found distinct awareness of the differences between definitions, hypotheses, and inductive generalisations; or between the empirical evidence and the conclusions drawn from it; or between the model and the reality to which it is applied; or between the fruit of observation and that of extrapolation; and so forth. This is then held up as a model to the unfortunate historian, wandering helplessly in his dark and pathless wood. Yet if he tries to follow such advice, and to apply to his own subject apparatus recommended by either metaphysical or positivist discoverers of historical patterns, his progress is soon arrested. Attempts to provide history with laws have taken two main directions: all-embracing schemata, and division into specialised disciplines. The first has given us the systems of historiosophers, culminating in the vast edifices of Hegel, Spengler, Toynbee and the like, which turn out to be either too general, vague, and occasionally tautological to cast new light on anything in particular, or, when the specific findings of the formulas are tested by exact scholars in the relevant fields, to yield implausible results. The second path leads to monographs about selected aspects of human activity – for example, the history of technology, or of a given science or art or craft or social activity. These do indeed, at their best, satisfy some of the criteria of natural scientists, but only at the expense of leaving out the greater part of what is known of the lives of the human beings whose histories



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are in this way recorded. In the case of a limited field – say the history of coinage in ancient Syracuse – this is, of course, deliberate and desirable as well as unavoidable; my point is that it is only the deliberate limitation of the field that renders it so.

Any attempt to ‘integrate’ these isolated strands, treated by the special disciplines, into something approaching (as near as we can make it so) a ‘total’ description of human experience – of what, in Aristotle’s words, ‘Alcibiades did and suffered’ – comes up against an insurmountable obstacle: that the facts to be fitted into the scientific grid and subsumed under the adopted laws or model (even if public criteria for selecting what is important, relevant, etc. from what is trivial, peripheral, etc. can be found and employed) are too many, too minute, too fleeting, too blurred at the edges. They criss-cross and penetrate each other at many levels simultaneously, and the attempt to prise them apart, as it were, and pin them down, and classify them, and fit them into their specific compartments turns out to be impracticable. Wherever efforts to pursue this policy have been pressed with real vehemence – by those who were obsessed with the dominant role of some one factor, as Buckle was by that of climate, or Taine by his trinity of the milieu, the moment, and the race, or Marxists by that of base and superstructure and the class struggle – they lead to distortions, and the accounts that result, even when they contain illuminating ideas and *aperçus*, are liable to be rejected as being over-schematised, that is as exaggerating and omitting too much, as too unfaithful to human life as we know it.

The fact that this is so seems to me of cardinal importance and to carry a crucial implication. For one of the central differences between such genuine attempts to apply scientific method to human affairs as are embodied in, say, economics or social psychology, and the analogous attempt to apply it in history proper, is this: scientific procedure is directed in the first place to the construction of an ideal model, with which the portion of the real world to be analysed must, as it were, be matched, so that it can be described and analysed in terms of its deviation from the model. But to construct a useful model will only be feasible when it is possible to abstract a sufficient number of sufficiently stable similarities from the things, facts, events, of which the real world – the flow of experience – is composed. Only where such recurrences in the real world are frequent enough, and similar enough to be classifiable as so many deviations from the selfsame model, will the idealised model that is compounded of them – the electron, the gene, the economic man – do its job of making it possible for us to extrapolate from the known to

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the unknown. It follows from this that the greater the number of similarities<sup>1</sup> that we are able to collect (and the more dissimilarities we are able to ignore) – that is to say the more successfully we abstract – the simpler our model will be, the narrower will be the range of characteristics to which it will apply, and the more precisely it will apply to it; and, conversely, the greater the variety of objects to which we want our model to apply, the less we shall be able to exclude, and consequently the more complex the model will become, and the less precisely it will fit the rich diversity of objects which it is meant to summarise, and so the less of a model, of a master key, it will necessarily be. A theory festooned with *ad hoc* hypotheses to account for each specific deviation from the norm will, like Ptolemy's epicycles, in the end cease to be useful. Exclusion – neglect of what is beyond the defined frontiers – is entailed in model-building as such. Hence it begins to look as if, given the world as it is,<sup>2</sup> the utility of a theory or a model tends to vary directly as the number of cases, and inversely as the number of characteristics, which it succeeds in covering. Consequently one may, at times, be compelled to choose between the rival rewards of increased extension or intension – between the range of a theory and the richness of its content. The most rigorous and universal of all models is that of mathematics, because it operates at the level of the highest possible abstraction from natural characteristics. Physics, similarly, ignores deliberately all but the very narrow group of characteristics which material objects possess in common, and its power and scope (and its great triumphs) are directly attributable to its rejection of all but certain selected ubiquitous and recurrent similarities. As we go down the scale, sciences become richer in content and correspondingly less rigorous, less susceptible to quantitative techniques. Economics is a science precisely to the degree to which it can successfully eliminate from consideration those aspects of human activity which are not concerned with production, consumption, exchange, distribution, etc. The attempt to eliminate from the

<sup>1</sup> Or at best significant similarities, that is, those in which we are interested.

<sup>2</sup> This is an empirical fact. The world might have been different; if, for example, it possessed fewer characteristics and these coexisted or recurred with much greater uniformity and regularity, the facts of history could more easily be reduced to a natural science or sciences. But human experience would then be altogether different, and not describable in terms of our familiar categories and concepts. The tidier and more uniform such a universe, the less like our own, the less able are we to imagine it or conceive what our experience would be like.

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consideration of economists psychological factors, such as, for instance, the springs of human action, or the variety of purposes or states of mind connected with or expressed by them; or to exclude moral or political considerations such as, for example, the respective values of motives and consequences, or of individual versus group satisfaction – such procedure is wholly justified so long as its sole aim is to render economics as much of a science as possible: that is to say, an instrument capable of analysis and prediction. If anyone then complains that economics, so conceived, leaves out too much, or fails to solve some of the most fundamental problems of individual and social welfare – among them questions which had originally stimulated this science into existence – one is entitled to reply that the omitted sides of life can be accommodated, and moral, psychological, political, aesthetic, metaphysical questions can perhaps be answered, but only at the price of departing from the rigour and the symmetry – and predictive power – of the models with which economic science operates; that versatility, richness of content, capacity to deal with many categories of problems, adaptability to the complexities of widely varying situations – all this may be purchasable only at the expense of logical simplicity, coherence, economy, width of scope, and, above all, capacity to move from the known to the unknown. These latter characteristics, with which Newtonian physics had, understandably enough, hypnotised the entire intellectual world, can only be obtained by drawing precise frontiers for a given activity and ruthlessly casting out (so far as possible) whatever has not been provided for in this specification. It is for this reason that even in the case of the more descriptive and time-bound (biological and genetic) disciplines, the more general and rigorous the concepts involved and the more ‘technical’ the approach, the better able they are to use methods similar to those of the physical sciences; the more elastic their concepts and the richer their content, the remoter from a natural science they will be.

