

should be clearly understood that the term 'rule' is used for a statement by which a regularity of the conduct of individuals can be described, irrespective of whether such a rule is 'known' to the individuals in any other sense than that they normally act in accordance with it. We shall not consider here the interesting question of how such rules can be transmitted culturally long before the individuals are capable of stating them in words and therefore of explicitly teaching them, or how they learn abstract rules 'by analogy' from concrete instances.

That the systems of rules of individual conduct and the order of actions which results from the individuals acting in accordance with them are not the same thing should be obvious as soon as it is stated, although the two are in fact frequently confused. (Lawyers are particularly prone to do so by using the term 'order of law' for both.) Not every system of rules of individual conduct will produce an overall order of the actions of a group of individuals; and whether a given system of rules of individual conduct will produce an order of actions, and what kind of order, will depend on the circumstances in which the individuals act. The classical instance in which the very regularity of the behaviour of the elements produces 'perfect disorder' is the second law of thermodynamics, the entropy principle. It is evident that in a group of living beings many possible rules of individual conduct would also produce only disorder or make the existence of the group as such impossible. A society of animals or men is always a number of individuals observing such common rules of conduct as, in the circumstances in which they live, will produce an order of actions.

For the understanding of animal and human societies the distinction is particularly important because the genetic (and in a great measure also the cultural) transmission of rules of conduct takes place from individual to individual, while what may be called the natural selection of rules will operate on the basis of the greater or lesser efficiency of the resulting order of the group.³ For the purposes of this discussion we shall define the different kinds of elements of which groups consist by the rules of conduct which they obey, and regard the appearance of a transmittable 'mutation' of these rules of individual conduct as the equivalent of the appearance of new elements, or as a progressive change in the character of all the elements of the group.

³ Cf. Alexander Carr-Saunders, *The Population Problem*, London, 1922, p. 223: 'Those groups practising the most advantageous customs will have an advantage in the constant struggle with adjacent groups.'

CHAPTER FOUR

Notes on the Evolution of Systems of Rules of Conduct

(The Interplay between Rules of Individual Conduct and the Social Order of Actions)

I

The purpose of these notes is to clarify the conceptual tools with which we describe facts, not to present new facts. More particularly, their aim is to make clear the important distinction between the systems of rules of conduct which govern the behaviour of the individual members of a group (or of the elements of any order) on the one hand and, on the other hand, the order or pattern of actions which results from this for the group as a whole.¹ It does not matter for this purpose whether the individual members which make up the group are animals or men,² nor whether the rules of conduct are innate (transmitted genetically) or learnt (transmitted culturally). We know that cultural transmission by learning occurs at least among some of the higher animals, and there can be no doubt that men also obey some rules of conduct which are innate. The two sorts of rules will therefore often interact. Throughout it

¹ We shall use '(social) order' and '(social) pattern' interchangeably to describe the structure of the actions of all the members of a group, but shall avoid the more common term 'social organization', because 'organization' has an intentionalist (anthropomorphic) connotation and is therefore better reserved for orders which are the product of design. Similarly we shall occasionally use the pairs of concepts 'order and its elements' and 'groups and individuals' interchangeably, although the former is of course the more general term of which the relation between group and individual is a particular instance.

² Or even whether they are living organisms or perhaps some sort of reduplicating mechanical structures. Cf. L. S. Penrose, 'Self-Reproducing Machines', *Scientific American*, June 1959.

II

The necessity of distinguishing between the order of actions of the group and the rules of conduct of the individuals may be further supported by the following considerations:

1. A particular order of actions can be observed and described without knowledge of the rules of conduct of the individuals which bring it about: and it is at least conceivable that the same overall order of actions may be produced by different sets of rules of individual conduct.
2. The same set of rules of individual conduct may in some circumstances bring about a certain order of actions, but not do so in different external circumstances.
3. It is the resulting overall order of actions but not the regularity of the actions of the separate individuals as such which is important for the preservation of the group; and a certain kind of overall order may in the same manner contribute to the survival of the members of the group whatever the particular rules of individual conduct which bring it about.
4. The evolutionary selection of different rules of individual conduct operates through the viability of the order it will produce, and any given rules of individual conduct may prove beneficial as part of one set of such rules, or in one set of external circumstances, and harmful as part of another set of rules or in another set of external circumstances.
5. Although the overall order of actions arises in appropriate circumstances as the joint product of the actions of many individuals who are governed by certain rules, the production of the overall order is of course not the conscious aim of individual action since the individual will not have any knowledge of the overall order, so that it will not be an awareness of what is needed to preserve or restore the overall order at a particular moment but an abstract rule which will guide the actions of the individual.
6. The concrete individual action will always be the joint effect of internal impulses, such as hunger, the particular external events acting upon the individual (including the actions of other members of the group), and the rules applicable to the situation thus determined. The rules upon which different individual members of a group will at any moment act may therefore be different either because the drives or external circumstances acting upon them make different rules applicable, or because different rules apply to different individuals according to age, sex, status, or some particular state in which each individual finds itself at the moment.
7. It is important always to remember that a rule of conduct will never

