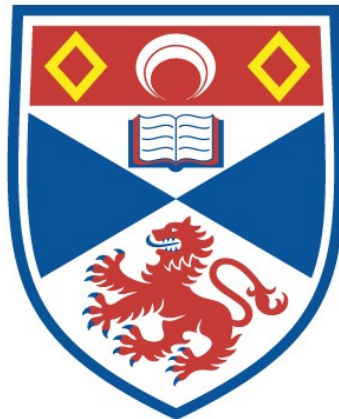


THE ETHOLOGICAL ROOTS OF MORALITY

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A Thesis Submitted for the Degree of PhD
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This thesis, which is submitted for the degree of Ph.D., has been composed by me, and is a record of work which has been executed by me alone.

The research of which this thesis is a record began upon my admission as a research student at the University of St. Andrews in October 1974.

.....

CANDIDATE

The conditions of the Resolution and Regulations governing the degree of Doctor of Philosophy have been fulfilled.

.....

SUPERVISOR

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PREFACE

The term 'ethology' was coined by John Stuart Mill in book six of his System of Logic. Since that time, it has come to designate the study of animal behaviour from a comparative point of view.

Any work, therefore, which proposes to deal with the ethological roots of morality must necessarily place great emphasis on the comparative behaviour of animals and men. The core of this work is a review of that field of study as it relates to morality. A small number of characteristics are examined which are undoubtedly moral but which can be seen in animal societies as well as our own.

By illustrating how these activities have emerged in the course of evolution, and how they owe their presence to the survival value (or 'functionality') which they bestow upon the animal community, it is possible to obtain a far closer estimate of their true importance to and function in our own species, far closer than would be possible through a priori speculation. By revealing the limits of our natural abilities and showing the priority of our natural tendencies, this study can be of crucial importance to moral philosophy and to the formulation of moral codes. In particular, the ethological point of view demonstrates the relation between individual moral action and the welfare of a group, and exposes the inadequacy of many rationalistic explanations of human moral action, such as the Hobbesian or Rawlsian social contract, and ironically, the utilitarianism of John Stuart Mill himself.

Chapter 1

PRELIMINARY STATEMENT OF THE THEORY

Our morality has been shaped by the natural selection of our species. It is not commonly understood by ethical philosophers that such a process of selection with respect to morality is possible, but its recognition is of major consequence to their field of enquiry.

Since Darwin, it has been acknowledged that creatures possessing some physical characteristic which enables them to leave more progeny than others will tend to become numerically stronger. Where individuals or families of these species compete against other species or species members for vital resources, then the physically superior creatures may even drive the others to extinction. The theory of evolution by natural selection therefore gives us a hypothesis to explain the slow change of animal characteristics and numbers over time. It is less fully recognized, at least among those people imperfectly acquainted with the biological bases of behaviour, that the same process of natural selection can occur with respect to behavioural characteristics, as well as physical ones. Nor is it widely understood that the selection process can explain the evolution of the behaviour of groups of individuals as well as individuals themselves.^{1*}

The logic of these selection processes, and their manifestation

*Notes follow at the end of each chapter.

in real-world animal species will be developed more extensively in the following chapter. For the moment, however, it may be said that social behaviour in general, and moral practices in particular, are subject to evolution by natural selection. Such practices are sufficiently important to the life of a group of individuals that they might give it a selective advantage over other groups with a different social repertoire. The social practices which survive over the generations, and the values associated with them, will tend to be those which improve (or at the very least, which do nothing to hinder) the survival prospects of their bearers. Groups in which social and moral practices are conducive to survival will tend to survive, and their practices will survive along with them. Groups in which the social and moral practices are, or become, harmful to the long-term survival of their bearers will tend toward extinction, and the practices themselves will be extinguished likewise.

It does not take any grasp of Darwinian theory to recognize that this must be so. Hume, for instance, notes in his essay Of the Original Contract that a society cannot subsist without a measure of agreement or acquiescence upon certain norms and social practices. Even a band of pirates, one might conclude, would soon disintegrate if its members had no norms of truthfulness to each other or respect for the persons and property of the other members. In the Treatise, Hume once more notes that our own species would be doomed to extinction were it not possible for members of each sex to live together long enough to raise children, and that the length of the period of child-raising in humans requires an advanced system of mutually accepted rights and duties conducive to the subsistence of the family unit.² Other members of the Scottish School noted the same utility of civil duties and moral rules, even though they did not have a Darwinian insight into natural selection; indeed, had they been so equipped, the course of moral philosophy would have been markedly different.³

The natural selection of groups

Evolution is commonly regarded as being about the 'survival of the fittest', a phrase coined by Herbert Spencer. Such a view mis-

takenly suggests that it is the individual furthest removed from conventional morality who will survive at the expense of others; that it is the greedy, selfish and deceitful man who will prosper at the expense of the mild, generous and honest. This formulation of the theory of evolution was the foundation of the Social Darwinist view of moral conduct.