If this is true, then there is a good deal in the Comtean classification of the sciences: mathematics, physics, biology, psychology, sociology, are indeed rungs in a descending order of comprehensiveness and precision, and in an ascending order of concreteness and detail. General history – the richest of all human studies – shows this very plainly. If I am purely an economic historian, I can probably establish certain generalisations about the behaviour of some commodity – say wool – in some portion of the Middle Ages, for which enough documentary evidence exists to enable me to establish correlations between the production, sale, distribution of wool etc., and certain other related social

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and economic facts and events. But I am able to do this only by averting my gaze from questions – sometimes very important and fascinating ones – about other characteristics of the wool producers or wool merchants; at least I do not attempt to establish measurable correlations between the sources and movements of the bales of wool and the religious, and moral, and aesthetic attitudes of wool growers or wool users, and their political ideals, and their conduct as husbands or citizens and churchmen, all at once. For the model which attempted to deal with all these aspects of life would (as things are) lose in predictive power and the precision of its results, even if the story gained in comprehensiveness, richness, depth and interest. For this reason, I find it useful to employ technical terms (always symptomatic of the fact that a model is at work) in an artificially delimited field – namely that of economic history. The same considerations apply, for example, to the history of technology, or of mathematics, or of clothing, and the like. I construct the model by abstracting; by noting only what, say, industrial techniques, or mathematical methods, or methods of composing music, have in common, and constructing my model out of these common characteristics, however much of general interest I may be leaving out. The more I wish to put in, the more over-weighted and, in due course, cluttered up and shapeless, my model is bound to become, until it is scarcely a model at all, for it no longer covers a sufficient number of actual and possible cases in a sufficient variety of places and times. Its utility as a model will steadily diminish.

The proposition that sciences deal with the type, not the individual, was accepted and indeed insisted upon by those philosophical historians, particularly in France, who desired to assimilate their activities to those of scientists. When Renan, or Taine, or Monod preached the necessity of scientific history, they did not merely mean (as I suspect that, for example, Bury did) that historians should seek to be precise, or exercise rigour in observation or reasoning, or apply the findings of the natural sciences to the explanation of human action or experience wherever possible, or that they should grind no axe but that of objective truth, and state it without qualification whatever the moral or social or political consequences. They claimed much more. Taine states this point of view clearly, when he declares that historians work with samples:<sup>1</sup>

<sup>1</sup> *Discours de M. Taine prononcé à l'Académie française* (Paris, 1880), pp. 24–7.

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What was there in France in the eighteenth century? Twenty million men . . . twenty million threads the criss-crossing of which makes a web. This immense web, with innumerable knots, cannot be grasped clearly in its entirety by anyone's memory or imagination. Indeed all we have is mere fragments . . . the historian's sole task is to restore them – he reconstructs the wisps of the threads that he can see so as to connect them with the myriad threads that have vanished . . . Fortunately, in the past as now, society included groups, each group consisting of men who were like one another, born in the same condition, moulded by the same education, moved by the same interests, with the same needs, same tastes, same *moeurs*, same culture, same basis to their lives. In seeing one, you have seen all. In every science we study each class of facts by means of chosen samples.

He goes on to say that one must enter into the private life of a man, his beliefs, sentiments, habits, behaviour. Such a sample will give us

insight into the force and direction of the current that carries forward the whole of his society. The monograph, then, is the historian's best tool: he plunges it into the past like a lancet and draws it out charged with complete and authentic specimens. One understands a period after twenty or thirty such soundings: only they must be carried out and interpreted correctly.

This is characteristic of the high tide of positivist optimism in which truth is mixed with error. No doubt it is true that our only key to understanding a culture or an age is the detailed study of the lives of representative individuals or families or groups. We cannot examine all the acts and thoughts of all (or even a large number) of the human beings alive during the age in question (or any other age): we generalise from samples. We integrate the results of such generalisations into what Taine calls the total 'web'. In 'reconstructing' the 'vanished threads', we make use of chemistry, astronomy, geology, palaeontology, epigraphy, psychology, every scientific method known to us. But the objective of all this is to understand the relation of parts to wholes, not, as Taine believed, of instance to general law. In a natural science – physics and zoology, economics and sociology – our aim is to construct a model ('the meson', 'the mammal', 'the monopolistic firm', 'the alienated proletarian') which we can apply, with which we can reach out into the unknown past or future with a fair degree of confidence in the result; for the central criterion of whether or not a study is a true science is its capacity to infer the unknown from the known. The process that Taine describes is not this at all; it is reconstruction in terms of a pattern,

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an interrelated social whole, obtained from 'entering into' individual human lives, provided that they turn out to be 'typical' – that is, significant or characteristic beyond themselves. The recognition of what is characteristic and representative, of what is a 'good' sample suitable for being generalised, and, above all, of how the generalisations fit in with each other – that is the exercise of judgement, a form of thinking dependent on wide experience, memory, imagination, on the sense of 'reality', of what goes with what, which may need constant control by, but is not at all identical with, the capacity for logical reasoning and the construction of laws and scientific models – the capacity for perceiving the relations of particular case to law, instance to general rule, theorems to axioms, not of parts to wholes or fragments to completed patterns. I do not mean that these are incompatible 'faculties' capable of functioning in isolation from each other. Only that the gifts are dissimilar, that the qualitative distinctions and similarities are not reducible without residue to quantitative ones, that the capacity for perceiving the former is not translatable into models, and that Buckle and Comte and Taine and Engels and their cruder or more extremist modern disciples, when they bandy the word 'scientific', are sometimes blind to this, and so lead men astray.