by itself be a sufficient cause of action but that the impulse for actions of a certain kind will always come either from a particular external stimulus or from an internal drive (and usually from a combination of both), and that the rules of conduct will always act only as a restraint on actions induced by other causes.

8. The orderliness of the system of actions will in general show itself in the fact that actions of the different individuals will be so co-ordinated, or mutually adjusted to each other, that the result of their actions will remove the initial stimulus or make inoperative the drive which has been the cause of activity.

9. The difference between the orderliness of the whole and the regularity of the actions of any of its individual parts is also shown by the fact that a whole may be orderly without the action of any particular individual element showing any regularity. This might be the case, for instance, if the order of the whole were brought about by an authority commanding all particular actions and choosing the individuals who have to perform any one action at a given moment at random, say by drawing lots. There might in such a group well exist a recognizable order in the sense that certain roles were always filled by somebody; but no rules guiding the actions of any one individual (other than perhaps the commanding authority) could be formulated. The actions taken there by any one individual would not be derived by means of a rule from any of its properties or any of the circumstances acting on it (other than the commands of the organizer).

III

The most easily observed instances in which the rules of individual conduct produce an overall order are those where this order consists in a spatial pattern such as will occur in the marching, defence, or hunting of a group of animals or men. The arrow formation of migrating wild geese, the defensive ring of the buffaloes, or the manner in which lionesses drive the prey towards the male for the kill, are simple instances in which presumably it is not an awareness of the overall pattern by the individual but some rules of how to respond to the immediate environment which co-ordinate the actions of the several individuals.

More instructive are the abstract and more complex orders based on a division of labour which we find in such insect societies as those of bees, ants, and termites. There is perhaps less temptation in these instances to ascribe the changes in the activities of the individual either to a central command or to an 'insight' on the part of the individual into what at the

particular moment is needed by the whole. There can be little doubt that the successive activities which a worker bee performs at the different stages of its career, at intervals varying in length according to the requirements of the situation⁴ (and apparently even reverting to stages already passed when the 'needs' of the hive require it), could be explained by comparatively simple rules of individual conduct, if we only knew them. Similarly the elaborate structures which termites build, the genetics of which A. E. Emerson has so revealingly described,⁵ must ultimately be accounted for by innate rules of conduct of the individuals of which we are largely ignorant.

When we are concerned with primitive human societies, on the other hand, it is often easier to ascertain the rules of individual conduct than to trace from them the resulting overall and often highly abstract order. The individuals will often themselves be able to tell us what they regard as appropriate action in different circumstances, though they may be able to do this only for particular instances but not to articulate the rules in accordance with which they act;⁶ but the 'functions' which these rules serve we shall be able to discover only after we have reconstructed the overall order which is produced by actions in accordance with them. The individual may have no idea what this overall order is that results from his observing such rules as those concerning kinship and inter-marriage, or the succession to property, or which function this overall order serves. Yet all the individuals of the species which exist will behave in that manner because groups of individuals which have thus behaved have displaced those which did not do so.⁷

IV

The overall order of actions in a group is in two respects more than the totality of regularities observable in the actions of the individuals and cannot be wholly reduced to them. It is so not only in the trivial sense in which a whole is more than the mere *sum* of its parts but presupposes also that these elements are related to each other in a particular manner.⁸ It is

⁴ See K. von Frisch, *The Dancing Bees*, New York, 1955.

⁵ A. E. Emerson, 'Termite Nests—A Study of Phylogeny of Behavior', *Ecological Monographs*, VIII, 1938.