Although no Social Darwinist, Thomas Huxley has bequeathed us a neat formulation of this view that moral virtue will be supplanted by self-interest if the natural workings of evolution are allowed to continue. In his famous Romanes Lecture, Evolution and Ethics, he likens humanity to a bed of plants in an enclosed garden. Under the 'Cosmic Process' of evolution, the weeds will prosper, starving the more delicate flowers of air and sunlight. Eventually, the garden turns into an unkempt jungle, and such is our fate under an unbridled process of natural selection. The strong will engulf the weak, and morality has little to do with the matter. But there is another process at work, says Huxley, a process of moral improvement, which can be conceptualized as a gardener tending the flowers. He cuts the weeds and encourages the better blooms by watering, fertilizing and constant care. In much the same way, human beings encourage or discourage certain activities by approbation, disapprobation, praise and punishment.

This formulation of Huxley's is, however, a gross misreading of the theory of natural selection, even as Darwin himself formulated it, and his extended analogy is unable to portray its finer details. The theory of evolution is a general theory; it covers not only all reproducing individuals, but also all aggregations of individuals which reproduce to form a subsequent generation of new individuals. Although the transmission of any characteristic must be from individual to individual, there is no logical reason why the performance of the aggregate system as a whole should not be an object, perhaps the main object, of selection. Characteristics which favour the survival of a colony of bees, for example, are not necessarily favourable to the survival of a particular individual within the colony. Yet the successful performance of the colony as a functioning system promotes the

survival of the other members of the colony, and of the bee species as a whole. Indeed, the worker bees in a hive are sterile, and from the point of view of their individual 'fitness' as the Social Darwinists understood it, they rank very poorly. In such cases, the social system is the unit of selection, not merely the individuals within it.

The evolution of species on the earth, which is a particular example of the working of the general theory of evolution by natural selection,⁴ has shown that it is frequently more advantageous for individuals to live in groups rather than live alone. In such aggregations, mutual defense and interests can best be served, a point not lost upon the thoroughgoing egoist philosophy of Thomas Hobbes. Yet there are limits upon the activities of individuals in those aggregations if the survival of the aggregations themselves, and therefore the welfare of the individuals within them, is to be served. Were a group of greedy, selfish and untruthful individuals to come together, for example, it would not function efficiently as a group, and could be supplanted by a competing group whose members cooperated fully in mutual defense, could rely on each other to honour promises and obligations, and had well-established norms of justice, ownership and the like. The latter, 'moral' group of individuals could have a decided selective advantage, and were these moral characteristics transmitted to their succeeding generations, the comparative advantage of the moral system would aid its long-term survival. Hence, evolution does not favour the selfish and deceitful individual at all times, as Huxley and others have supposed. On the contrary - and Huxley's analogy has no means of accommodating the fact - evolution can favour functioning systems of social conduct in which certain social practices traditionally accepted as 'morality' have their place.

The process of transmission

The fact that a working system of morality can be transmitted from one generation to another is a necessary part of the logic of the theory of evolution itself, as the following chapter will demonstrate. The transmission mechanism does not affect the validity of the theory; it might be based on genetic transmission, or might be founded on cul-

tural transmission, through teaching and custom, or in the third instance, it might be a combination of the two in which genetic traits are developed to maturity by individual learning. Serious disputes⁵ in ethology have arisen over the method of transmission appropriate to various species, with the developmentalist school gaining most of the ground as regards the transmission of behavioural characteristics in the higher species. The question is not unimportant to a discussion of the evolutionary selection of moral practices, since genetic transmission will be far less flexible than cultural transmission, and will apply with much greater force to related kin than to non-related individuals (although the latter will be affected, since the actions of any one individual form part of the environment in which other individuals live, thus affecting their survival to some extent⁶).