Let me put this in yet another way. Every student of historiography knows that many of the major achievements of modern historians come from their practice of certain rules, which the more reflective among them sometimes express in advice to practitioners of this craft. Historical students are told not to pay too much attention to personal factors or heroic and unusual figures in human history. They are told to attend to the lives of ordinary men, or to economic considerations or social factors or irrational impulses or traditional, collective and unconscious springs of action; or not to forget such impersonal, inconspicuous, dull, slowly or imperceptibly altering factors of change as erosion of the soil, or systems of irrigation and drainage, which may be more influential than spectacular victories, or catastrophic events, or acts of genius; they are told not to allow themselves to be carried away by the desire to be entertaining or paradoxical, or over-rationalistic, or to point a moral or demonstrate a theory; and much else of this kind. What justifies such maxims? They do not follow automatically from the rules of the deductive or inductive disciplines; they are not even rules of specialised techniques (like, say, the *a fortiori* principle in rhetoric, or that of *difficilior lectio* in textual criticism). What logical or technical rules can be laid down for determining precisely what, in a given situation, is

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due to rational or purposive, and what to 'senseless' or irrational, factors, how much to personal action, how much to impersonal forces? If anyone supposes that such rules can be drawn up, let him attempt to do so. It seems plain that such maxims are simply distillations of generalised sagacity – of practical judgement founded on observation, intelligence, imagination, on empirical insight, knowledge of what can and what cannot be, something that resembles a skill or gift more than it does factual knowledge<sup>1</sup> but is not identical with either; a capability of the highest value to action (in this case to mental labour) which scientific techniques can direct, aid, sharpen, criticise, radically correct, but never replace.

All this may be no more than another way of saying something trite but true – that the business of a science is to concentrate on similarities, not differences, to be general, to omit whatever is not relevant to answering the severely delimited questions that it sets itself to ask; while those historians who are concerned with a field wider than the specialised activities of men are interested at least as much in the opposite – in that which differentiates one thing, person, situation, age, pattern of experience, individual or collective, from another. When such historians attempt to account for and explain, say, the French Revolution, the last thing that they seek to do is to concentrate only on those characteristics which the French Revolution has in common with other revolutions, to abstract only common recurrent characteristics, to formulate a law on the basis of them, or at any rate a hypothesis, from which something about the pattern of all revolutions as such (or, more modestly, all European revolutions), and therefore of this revolution in particular, could in principle be reliably inferred. This, if it were feasible, would be the task of sociology, which would then stand to history as a 'pure' science to its application. The validity of the claim of this type of sociology to the status of a natural science is another story, and not directly related to history, whose tasks are different. The immediate purpose of narrative historians (as has often been repeated), whatever else it may be besides this, is to paint a portrait of a situation or a process, which, like all portraits, seeks to capture the unique pattern and peculiar characteristics of its particular subject; not to be an X-ray which eliminates all but what a great many subjects have in common. This is, by now, a truism, but its bearing on the possibility of transforming history into a natural science has not always been clearly perceived. Two great thinkers understood this, and

<sup>1</sup> See pp. 127–8 and p. 136 below.

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grappled with the problem: Leibniz and Hegel. Both made heroic efforts to bridge the gulf by such doctrines as those of 'individual essences' and 'concrete universals' – a desperate dialectical attempt to fuse together individuality and universality. The imaginative brilliance of the metaphysical constructions in which the passage of the Rubicon is deducible from the essence of Julius Caesar, or the even more ambitious inevitabilities of the *Phenomenology*, and their failure, serves to indicate the central character of the problem.

One way of appreciating this contrast is by contrasting two uses of the humble word 'because'. Max Weber, whose discussion of this problem is extraordinarily illuminating, asked himself under what conditions I accept an explanation of a given individual action or attitude as adequate, and whether these conditions are the same as those that are required in the natural sciences – that is to say, he tried to analyse what is meant by rational explanation in these contrasted fields. If I understand him correctly, the type of argument he uses goes somewhat as follows: Supposing that a doctor informs me that his patient recovered from pneumonia because he was injected with penicillin, what rational grounds have I for accepting this 'because'? My belief is rational only if I have rational grounds for believing the general proposition 'Penicillin is effective against pneumonia', a causal proposition established by experiment and observation, which there is no reason to accept unless, in fact, it has been arrived at by valid methods of scientific inference. No amount of general reflection would justify my accepting this general proposition (or its application in a given case) unless I know that it has been or could be experimentally verified. The 'because' in this case indicates a claim that a *de facto* correlation between penicillin and pneumonia has, in fact, been established. I may find this correlation surprising or I may not; this does not affect its reality; scientific investigation – the logic of which, we now think, is hypothetical-deductive – establishes its truth or probability; and this is the end of the matter. If, on the other hand, I am told, in the course of a historical narrative (or in a work of fiction, or ordinary life) that *x* resented the behaviour of *y*, because *x* was weak and *y* was arrogant and strong; or that *x* forgave the insult he had received from *y*, because he was too fond of *y* to feel aggrieved; and if, having accepted these 'because' statements as adequate explanations of the behaviour of *x* and *y*, I am then challenged to produce the general law which I am leaning on, consciously or not, to 'cover' these cases, what would it be reasonable for me to reply? I may well produce something like 'The weak often