⁶ Cf. Edward Sapir, *The Selected Writings*, ed. D. G. Mandelbaum, University of California Press, 1949, p. 548 *et seq.*

⁷ Ample further illustrations of the kind of orders briefly sketched in this section will be found in V. C. Wynne-Edwards, *Animal Dispersion in Relation to Social Behaviour*, Edinburgh, 1962; Anne Roe and G. G. Simpson, *Behavior and Evolution*, Yale University Press, 1958; and Robert Ardrey, *The Territorial Imperative*, New York, 1966.

⁸ Cf. K. R. Popper, *The Poverty of Historicism*, London, 1957, section 7, and Ernest Nagel, *The Structure of Science*, New York, 1961, pp. 380-97.

more also because the existence of those relations which are essential for the existence of the whole cannot be accounted for wholly by the interaction of the parts but only by their interaction with an outside world both of the individual parts and the whole. If there exist recurrent and persistent structures of a certain type (i.e., showing a certain order), this is due to the elements responding to external influences which they are likely to encounter in a manner which brings about the preservation or restoration of this order; and on this, in turn, may be dependent the chances of the individuals to preserve themselves.

From any given set of rules of conduct of the elements will arise a steady structure (showing 'homeostatic' control) only in an environment in which there prevails a certain probability of encountering the sort of circumstances to which the rules of conduct are adapted. A change of environment may require, if the whole is to persist, a change in the order of the group and therefore in the rules of conduct of the individuals; and a spontaneous change of the rules of individual conduct and of the resulting order may enable the group to persist in circumstances which, without such change, would have led to its destruction.

These considerations are mainly intended to bring out that systems of rules of conduct will develop as wholes, or that the selection process of evolution will operate on the order as a whole; and that, whether a new rule will, in combination with all the other rules of the group, and in the particular environment in which it exists, increase or decrease the efficiency of the group as a whole, will depend on the order to which such individual conduct leads. One consequence of this is that a new rule of individual conduct which in one position may prove detrimental, may in another prove to be beneficial. Another is that changes in one rule may make beneficial other changes, both of a behavioural or somatic character, which before were harmful. It is thus likely that even culturally transmitted patterns of individual behaviour (or the resulting patterns of action of the group) may contribute to determine the selection among genetic changes of a behavioural or somatic kind.⁹

It is evident that this interplay of the rules of conduct of the individuals with the actions of other individuals and the external circumstances in producing an overall order may be a highly complex affair. The whole task of social theory consists in little else but an effort to reconstruct the overall orders which are thus formed, and the reason why that special apparatus of conceptual construction is needed which social theory represents is the complexity of this task. It will also be clear that such a distinct theory of social structures can provide only an explanation

⁹ Cf. Sir Alister Hardy, *The Living Stream*, London 1966, especially lecture II.

of certain general and highly abstract features of the different types of structures (or only of the 'qualitative aspects'), because these abstract features will be all that all the structures of a certain type will have in common, and therefore all that will be predictable or provide useful guidance for action.

Of theories of this type economic theory, the theory of the market order of free human societies, is so far the only one which has been systematically developed over a long period and, together with linguistics, perhaps one of a very few which, because of the peculiar complexity of their subject, require such elaboration. Yet, though the whole of economic theory (and, I believe, of linguistic theory) may be interpreted as nothing else but an endeavour to reconstruct from regularities of the individual actions the character of the resulting order, it can hardly be said that economists are fully aware that this is what they are doing. The nature of the different kinds of rules of individual conduct (some voluntarily and even unconsciously observed and some enforced), which the formation of the overall order presupposes, is frequently left obscure.¹⁰ The important question of which of these rules of individual action can be deliberately and profitably altered, and which are likely to evolve gradually with or without such deliberate collective decisions as legislation involves, is rarely systematically considered.

V

Although the existence and preservation of the order of actions of a group can be accounted for only from the rules of conduct which the individuals obey, these rules of individual conduct have developed because the individuals have been living in groups whose structures have gradually changed. In other words, the properties of the individuals which are significant for the existence and preservation of the group, and through this also for the existence and preservation of the individuals themselves, have been shaped by the selection of those from the individuals living in groups which at each stage of the evolution of the group tended to act according to such rules as made the group more efficient.