Nevertheless, it would be pointless for us to get deeply involved in these disputes, particularly when the ethological discussions upon them have been so extensive. When discussing the evolution of systems of morality, a notion of the speed, invariability and extent of the transmission process can be gained from examining the actual evolution of particular moral traits and systems in real populations from an historical perspective. This evidence is sufficient for the purposes of the ethical philosopher, even though the biologist may require some more penetrating theoretical analysis. Hence, a large part of this work is devoted to examples of moral traits in animals and in the development of the human species. The same examination will serve another purpose, to make it easier for us to pick out important characteristics that might constitute a 'minimum content' of morality (if indeed there is such a thing) in societies far simpler than our own. Thus we may be able to specify that content more accurately than the excellent but non-empirical efforts of philosophers such as Hart.⁷

Inheritance and morality

Although it would be fallacious to insist that human moral systems are transmitted by a process almost entirely genetic, when no firm evidence is offered for the assertion, it is still possible to show that human morality is at many points remarkably similar to cer-

tain parts of animal social behaviour.

To take an example, individuals in a herd of red deer such as that described in Fraser Darling's well-known book on the subject,⁸ display actions of self-sacrifice on occasions; they show obedience to higher-ranking individuals; maternal care and affection; mutual cooperation in defence of the herd; the maintenance of territory and the respect for it. In men, we would dignify such characteristics with the term 'moral'; and yet it stretches our imagination too far to suppose that animals have any concept of the overall welfare of their group, to which their duty calls them after a moment's reflection. The animals perform these 'moral' acts simply because, as animals and as members of a breeding group subject to natural selection, they have to perform them. Their performance is part of the genetic constitution of their kind; and if by chance there arose a species which for some reason came to end the performance of such acts, it would probably not enjoy long life. Consider, how many beehives would survive if half the workers stopped performing their everyday tasks of foraging, building and cleaning? What bird species would not be steadily eliminated were its members to fail to give warning calls on seeing a predator? What chimpanzee group would survive the attacks of the big cats if one or two of the males in the group were not prepared to create a diversion while the others made off? There would, quite plainly, be no survivors in these circumstances, which is why moral characteristics do yet survive, stamped on the genetic and cultural constitutions of successful species, human or otherwise.

The only difference is that we, as humans, can experience the moral action from inside; we know what it is like to be moved by moral considerations. Animals, we can view only from outside. To us, a moral action such as protecting one's family from a hostile animal, feels very much like the culmination of a rational process, in which the pros and cons, long-term welfare and short-term risk, are all weighed one against the other. After we have made the action, we analyze our behaviour and its ramifications, congratulating or castigating ourselves upon the wisdom or the folly of our actions, and possibly

ascribing a post facto rationalization to the actions we have made.

We rightly deny this ability to calculate in animals. Only we have reasoning power enough; but we are wrong to suppose that these rational calculations are the full extent of morality itself. Rather, they are a refinement of it, a rational superstructure built on individual moral values which are, ultimately, shaped by the process of natural selection. Reason itself is aimless and impotent when not directed by any desire, appetite, instinct or other motive. A simple analogy will illustrate. Were the programmer of a sophisticated computer to programme the machine to 'begin working', very little would happen. The machine would have no information to begin working on. It would have no instructions about how to process any data, nor how to present them. Lacking aim or direction, it is useless. Only when the programmer puts his own purpose into the machine will it perform. So too with human reason; as Hume said, it is only the "slave of the passions" and although it may help us to resolve the precise nature of our desires in a complicated situation, it cannot by itself direct us to action. To the extent that evolution selects some desires and eliminates others, so is the foundation of our morality part of an evolutionary heritage which we share with other species.

Inheritance and values

The identity of function and the evolutionary common-source of certain animal behaviour and human morality will be established more fully when we consider examples of animal 'morality' in chapter five. Yet the notion that morality is 'something more' than animals could be capable of continues to exist, despite the work of the ethologists and sociobiologists throughout this century, who have made the study of animal social life into a new science. In the traditional view of things, morality and the 'moral sense' or conscience are supposed to prompt us to take one action instead of another, more self-centred one, and are alleged to be quite distinct from instinct or common appetite. This somewhat metaphysical formulation is clearly hostile to the notion of the natural selection of moral behaviour and values. In its most concise form, it is elucidated by the theologian C.S.Lewis in

his collection of essays, Mere Christianity:⁹

Now I do not deny that we may have a herd instinct; but that is not what I mean by the Moral Law. We all know what it feels like to be prompted by instinct - by mother love, or sexual instinct, or the instinct for food. It means that you feel a strong want or desire to act in a certain way. And, of course, we sometimes do feel just that sort of desire to help another person; and no doubt that desire is due to a herd instinct. But feeling a desire to help is quite different from feeling that you ought to help whether you want to or not. Suppose you hear a cry for help from a man in danger. You will probably feel two desires - one a desire to give help (due to your herd instinct), the other a desire to keep out of danger (due to the instinct for self-preservation). But you will find inside you, in addition to these two impulses, a third thing which tells you that you ought to follow the impulse to help, and suppress the impulse to run away. Now this thing that judges between two instincts, that decides which should be encouraged, cannot itself be either of them.