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resent the arrogant and strong', or 'Human beings forgive insults from those they love.' But supposing I am then asked what concrete evidence I have for the truth of these general propositions, what scientific experiments I or anyone else have performed to establish these generalisations, how many observed and tested cases they rest on – I may well be at a loss to answer. Even if I am able to cite examples from my own or others' experience of the attitude of the weak to the strong, or of the behaviour of persons capable of love and friendship, I may be scornfully told by a psychologist – or any other devotee of strict scientific method – that the number of instances I have produced is ludicrously insufficient to be adequate evidence for a generalisation of such scope; that no respectable science would accept these few positive or negative instances, which, moreover, have not been observed under scientific conditions, as a basis for serious claims to formulate laws; that such procedures are impressionistic, vague, pre-scientific, unworthy to be reckoned as ground for a scientific hypothesis. And I may further be told that what cannot enter a natural science cannot be called fully rational but only an approximation to it (an 'explanation sketch'). Implicit in this approach is Descartes' criterion, the setting up of the methods of mathematics (or physics) as the standard for all rational thought. Nevertheless, the explanation that I have given in terms of the normal attitude of the weak to the strong, or of friends to one another, would, of course, be accepted by most rational beings (writers and readers of history among them) as an adequate explanation of the behaviour of a given individual in the relevant situation. This kind of explanation may not be admissible in a treatise on natural science, but in dealing with others, or describing their actions, we accept it as being both normal and reasonable; neither as inescapably shallow, or shamefully unexamined, or doubtful, nor as necessarily needing support from the laboratory. We may, of course, in any given case, be mistaken – mistaken about particular facts to be accounted for, about the attitudes of the relevant individuals to one another, or in taking for granted the generalisations implicit in our judgement; these may well be in need of correction from psychologists or sociologists. But because we may be in error in a given instance, it does not follow that this type of explanation is always systematically at fault, and should or could always be replaced by something more searching, more inductive, more like the type of evidence that is alone admitted in, say, biology. If we probe further and ask why it is that such explanations – such uses of 'because' – are accepted in history, and what is meant by saying that it is rational to

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accept them, the answer must surely be that what in ordinary life we call adequate explanations often rest not on specific pieces of scientific reasoning, but on our experience in general, on our capacity for understanding the habits of thought and action that are embodied in human attitudes and behaviour, on what is called knowledge of life, sense of reality. If someone tells us 'x forgave y because he loved him' or 'x killed y because he hated him', we accept these propositions easily, because they, and the propositions into which they can be generalised, fit in with our experience, because we claim to know what men are like, not, as a rule, by careful observation of them as psychological specimens (as Taine recommends), or as members of some strange tribe whose behaviour is obscure to us and can only be inferred from (preferably controlled) observation, but because we claim to know (not always justifiably) what – in essentials – a human being is, in particular a human being who belongs to a civilisation not too unlike our own, and consequently one who thinks, wills, feels, acts in a manner which (rightly or wrongly) we assume to be intelligible to us because it sufficiently resembles our own or those of other human beings whose lives are intertwined with our own. This sort of 'because' is the 'because' neither of induction nor of deduction, but the 'because' of understanding – *Verstehen* – of recognition of a given piece of behaviour as being part and parcel of a pattern of activity which we can follow, which we can remember or imagine, and which we describe in terms of the general laws which cannot possibly all be rendered explicit (still less organised into a system), but without which the texture of normal human life – social or personal – is not conceivable. We make mistakes; we may be shallow, unobservant, naïve, unimaginative, not allow enough for unconscious motives, or unintended consequences, or the play of chance or some other factor; we may project the present into the past or assume uncritically that the basic categories and concepts of our civilisation apply to remote or dissimilar cultures which they do not fit. But although any one explanation or use of 'because' and 'therefore' may be rejected or shaken for any of these or a hundred other reasons (which scientific discoveries in, say, physics or psychology, running against the complacent assumptions of common sense, may well provide), *all* such explanations cannot be rejected *in toto* in favour of inductive procedures derived from the natural sciences, because that would cut the ground from beneath our feet: the context in which we think, act, expect to be understood or responded to, would be destroyed. When I understand a sentence which someone utters, my claim to know what he means is not, as a rule,

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based on an inductively reached conclusion that the statistical probability is that the noises he emits are, in fact, related and expressive in the way that I take them to be – a conclusion derived from a comparison of the sounds he utters with a great many other sounds that a great many other beings have uttered in corresponding situations in the past. This must not be confused with the fact that, if pressed to justify my claim, I could conduct an experiment which would do something to support my belief. Nevertheless, my belief is usually a good deal stronger than that which any process of reasoning that I may perform with a view to bolstering it up would, in a natural science, be held to justify. Yet we do not for this reason regard such claims to understanding as being less rational than scientific convictions, still less as being arbitrary. When I say that I realise that *x* forgave *y* because he loved him or was too good-natured to bear a grudge, what I am ultimately appealing to is my own (or my society's) experience and imagination, my (or my associates') knowledge of what such relationships have been and can be. This knowledge, whether it is my own, or taken by me on trust – accepted uncritically – may often be inadequate, and may lead me to commit blunders – a Freudian or a Marxist may open my eyes to much that I had not yet understood – but if *all* such knowledge were rejected unless it could pass scientific tests, I could not think or act at all.

The world of natural science is the world of the external observer noting as carefully and dispassionately as he can the compresence or succession (or lack of it), or the extent of correlation, of empirical characteristics. In formulating a scientific hypothesis I must, at least in theory, start from the initial assumption that, for all I know, anything might occur next door to, or before or after, or simultaneously with, anything else; nature is full of surprises; I must take as little as possible for granted; it is the business of natural science to establish general laws recording what most often or invariably does occur. But in human affairs, in the interplay of men with one another, of their feelings, thoughts, choices, ideas about the world or each other or themselves, it would be absurd (and if pushed to extremes, impossible) to start in this manner. I do not start from an ignorance which leaves all doors – or as many of them as possible – open, for here I am not primarily an external observer, but myself an actor; I understand other human beings, and what it is to have motives, feelings, or follow rules, because I am human myself, and because to be active – that is, to want, intend, make plans, speculate, do, react to others self-consciously, be aware of

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my situation *vis-à-vis* other conscious beings and the non-human environment – is *eo ipso* to be engaged in a constant fitting of fragments of reality into the single all-embracing pattern that I assume to hold for others besides myself, and which I call reality. When, in fact, I am successful in this – when the fragments seem to me to fit – we call this an explanation; when in fact they do fit, I am called rational; if they fit badly, if my sense of harmony is largely a delusion, I am called irrational, fanciful, distraught, silly; if they do not fit at all, I am called mad.