Thus for the explanation of the functioning of the social order at any one time the rules of individual conduct must be assumed to be given. Yet these rules have been selected and formed by the effects they have

¹⁰ As is shown by the unprofitable discussions about the degree of 'rationality' which economic theory is alleged to assume. What is said above, incidentally, also implies that social theory is, strictly speaking, not a science of behaviour and that to regard it as part of 'behavioural science' is at least misleading.

on the social order; and in so far as psychology does not wish to content itself with describing the rules which individuals actually obey, but undertakes to explain why they observe these rules, at least a great part of it will have to become evolutionary social psychology. Or, to put this differently, though social theory constructs social orders from the rules of conduct assumed to be given at any one time, these rules of conduct have themselves developed as part of a larger whole, and at each stage of this development the then prevailing overall order determined what effect any one change in the rules of individual conduct had.

Though we cannot here further pursue the question of the relation of psychology to social theory, it will contribute to the main purpose of these notes if we add a few remarks on the difference between an order which is brought about by the direction of a central organ such as the brain, and the formation of an order determined by the regularity of the actions towards each other of the elements of a structure. Michael Polanyi has usefully described this distinction as that between a monocentric and a polycentric order.¹¹ The first point which it is in this connection important to note is that the brain of an organism which acts as the directing centre for that organism is itself in turn a polycentric order, that is, that its actions are determined by the relation and mutual adjustment to each other of the elements of which it consists.

As we are all tempted to assume that wherever we find an order it must be directed by a central organ, which, if we applied this to the brain, evidently would lead to an infinite regress, it will be useful briefly to consider the advantage derived from the fact that one such polycentric order is set aside in a part of the whole and governs the action of the rest. This advantage consists in the possibility of trying out beforehand on a model the various alternative complexes of actions and selecting from them the most promising before action is taken by the whole organism. There is no reason why any one of these complex patterns of actions should not be determined by the direct interaction of the parts without this pattern being first formed in another centre, and then directed by it. The unique attribute of the brain is that it can produce a representative model on which the alternative actions and their consequences can be tried out beforehand. The structure which the brain directs may have a repertoire of possible patterns of actions quite as big as the one the brain can pre-form; but if it actually had to take that action before it was tried out on a model, it might discover its harmful effects only when it was too late and it might be destroyed as a result. If, on the other hand, such action is

¹¹ M. Polanyi, *The Logic of Liberty*, London, 1951, especially Chapters 8 and 9.

first tried out on a model in a separate part of the whole set aside for the purpose, not the actual effect but a representation of the effect to be expected will act as a signal that the particular action is not to be taken.

There is, therefore, no reason why a polycentric order in which each element is guided only by rules and receives no orders from a centre should not be capable of bringing about as complex and apparently as 'purposive' an adaptation to circumstances as could be produced in a system where a part is set aside to preform such an order on an analogue or model before it is put into execution by the larger structure. In so far as the self-organizing forces of a structure as a whole lead at once to the right kind of action (or to tentative actions which can be retraced before too much harm is done), such a single-stage order need not be inferior to a hierarchic one in which the whole merely carries out what has first been tried out in a part. Such a non-hierarchic order dispenses with the necessity of first communicating all the information on which its several elements act to a common centre and conceivably may make the use of more information possible than could be transmitted to, and digested by, a centre.

Such spontaneous orders as those of societies, although they will often produce results similar to those which could be produced by a brain, are thus organized on principles different from those which govern the relations between a brain and the organism which it directs. Although the brain may be organized on principles similar to those on which a society is organized, society is not a brain and must not be represented as a sort of super-brain, because in it the acting parts and those between which the relations determining the structure are established are the same, and the ordering task is not deputed to any part in which a model is preformed.

VI

The existence of such ordered structures as galaxies, solar systems, organisms, and social orders in a multiplicity of instances showing certain common features and observing as wholes regularities which cannot be wholly reduced to the regularities of the parts, because they also depend on the interaction of the whole with the environment which placed and keeps the part in the order necessary for the specific behaviour of the whole, creates certain difficulties for a theory of scientific method which regards as its aim the discovery of 'universal laws of nature'. Though it is reasonable to believe that structures of the kind will in a

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definable environment always behave as they do, the existence of such structures may in fact depend not only on that environment, but also on the existence in the past of many other environments, indeed on a definite sequence of such environments which have succeeded in that order only once in the history of the universe. The theoretical disciplines which are concerned with the structures of such complexes have thus an object the very existence of which is due to circumstances (and a process of evolution determined by them) which, though in principle repeatable, may in fact have been unique and never occur again. In consequence, the laws which govern the behaviour of these complexes, though 'in principle universally valid' (whatever that means), apply in fact only to structures to be found in a particular space-time sector of that universe.