The hypothesis of a 'moral sense' which distinguishes between instincts of self-preservation and cooperation can be traced back to Butler, Shaftesbury and Hutcheson in its pure form.¹⁰ Even in those writers, however, the characteristic was held to be instinctive, and as such, it is presumably a fitting target for natural selection. Butler, Shaftesbury and Hutcheson were, of course, devoid of any evolutionary theory to explain the emergence of the moral sense, but today it would be impossible to maintain that the moral sense was indeed a part of human nature but that it was not shaped by evolution. Consequently we are forced to recognize that the moral sense arises in the same way as the 'herd instinct' of Lewis's hypothesizing, and that since it seems to produce broadly similar altruistic results in social animals and in human beings, it can be considered as merely part of a 'herd instinct', broadly defined. This latter view is perhaps more satisfying than the Lewis view; it eliminates the need for a metaphysical postulate, and reduces the act of making a moral judgement to the resolution of a struggle between two conflicting sets of instincts, no third construct being necessary. The outcome of the struggle is not necessarily immediate, and is accompanied by doubt, fear, guilt and possibly some rational calculation, which all tend to make us think that the whole process has been rational and the choice has been free. But those social groups, human or animal, in which the social instincts are eventually dominant over the selfish instincts will be more likely to sur-

vive. The hypothesis of a specifically human moral sense, which decides between other instincts that we share with animals, is therefore unnecessary and misleading. And when the further question of its anthropological origin is raised without satisfactory answer, it becomes clear that it must be abandoned.

There is therefore an identity between certain human values, or the preference for some actions (such as altruistic acts) over others, and human appetites. In the same way that we have an appetite for food, comfort and sleep, so we have appetites drawing us toward non-selfish acts that tend to enhance the survival prospects of a number of individuals. The nature and limits of this identity will be dealt with more adequately in chapter three.

Biological imperatives

This view of the evolutionary emergence of values admits the possibility of constructing a naturalist theory of ethics. The naturalist can solve the problem of verifying moral propositions by means of a definition: if moral statements can be reduced to statements of empirical fact, then the logical problem of transition between 'is' and 'ought' is solved. The fact that statements about our own desires, feelings of approval, or revealed preferences are empirical makes possible a definition of morality in those terms.

The problem of naturalist interpretations has been the persistent disagreement of philosophers on the definition itself. The naturalist would seem unable to resolve this difficulty, and is therefore bound to a strong relativism. This is part of Moore's attack on naturalism and naturalists.¹¹ If the naturalist defines 'good' as meaning 'possessing certain natural characteristics which rouse feelings of approval in men', then he must recognize that 'good' as well as other normative terms depend upon human feelings and would be different if human feelings were different, as they often are between societies or even between individuals. Such a relativism is defensible, of course, as Monro¹² and others would insist. Nevertheless, it may come as a relief to the relativist to learn that those 'feelings of approval' cannot be infinite in their range; that because men have evolved as a social species

and from a common ancestry, there is to be expected a measure of agreement on matters of approval and disapproval. The agreement is hardly complete, but must be sufficient to maintain the human group as a functioning entity. However, it does inject a certain objectivity into ethics, which is ultimately empirical.

Being interested in the limits of human feelings and preferences, we can use an ethological approach to help us understand them. This investigation of the animal equivalent of what we call 'values' in men will take up most of the chapters from chapter four to chapter eight below. From such excursions into comparative social psychology, we should be more able to discern how our own values are constrained by circumstances, and when we consider a number of societies much simpler than our own, it is possible for us to gain a much clearer impression of the functional nature of certain values and practices.

Only since the 1940s has such a review been possible. Darwin himself made some highly illuminating observations on animal social life, and had a notion that social practices form a functioning system in animal and human groups; but research into the precise forms and contents of animal behaviour did not really begin to be pursued systematically until the work of the ethologists Konrad Lorenz, Niko Tinbergen and their many successors. Today, studies of the social biology of animals, particularly of our near relatives in the primate world, are multiplying explosively.¹³

Philosophical utility of the approach

This brief summary of the theory and method which is the subject of the following chapters calls for some small comment on the value of the theory itself to moral discourse and philosophy.

Clarity demands that the distinction between first-order moral discourse and second-order moral philosophy should be kept in mind. A moralist who engages in the former is someone who (in Hudson's¹⁴ words) "engages in reflection, argument or discussion about what is morally right or wrong, good or evil. He talks about what people ought to do." A moral philosopher, on the other hand, thinks and talks about the way this language of morality is itself used, and about what people are

actually doing when they deliver moral judgements. Both groups are given useful ammunition by the ethological approach.¹⁵ Some of this can be described in outline below.