So much for differences in method. But there is also a profound difference of aim between scientific and historical studies. What they seek for is not the same. Let me illustrate this with a simple example. Supposing that we look at an average, unsophisticated European or American school text of modern European history that offers a sample of the kind of elementary historical writing upon which most of us have been brought up. Let us consider the kind of account that one finds (or used to find) in routine works of this type, of, say, the causes of the French Revolution. It is not unusual to be told that among them were – to give the headings – (i) the oppression of French peasants by the aristocracy, the Church, the King etc.; (ii) the disordered state of French finances; (iii) the weak character or the stupidity of Louis XVI; (iv) the subversive influence of the writings of Voltaire, the Encyclopedists, Rousseau, and other writers; (v) the mounting frustration of the ambitions of the economically rising French *bourgeoisie*, barred from its proper share of political power; and so on. One may reasonably protest against the crudity and *naïveté* of such treatments of history: Tolstoy has provided some very savage and entertaining parodies of it and its practitioners. But if one's main anxiety is to convert history into a science, one's indignation should take a different and much more specific form. One should declare that what is here manifested is a grotesque confusion of categories, an outrage to scientific method. For the analysis of the condition of the peasants belongs to the science of economics, or perhaps of social history; that of French fiscal policy to the science of public finance, which is not primarily a historical study, but one founded (according to some) on timeless principles; the weakness of the King's character or intellect is a matter for individual psychology (or biography); the influence of Voltaire and Rousseau belongs to the history of ideas; the pressure of the middle classes is a sociological topic, and so forth. Each of these disciplines must surely possess its own factual content, methods, canons, concepts, categories, logical structure. To

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heap them into one, and reel off a list of causes, as if they all belonged to the same level and type, is intellectually scandalous: the rope composed of these wholly heterogeneous strands must at once be unwound; each of the strands must then be treated separately in its proper logical box. Such should be the reaction of someone who takes seriously the proposition that history is, or at any rate should be, a natural science or a combination of such sciences. Yet the truth about history – perhaps the most important truth of all – is that general history is precisely this amalgam, a rich brew composed of apparently disparate ingredients, that we do in fact think of these different causes as factors in a single unitary sequence – the history of the French nation or French society during a particular segment of time – and that although there may be great profit to be gained from detaching this or that element of a single process for analysis in a specialised laboratory, yet to treat them as if they were genuinely separate, insulated streams which do not compose a single river, is a far wilder departure from what we think history to be than the indiscriminate compounding of them into one string of causes, as is done in the simple-minded schoolbooks. ‘History is what historians do’, and what at any rate some historians aim at is to answer those who wish to be told what important changes occurred in French public life between 1789 and 1794, and why they took place. We wish, ideally at least, to be presented, if not with a total experience – which is a logical as well as practical impossibility – at least with something full enough and concrete enough to meet our conception of public life (itself an abstraction, but not a deductive schema, not an artificially constructed model), seen from as many points of view and at as many levels as possible, including as many components, factors, aspects, as the widest and deepest knowledge, the greatest analytical power, insight, imagination, can present. If we are told that this cannot be achieved by a natural science – that is, by the application of models to reality, because models can only function if their subject-matter is relatively ‘thin’, consisting as it does of deliberately isolated strands of experience, and not ‘thick’, that is, not with the texture constituted by the interwoven strands – then history, if it is set on dealing with the compound and not some meticulously selected ingredient of it, as it must be, will, in this sense, not be a science after all. A scientific cast of mind is seldom found together with historical curiosity or historical talent. We can make use of the techniques of the natural sciences to establish dates, order events in time and space, exclude untenable hypotheses and suggest new explanatory factors (as sociology, psychology, economics, medicine

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have so notably done), but the function of all these techniques, indispensable as they are today, can be no more than ancillary, for they are determined by their specific models, and are consequently 'thin', whereas what the great historians sought to describe and analyse and explain is necessarily 'thick'; that is the essence of history, its purpose, its pride, and its reason for existence.

History, and other accounts of human life, are at times spoken of as being akin to art. What is usually meant is that writing about human life depends to a large extent on descriptive skill, style, lucidity, choice of examples, distribution of emphasis, vividness of characterisation, and the like. But there is a profounder sense in which the historian's activity is an artistic one. Historical explanation is to a large degree arrangement of the discovered facts in patterns which satisfy us because they accord with life – the variety of human experience and activity – as we know it and can imagine it. That is the difference that distinguishes the humane studies – *Geisteswissenschaften* – from those of nature. When these patterns contain central concepts or categories that are ephemeral, or confined to trivial or unfamiliar aspects of human experience, we speak of such explanations as shallow, or inadequate, or eccentric, and find them unsatisfactory on those grounds. When these concepts are of wide scope, permanent, familiar, common to many men and many civilisations, we experience a sense of reality and dependability that derives from this very fact, and regard the explanation as well-founded, serious, satisfactory. On some occasions (seldom enough) the explanation not only involves, but reveals, basic categories of universal import, which, once they are forced upon consciousness, we recognise as underlying all our experience; yet so closely interwoven are they with all that we are and feel, and therefore so totally taken for granted, that to touch them at all is to communicate a shock to the entire system; the shock is one of recognition and one that may upset us, as is liable to happen when something deep-set and fundamental that has lain unquestioned and in darkness is suddenly illuminated or prised out of its frame for closer inspection. When this occurs, and especially when the categories thus uncovered seem applicable to field after field of human activity, without apparent limits – so that we cannot tell how far they may yet extend – we call such explanations profound, fundamental, revolutionary, and those who proffer them – Vico, Kant, Marx, Freud – men of depth of insight and genius.

This kind of historical explanation is related to moral and aesthetic analysis, in so far as it presupposes conceiving of human beings not