Just as apparently the existence of life on earth is due to events which could have happened only in the peculiar conditions prevailing during an early phase of its history, so the existence of our kind of society, and even of human beings thinking as we do, may be due to phases in the evolution of our species without which neither the present order nor the existing kinds of individual minds could have arisen, and from the legacy of which we can never wholly free ourselves. We can judge and modify all our views and beliefs only within a framework of opinions and values which, though they will gradually change, are for us a given result of that evolution.

Yet the problem of the formation of such structures is still a theoretical and not a historical problem, because it is concerned with those factors in a sequence of events which are in principle repeatable, though in fact they may have occurred only once. We may call the answer 'conjectural history' (and much of modern social theory derives indeed from what the eighteenth-century thinkers called conjectural history), if we remain aware that the aim of such 'conjectural history' is not to account for all particular attributes which a unique event possesses, but only for those which under conditions which may be repeated can be produced again in the same combination. Conjectural history in this sense is the reconstruction of a hypothetical kind of process which may never have been observed but which, if it had taken place, would have produced phenomena of the kind we observe. The assumption that such a process has taken place may be tested by seeking for yet unobserved consequences which follow from it, and by asking whether all regular structures of the kind in question which we find can be accounted for by that assumption.

As was clearly recognized by Carl Menger, in the sphere of complex phenomena 'this genetic element is inseparable from the idea of theoretical

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sciences'.¹² Or, to put it differently, the existence of the structures with which the theory of complex phenomena is concerned can be made intelligible only by what the physicists would call a cosmology, that is, a theory of their evolution.¹³ The problem of how galaxies or solar systems are formed and what is their resulting structure is much more like the problems which the social sciences have to face than the problems of mechanics; and for the understanding of the methodological problems of the social sciences a study of the procedures of geology or biology is therefore much more instructive than that of physics. In all these fields the structures or steady states which they study, the kind of objects with which they are concerned, though they may within a particular space-time region occur in millions or billions of instances, can be fully accounted for only by considering also circumstances which are not properties of the structures themselves but particular facts of the environment in which they have developed and exist.

VII

Societies differ from simpler complex structures by the fact that their elements are themselves complex structures whose chance to persist depends on (or at least is improved by) their being part of the more comprehensive structure. We have to deal here with integration on at least two different levels,¹⁴ with on the one hand the more comprehensive order assisting the preservation of ordered structures on the lower level, and, on the other, the kind of order which on the lower level determines the regularities of individual conduct assisting the prospect of the survival of the individual only through its effect on the overall order of the society. This means that the individual with a particular structure and behaviour owes its existence in this form to a society of a particular structure, because only within such a society has it been advantageous to develop some of its peculiar characteristics, while the order of society

¹² Carl Menger, *Untersuchungen über die Methode der Socialwissenschaften und der Politischen Ökonomie insbesondere*, Leipzig, 1883, p. 88, English translation by F. J. Nock, ed. by Louis Schneider under the title *Problems of Economics and Sociology*, Urbana, Ill., 1963, p. 94. Italics in the original.

¹³ I assume it need not be stressed here that a theory of evolution does not imply 'laws of evolution' in the sense of necessary sequences of particular forms or stages, a mistake often made by the same people who interpret the genetical as a historical problem. A theory of genetics describes a mechanism capable of producing an infinite variety of particular results.

¹⁴ Cf. R. Redfield (ed.), *Levels of Integration in Biological and Social Systems* (*Biological Symposia*, ed. J. Catell, Vol. VIII) Lancaster, Penn., 1941. 'Integration', in this context, means of course simply the formation of an order or the incorporation in an already existing order.

in turn is a result of these regularities of conduct which the individuals have developed in society.

This implies a sort of inversion of the relation between cause and effect in the sense that the structures possessing a kind of order will exist because the elements do what is necessary to secure the persistence of that order. The 'final cause' or 'purpose', i.e., the adaptation of the parts to the requirements of the whole, becomes a necessary part of the explanation of why structures of the kind exist: we are bound to explain the fact that the elements behave in a certain way by the circumstance that this sort of conduct is most likely to preserve the whole—on the preservation of which depends the preservation of the individuals, which would therefore not exist if they did not behave in this manner. A 'teleological' explanation is thus entirely in order so long as it does not imply design by a maker but merely the recognition that the kind of structure would not have perpetuated itself if it did not act in a manner likely to produce certain effects,¹⁵ and that it has evolved through those prevailing at each stage who did.