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merely as organisms in space, the regularities of whose behaviour can be described and locked in labour-saving formulas, but as active beings, pursuing ends, shaping their own and others' lives, feeling, reflecting, imagining, creating, in constant interaction and intercommunication with other human beings; in short, engaged in all the forms of experience that we understand because we share in them, and do not view them purely as external observers. This is what is called the inside view: and it renders possible and indeed inescapable explanation whose primary function is not to predict or extrapolate, or even control, but fit the loose and fleeting objects of sense, imagination, intellect, into the central succession of patterns that we call normal, and which is the ultimate criterion of reality as against illusion, incoherence, fiction. History is merely the mental projection into the past of this activity of selection and adjustment, the search for coherence and unity, together with the attempt to refine it with all the self-consciousness of which we are capable, by bringing to its aid everything that we conceive to be useful – all the sciences, all the knowledge and skills, and all the theories that we have acquired, from whatever quarter. This, indeed, is why we speak of the importance of allowing for imponderables in forming historical judgement, or of the faculty of judgement that seems mysterious only to those who start from the preconception that their induction, deduction and sense perception are the only legitimate sources of, or at least certified methods justifying claims to, knowledge. Those who, without mystical undertones, insist on the importance of common sense, or knowledge of life, or width of experience, or breadth of sympathy or imagination, or natural wisdom, or 'depth' of insight – all normal and empirical attributes – are suspected of seeming to smuggle in some kind of illicit, metaphysical faculty only because the exercise of these gifts has relatively little value for those who deal with inanimate matter, for physicists or geologists. Capacity for understanding people's characters, knowledge of ways in which they are likely to react to one another, ability to 'enter into' their motives, their principles, the movement of their thoughts and feelings (and this applies no less to the behaviour of masses or to the growth of cultures) – these are the talents that are indispensable to historians, but not (or not to such a degree) to natural scientists. The capacity for knowing which is like knowing someone's character or face, is as essential to historians as knowledge of facts. Without sufficient knowledge of facts a historical construction may be no more than a coherent fiction, a work of the romantic imagination; it goes without saying that if its claim to be true is to

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be sustained, it must be, as the generalisations which it incorporates must in their turn be, tethered to reality by verification of the facts, as in any natural science. Nevertheless, even though in this ultimate sense what is meant by real and true is identical in science, in history and in ordinary life, yet the differences remain as great as the similarities.

This notion of what historians are doing when they are explaining may cast light also upon something that was mentioned earlier; namely, the idea of the inexorable succession of the stages of development, which made it not merely erroneous but absurd to suppose that *Hamlet* could have been written at the court of Genghis Khan, or that Richelieu could have pursued the policies realised by Bismarck. For this kind of certainty is not something that we derive from a careful inductive investigation of conditions in Outer Mongolia, as opposed to those of Elizabethan England, or of the political relations between the great powers in the nineteenth century as opposed to those in the seventeenth, but from a more fundamental sense of what goes with what. We conceive of historical succession as being akin to that of the growth of the individual personality; to suggest that a child thinks or wills or acts like an old man, or vice versa, is something that we reject on the basis of our own direct experience (I mean by this not introspection, but knowledge of life – something that springs from interaction with others and with the surrounding environment and constitutes the sense of reality). Our conception of a civilisation is analogous to this. We do not feel it necessary to enumerate all the specific ways in which a wild nomad differs from a European of the Renaissance, or ask ourselves why it is that – what inductive evidence we have for the contingent proposition that – the culture of the Renaissance is not merely different from, but represents a more mature phase of human growth than, that of Outer Mongolia two thousand years ago. The proposition that the culture of the Renaissance not merely did not precede, but cannot have preceded, the nomadic stage in the continuous development that we call a single culture, is something bound up so closely with our conception of how men live, of what societies are, of how they develop, indeed of the very meaning of the concepts of man, growth, society, that it is logically prior to our investigations and not their goal or product. It is not so much that it stands in no need of justification by their methods or results, as that it is logically absurd to bolster it up in this way. For this reason one might hesitate to call such knowledge empirical, for it is not confirmable or corrigible by the normal empirical methods, in relation to which it functions as base – as a frame of reference. But neither, of



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course, is it *a priori* (as Vico and Hegel, who showed original insight into this matter, sometimes imply) if by that is meant that it is obtainable in some special, non-naturalistic way. Recognition of the fundamental categories of human experience differs from both the acquisition of empirical information and deductive reasoning; such categories are logically prior to either, and are least subject to change among the elements that constitute our knowledge. Yet they are not unalterable; and we can ask ourselves to what degree this or that change in them would affect our experience. It is possible, although *ex hypothesi* not easy, to conceive of beings whose fundamental categories of thought or perception radically differ from ours; the greater such differences, the harder it will be for us to communicate with them, or, if the process goes further, to regard them as being human or sentient; or, if the process goes far enough, to conceive of them at all.

It is a corollary of this that one of the difficulties that beset historians and do not plague natural scientists is that of reconstructing what occurred in the past in terms not merely of our own concepts and categories, but also of how such events must have looked to those who participated in or were affected by them – psychological facts that in their turn themselves influenced events. It is difficult enough to develop an adequate consciousness of what we are and what we are at, and how we have arrived where we have done, without also being called upon to make clear to ourselves what such consciousness and self-consciousness must have been like for persons in situations different from our own; yet no less is expected of the true historian. Chemists and physicists are not obliged to investigate the states of mind of Lavoisier or Boyle; still less of the unenlightened mass of men. Mathematicians need not worry themselves with the general outlook of Euclid or Newton. Economists *qua* economists need not grasp the inner vision of Adam Smith or Keynes, still less of their less gifted contemporaries. But it is the inescapable business of the historian who is more than a compiler or the slave of a doctrine or a party to ask himself not merely what occurred (in the sense of publicly observable events), but also how the situation looked to various representative Greeks or Romans, or to Alexander or Julius Caesar, and above all to Thucydides, Tacitus or anonymous medieval chroniclers, or to Englishmen or Germans in the sixteenth century, or Frenchmen in 1789 or Russians in 1917, or to Luther, or Cromwell, or Robespierre or Lenin. This kind of imaginative projection of ourselves into the past, the attempt to capture concepts and categories that differ from those of the investigator by means of concepts and categories

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that cannot but be his own, is a task that he can never be sure that he is even beginning to achieve, yet is not permitted to abjure. He seeks to apply scientific tests to his conclusions, but this will take him but a little way. For it is a commonplace by now that the frontiers between fact and interpretation are blurred and shifting, and that what is fact from one perspective is interpretation from another. Even if chemical and palaeographic and archaeological methods yield some hard pebbles of indubitable fact, we cannot evade the task of interpretation, for nothing counts as a historical interpretation unless it attempts to answer the question of how the world must have looked to other individuals or societies if their acts and words are to be taken as the acts and words of human beings neither wholly like ourselves nor so different as not to fit into our common past. Without a capacity for sympathy and imagination beyond any required by a physicist, there is no vision of either past or present, neither of others nor of ourselves; but where it is wholly lacking, ordinary thinking – as well as historical thinking – cannot function at all.

The contrast which I am trying to draw is not that between the two permanently opposed but complementary human demands: one for unity and homogeneity, the other for diversity and heterogeneity, which Kant has made so clear.<sup>1</sup> The contrast I mean is one between different types of knowledge. When the Jews are enjoined in the Bible to protect strangers, ‘for ye know the heart of a stranger, seeing ye were strangers in the land of Egypt’,<sup>2</sup> this knowledge is neither deductive, nor inductive, nor founded on direct inspection, but akin to the ‘I know’ of ‘I know what it is to be hungry and poor’, or ‘I know how political bodies function’, or ‘I know what it is to be a Brahmin.’ This is neither (to make use of Gilbert Ryle’s useful classification) the ‘knowing that’ which the sciences provide, nor the ‘knowing how’ which is the possession of a disposition or skill, nor the knowledge of direct perception, acquaintance, memory, but the type of knowledge that an administrator or politician must possess of the men with whom he deals. If the historian (or, for that matter, the contemporary commentator on events) is endowed with this too poorly, if he can fall back only on inductive techniques, then, however accurate his discoveries of fact, they remain those of an antiquarian, a chronicler, at best an

<sup>1</sup> *Critique of Pure Reason*, trans. Norman Kemp Smith (London, 1933), p. 540.

<sup>2</sup> Exodus, chapter 23, verse 9.

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archaeologist, but not those of an historian. It is not only erudition or belief in theories of human behaviour that enabled Marx or Namier to write history of the first order.

Perhaps some light may be cast on this issue by comparing historical method with that of linguistic or literary scholarship. No scholar could emend a text without a capacity (for which no technique exists) for 'entering into the mind of' another society and age. Electronic brains cannot perform this: they can offer alternative combinations of letters but not choose between them successfully, since the infallible rules for 'programming' have not been formulated. How do gifted scholars in fact arrive at their emendations? They do all that the most exacting natural science would demand; they steep themselves in the material of their authors; they compare, contrast, manipulate combinations like the most accomplished cypher breakers; they may find it useful to apply statistical and quantitative methods; they formulate hypotheses and test them; all this may well be indispensable but it is not enough. In the end what guides them is a sense (which comes from study of the evidence) of what a given author could, and what he could not, have said; of what fits and what does not fit into the general pattern of his thought. This, let me say again, is not the way in which we demonstrate that penicillin cures pneumonia.

It might be that the deepest chasm which divides historical from scientific studies lies between the outlook of the external observer and of the actor. It is this that was brought out by the contrast between 'inner' and 'outer' which Vico initiated, and after him the Germans, and is so suspect to modern positivists; between the questions 'How?' or 'What?' or 'When?' on one side, and the questions 'Why?', 'Following what rule?', 'Towards what goal?', 'Springing from what motive?' on the other. It lies in the difference between the category of mere togetherness or succession (the correlations to which all sciences can in the end be reduced), and that of coherence and interpretation; between factual knowledge and understanding. The latter alone makes intelligible that celebrated identity in difference (which the idealist philosophers exaggerated and abused) in virtue of which we conceive of one and the same outlook as being expressed in diverse manifestations, and perceive affinities (that are often difficult and at times impossible to formulate) between the dress of a society and its morals, its system of justice and the character of its poetry, its architecture and its domestic habits, its sciences and its religious symbols. This is Montesquieu's notorious 'spirit' of the laws (or institutions) that belong to a society. Indeed, this

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alone gives its sense to the very notion of belonging;<sup>1</sup> without it we should not understand what is meant when something is described as belonging to, or as characteristic or typical of, an age or a style or an outlook, nor, conversely, should we know what it is for some interpretation to be anachronistic, what is meant by an incompatibility between a given phenomenon and its alleged context in time; this type of misattribution is different in kind from formal inconsistency, a logical collision of theories or propositions. A concentrated interest in particular events or persons or situations as such,<sup>2</sup> and not as instances of a generalisation, is a prerequisite of that historical sense which, like a sense of occasion in agents intent on achieving some specific purpose, is sharpened by love or hate or danger; it is this that guides us in understanding, discovering and explaining. When historians assert particular propositions like 'Lenin played a crucial role in making the Russian Revolution', or 'Without Churchill Britain would have been defeated in 1940', the rational grounds for such assertions, whatever their degree of plausibility, are not identical with generalisations of the type 'Such men, in such conditions, usually affect events in this fashion' for which the evidence may be exceedingly feeble; for we do not test the propositions solely – or indeed generally – by their logical links with such general propositions (or explanation sketches), but rather in terms of their coherence with our picture of a specific situation. To analyse this type of knowledge into a finite collection of general and particular, categorical and hypothetical, propositions, is not practicable. Every judgement that we formulate, whether in historical thought or ordinary life, involves general ideas and propositions without which there can be no thought or language. At times some among these generalisations can be clearly stated, and combined into models; where this occurs, natural sciences

<sup>1</sup> Cf. p. 109 above.

<sup>2</sup> 'There are really only two ways of acquiring knowledge of human affairs' says Ranke: 'through the perception of the particular, or through abstraction . . . the former [is the method] of history. There is no other way . . .

'Two qualities, I think, are required for the making of the true historian: first he must feel a participation and pleasure in the particular for itself . . . Just as one takes delight in flowers without thinking to what genus of Linnaeus . . . they belong . . . without thinking how the whole manifests itself in the particular.

'Still, this does not suffice; . . . while [the historian] reflects on the particular, the development of the world in general will become apparent to him.' In *The Varieties of History*, ed. Fritz Stern (New York, 1956), pp. 58–9.

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arise. But the descriptive and explanatory language of historians, because they seek to record or analyse or account for specific or even unique phenomena as such<sup>1</sup> – as often as not for their own sakes – cannot, for that reason, be reduced without residue to such general formulas, still less to models and their applications. Any attempt to do so will be halted at the outset by the discovery that the subject-matter involves a ‘thick’ texture of criss-crossing, constantly changing and melting conscious and unconscious beliefs and assumptions some of which it is impossible and all of which it is difficult to formulate, on which, nevertheless, our rational views and rational acts are founded, and, indeed, which they exhibit or articulate. This is the ‘web’ of which Taine speaks, and it is possible to go only some way (it is impossible to say in advance how far) towards isolating and describing its ingredients if our rationality is challenged. And even if we succeed in making explicit all (which is absurd) or many (which is not practicable) of our general propositions or beliefs, this achievement will not take us much nearer the scientific ideal; for between a collection of generalisations – or unanalysed knots of them – and the construction of a model there still lies difficult or impassable country: the generalisations must exhibit an exceptional degree of constancy and logical connection if this passage is to be negotiated.