The reason why we are reluctant to describe such actions as purposive is that the order which will form as the result of these actions is of course in no sense 'part of the purpose' or of the motive of the acting individuals. The immediate cause, the impulse which drives them to act, will be something affecting them only; and it is merely because in doing so they are restrained by rules that an overall order results, while this consequence of observing these rules is wholly beyond their knowledge or intentions. In Adam Smith's classical phrase, man 'is led to promote an end which is no part of his intentions',¹⁶ just as the animal defending its territory has no idea that it thereby contributes to regulate the numbers of its species.¹⁷ It was indeed what I have elsewhere called the twin ideas of evolution and spontaneous order,¹⁸ the great contributions of Bernard Mandeville and David Hume, of Adam Ferguson and Adam Smith, which have opened the way for an understanding, both in biological and social theory, of that interaction between the regularity of the conduct of the elements and the regularity of the resulting structure. What they

¹⁵ Cf. David Hume, *Dialogues Concerning Natural Religion* (1779), in *A Treatise of Human Nature*, ed. T. H. Green and T. H. Grose, new ed., London, 1890, Vol. II, pp. 428-9: 'I would fain know how an animal could subsist unless its parts were so adjusted? . . . No form . . . can subsist unless it possesses those powers and organs, requisite for its subsistence: some new order of economy must be tried, and so on, without intermission, till at last some order which can support and maintain itself, is fallen upon.'

¹⁶ Adam Smith, *Wealth of Nations*, ed. Cannan, I, p. 421.

¹⁷ See V. C. Wynne-Edwards, *op. cit.*

¹⁸ See my lecture, 'Dr. Bernard Mandeville', *Proceedings of the British Academy*, LII, 1966.

did not make clear, and what even in the subsequent development of social theory has not been brought out with sufficient clarity, is that it is always some regularity in the behaviour of the elements which produces, in interaction with the environment, what may be a wholly different regularity of the actions of the whole.

Earlier groping efforts towards such an understanding which have left their traces on modern jurisprudence ran in terms of the adequacy of the rules of individual conduct to the *natura rei*, the nature of the thing. By this was meant just that overall order which would be affected by a change in any one of the rules of individual conduct—with the consequence that the effects of such a change in any one rule can be assessed only out of an understanding of all the factors determining the overall order. The true element in this is that the normative rules often serve to adapt an action to an order which exists as a fact. That there always exists such an order beyond the regularities of the actions of any one individual, an order at which the particular rules 'aim' and into which any one new rule has to be fitted, is the insight which only a theory of the formation of that overall order can adequately give.

VIII

A few observations may be added in conclusion on certain peculiarities of social orders which rest on learnt (culturally transmitted) rules in addition to the innate (genetically transmitted) ones. Such rules will presumably be less strictly observed and it will need some continuous outside pressure to secure that individuals will continue to observe them. This will in part be effected if behaviour according to the rules serves as a sort of mark of recognition of membership of the group. If deviant behaviour results in non-acceptance by the other members of the group, and observance of the rules is a condition of successful co-operation with them, an effective pressure for the preservation of an established set of rules will be maintained. Expulsion from the group is probably the earliest and most effective sanction or 'punishment' which secures conformity, first by mere actual elimination from the group of the individuals who do not conform while later, in higher stages of intellectual development, the fear of expulsion may act as a deterrent.

Such systems of learnt rules will probably nevertheless be more flexible than a system of innate rules and a few more remarks on the process by which they may change will be in place. This process will be closely connected with that by which individuals learn by imitation how to observe abstract rules; a process of which we know very little.

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One factor influencing it will be the order of dominance of the individuals within the group. There will be, on the one end of the scale, a greater margin of tolerance for the young who are still in the process of learning and who are accepted as members of the group, not because they have already learnt all the rules peculiar to the group, but because as natural offspring they are attached to particular adult members of the group. On the other end of the scale there will be dominant old individuals who are firmly set in their ways and not likely to change their habits, but whose position is such that if they do acquire new practices they are more likely to be imitated than to be expelled from the group. The order of rank is thus undoubtedly an important factor in determining what alterations will be tolerated or will spread, though not necessarily in the sense that it will always be the high-ranking who initiate change.¹⁹