What are we to call the faculty which an artist displays in choosing his material for his particular purpose; or which a politician or a publicist needs when he adopts a policy or presents a thesis, the success of which may depend on the degree of his sensitiveness to circumstances and to human characters, and to the specific interplay between them, with which, and upon which, he is working? The *Wirkungszusammenhang*, the general structure or pattern of experience – understanding of this may be uniquely valuable for scientists, but it is absolutely indispensable to the historian. Without it, he remains at best a chronicler or technical specialist; at worst a distorter and writer of inferior fiction. He may achieve accuracy, objectivity, lucidity, literary quality, breadth of knowledge, but unless he conveys a recognisable vision of life, and exhibits that sense of what fits into a given situation and what does not which is the ultimate test of sanity, a perception of a social *Gestalt*, not, as a rule, capable of being formalised in terms, let us say, of a field theory – unless he possesses a minimal capacity for this, the result is not recognised by us as an account of reality, that is, of what human

<sup>1</sup> All facts are, of course, unique, those dealt with by natural scientists no less than any others; but it is not their uniqueness that interests scientists.

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beings, as we understand the term, could have felt or thought or done.

It was, I think, L. B. Namier who once remarked about historical sense that there was no *a priori* short-cut to knowledge of the past; what actually happened can only be established by scrupulous empirical investigation, by research in its normal sense. What is meant by historical sense is the knowledge not of what happened, but of what did not happen. When a historian, in attempting to decide what occurred and why, rejects all the infinity of logically open possibilities, the vast majority of which are obviously absurd, and, like a detective, investigates only those possibilities which have at least some initial plausibility, it is this sense of what is plausible – what men, being men, could have done or been – that constitutes the sense of coherence with the patterns of life that I have tried to indicate. Such words as plausibility, likelihood, sense of reality, historical sense, denote typical qualitative categories which distinguish historical studies as opposed to the natural sciences that seek to operate on a quantitative basis. This distinction, which originated in Vico and Herder, and was developed by Hegel and (*malgré soi*) Marx, Dilthey and Weber, is of fundamental importance.

The gifts that historians need are different from those of the natural scientists. The latter must abstract, generalise, idealise, qualify, dissociate normally associated ideas (for nature is full of strange surprises, and as little as possible must be taken for granted), deduce, establish with certainty, reduce everything to the maximum degree of regularity, uniformity, and, so far as possible, to timeless repetitive patterns. Historians cannot ply their trade without a considerable capacity for thinking in general terms; but they need, in addition, peculiar attributes of their own: a capacity for integration, for perceiving qualitative similarities and differences, a sense of the unique fashion in which various factors combine in the particular concrete situation, which must at once be neither so unlike any other situation as to constitute a total break with the continuous flow of human experience, nor yet so stylised and uniform as to be the obvious creature of theory and not of flesh and blood. The capacities needed are rather those of association than of dissociation, of perceiving the relation of parts to wholes, of particular sounds or colours to the many possible tunes or pictures into which they might enter, of the links that connect individuals viewed and savoured as individuals, and not primarily as instances of types or laws. It is this that Hegel tried to put under the head of the synthesising 'Reason' as opposed to the analytic 'Understanding'; and to provide it

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with a logic of its own. It is the 'logic' that proved incapable of clear formulation or utility: it is this that cannot be incorporated in electronic brains. Such gifts relate as much to practice as to theory; perhaps to practice more directly. A man who lacks common intelligence can be a physicist of genius, but not even a mediocre historian. Some of the characteristics indispensable to (although not, by themselves, sufficient to move) historians are more akin to those needed in active human intercourse, than in the study or the laboratory or the cloister. The capacity for associating the fruits of experience in a manner that enables its possessors to distinguish, without the benefit of rules, what is central, permanent, or universal from what is local, or peripheral, or transient – that is what gives concreteness and plausibility, the breath of life, to historical accounts. Skill in establishing hypotheses by means of observation or memory or inductive procedures, while ultimately indispensable to the discovery of all forms of truth about the world, is not the rarest of the qualities required by historians, nor is the desire to find recurrences and laws itself a symptom of historical talent.

If we ask ourselves which historians have commanded the most lasting admiration, we shall, I think, find that they are neither the most ingenious, nor the most precise, nor even the discoverers of new facts or unsuspected causal connections, but those who (like imaginative writers) present men or societies or situations in many dimensions, at many intersecting levels simultaneously, writers in whose accounts human lives, and their relations both to each other and to the external world, are what (at our most lucid and imaginative) we know that they can be. The gifts that scientists most need are not these: they must be ready to call everything into question, to construct bold hypotheses unrelated to customary empirical procedures, and drive their logical implications as far as they will go, free from control by common sense or too great a fear of departing from what is normal or possible in the world. Only in this way will new truths and relations between them be found – truths which, in psychology or anthropology as well as physics or mathematics, do not depend upon preserving contact with common human experience. In this sense, to say of history that it should approximate to the condition of a science is to ask it to contradict its essence.

It would be generally agreed that the reverse of a grasp of reality is the tendency to fantasy or Utopia. But perhaps there exist more ways than one to defy reality. May it not be that to be unscientific is to defy, for no good logical or empirical reason, established hypotheses and laws; while to be unhistorical is the opposite – to ignore or twist one's view

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of particular events, persons, predicaments, in the name of laws, theories, principles derived from other fields, logical, ethical, metaphysical, scientific, which the nature of the medium renders inapplicable? For what else is it that is done by those theorists who are called fanatical because their faith in a given pattern is not overcome by their sense of reality? For this reason the attempt to construct a discipline which would stand to concrete history as pure to applied, no matter how successful the human sciences may grow to be – even if, as all but obscurantists must hope, they discover genuine, empirically confirmed, laws of individual and collective behaviour – seems an attempt to square the circle. It is not a vain hope for an ideal goal beyond human powers, but a chimera, born of lack of understanding of the nature of natural science, or of history, or of both.