A point which deserves more consideration than it usually receives, however, is that the preference for acting according to established rules, and the fear of the consequences if one deviates from them, is probably much older and more basic than the ascription of these rules to the will of a personal, human or super-natural, agent, or to the fear of punishment that may be inflicted by such an agent. The partial awareness of a regularity of the world, of the difference between a known and predictable and an unknown and unpredictable part of the events in the environment, must create a preference for the kinds of actions whose consequences are predictable and a fear of the kinds of actions whose consequences are unpredictable. Though in an animistically interpreted world this fear is likely to become a fear of retribution by the agent whose will is disregarded, such a fear of the unknown or unusual action must operate much earlier to keep the individual to the tried ways. The knowledge of some regularities of the environment will create a preference for those kinds of conduct which produce a confident expectation of certain consequences, and an aversion to doing something unfamiliar and fear when it has been done. This establishes a sort of connection between the knowledge that rules exist in the objective world and a disinclination to deviate from the rules commonly followed in action, and therefore also between the belief that events follow rules and the feeling that one 'ought' to observe rules in one's conduct.

Our knowledge of fact (and especially of that complex order of society

¹⁹ It would seem, e.g., that among monkeys new food habits are acquired more readily by the young and may then spread to the older members of the group: see the observations by J. Itani reported by S. Kawamura, 'The Process of Sub-cultural Propagation among Japanese Macaques', in Charles H. Southwick (ed.), *Primate Social Behavior*, Princeton, 1963, p. 85.

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within which we move as much as within the order of nature) tells us mainly what will be the consequences of some of our actions in some circumstances. While this will help us to decide what to do if we want to obtain a particular result, or are driven by a particular impulse, it needs to be supplemented in a largely unknown world by some principle which inhibits actions to which our internal drives might lead us but which are inappropriate to the circumstances. The rules of fact which one knows can be relied upon only so long as one plays the game oneself according to the rules, i.e., keeps within the kind of actions the consequences of which are tolerably predictable. Norms are thus an adaptation to a factual regularity on which we depend but which we know only partially and on which we can count only if we observe those norms. If I know that if I do not observe the rules of my group, not only will I not be accepted and in consequence not be able to do most of the things I want to do and must do to preserve my life, but also that, if I do not observe these rules, I may release the most terrifying events and enter a world in which I can no longer orient myself, such rules will be as much a necessary guidance to successful action as rules that tell me how the objects in my environment will behave. The factual belief that such and such is the only way in which a certain result can be brought about, and the normative belief that this is the only way in which it ought to be pursued, are thus closely associated. The individual will feel that it exposes itself to dangers by transgressing the rules even if there is nobody there to punish it, and the fear of this will keep even the animal to the customary way. But once such rules are deliberately taught, and taught in an animistic language, they come almost inevitably to be associated with the will of the teacher or the punishment or the supernatural sanctions threatened by him.

Man does not so much choose between alternative actions according to their known consequences as prefer those the consequences of which are predictable over those the consequences of which are unknown. What he most fears, and what puts him in a state of terror when it has happened, is to lose his bearings and no longer to know what to do. Though we all tend to associate conscience with the fear of blame or punishment by another will, the state of mind which it represents is psychologically little different from the alarm experienced by somebody who, while manipulating a powerful and complicated machinery, has inadvertently pulled the wrong levers and thereby produced wholly unexpected movements. The resulting feeling that something dreadful is going to happen because one has infringed rules of conduct is but one form of the panic produced when one realizes that one has entered an unknown world. A

bad conscience is the fear of the dangers to which one has thus exposed oneself by having left the known path and entered such an unknown world. The world is fairly predictable only so long as one adheres to the established procedures, but it becomes frightening when one deviates from them.

In order to live successfully and to achieve one's aims within a world which is only very partially understood, it is therefore quite as important to obey certain inhibiting rules which prevent one from exposing oneself to danger as to understand the rules on which this world operates. Taboos or negative rules acting through the paralysing action of fear will, as a kind of knowledge of what *not* to do, constitute just as significant information about the environment as any positive knowledge of the attributes of the objects of this environment. While the latter enables us to predict the consequences of particular actions, the former just warns us not to take certain kinds of action. At least so long as the normative rules consist of prohibitions, as most of them probably did before they were interpreted as commands of another will, the 'Thou shalt not' kind of rule may after all not be so very different from the rules giving us information about what is.²⁰

²⁰ The possibility contemplated here is not that all normative rules can be interpreted as descriptive or explanatory rules, but that the latter may be meaningful only within a framework of a system of normative rules.