(a) The limits of moral debate

As far as the first-order moralist is concerned, the analysis is useful because it suggests possible limits to human morality. Human nature being what it is, there are a number of actions which we are unlikely to perform, since to do so would disrupt the fabric of our social life and would reduce our selective advantage, and such disruptive behaviour has been displaced from our behavioural repertoire under the pressure of natural selection.

Consequently there are certain messages in the approach for those moralists who build ideal systems on conceptions of human nature that are scanty in their empirical content, or even completely erroneous. For instance, it can be shown, after an examination of the ethological evidence, that certain tendencies normally considered to be unsociable - aggression or envy, say - do in fact have an important social function on some occasions. It is a credit to Kant that he recognized this, and to Adam Smith and Adam Ferguson that they were able to found a complete sociology on desires normally regarded as 'unsociable'.¹⁶ For a more accurate picture of the importance of these 'unsociable desires', an ethological approach would seem to be of importance to moral philosophy.

(b) Moral psychology

The approach, as has been said, gives us an insight into the source and function of the moral sense or conscience. Knowing how it arises and how it works, we may also begin to understand in which circumstances it can mislead us and what, if any, authority it has over us. How the call of conscience may depend on other environmental or social conditions is another question which the ethological approach could help us to settle, since there is evidence that animal social behaviour can be changed radically depending upon such conditions, and that behaviour which would be conducive to survival in one set of circumstances would be detrimental in another.¹⁷

(c) Probability of outcomes

The theory provides us with a rough estimate of the outcomes of various actions under various conditions.¹⁸ For example, we know that laboratory rats and other species in overcrowded conditions will often fight to the death until there are only one or two left. Under the crowded conditions, the normal moral inhibitions against attacking conspecifics break down. If we suspect that overcrowding in human beings would follow a similar general pattern, we would have a new basis for evaluating ethical codes which treat overcrowding identically to other conditions. Furthermore, if we thought that under overcrowded conditions, violence and killing were as inevitable in our own species as they appear to be in others, then we would have an argument against moral codes which precipitate such conditions; were it possible to show that a proscription on contraception generated those conditions and made the violence inevitable, then we would have a powerful argument against that proscription, for example.

(d) The content of morality

By comparing values in different human societies, and those appetites and drives which are akin to human values in animal societies, it is possible to delineate certain universal or minimum values, which appear to be necessary for the survival of the societies themselves. The value of the ethological approach in this context is that it enables us to distinguish between those fundamental traits and others which confuse our view of the fundamentals and cause us to generate mistaken ethical systems. For example, early studies in comparative ethics were overcome by the apparent diversity of ethical systems in human societies, and so assumed that an infinite range of moral action was possible; it is only with the development of a method which extracts the pattern of the functions of moral rules from the confusing array of less important practices that a functional similarity between the moral practices of human groups can now be distinguished.¹⁹

The practical contents of moral systems do not necessarily correspond with the guesses of some philosophers such as Warnock²⁰ or Hart²¹ which are speculative and not empirical. Hence, the ethological ap-

proach may provide some important evidence on the subject of the minimum content of morality, and some arguments against the purely formal view of ethics taken by, say, Hare.²² This would be an interesting contribution to the modern ethical debate.

(e) The source of moral obligation

The approach explains that the source of moral obligation is not a function of any non-natural property of 'goodness' which exists in certain things, but that it derives from our own biological disposition to pursue some ends and shrink from others, a disposition evolving over generations of natural selection. Some explanation can thus be given to the fact, which puzzled Bishop Butler and certain of his contemporaries, that self-interest is frequently coincident with traditional moral virtues. The process by which such coincidence occurs does not necessarily reflect the workings of a divine power, as Butler supposed, but the quite natural pressure of evolutionary selection.

When we understand the source of obligations, then we can recognize what facts can be appealed to for the sanction and authority of our obligations. Under this heading, rather sweeping criticisms of the rational Social Contract theory follow from the ethological analysis. That non-rational groupings of individuals are possible, and indeed common, suggests a non-rational source of obligations and duties, a source which is prior to, and transcendent over, any written or agreed Social Contract. As we shall see, this difference in source enables us to make a criticism of legal positivism and leads to some major differences in the prescriptions for social policy derivable from the rational and non-rational systems.

(f) Questions of justice

Justice is one more construct which is founded deeply in human nature, and cannot be considered without some reference to human nature, even in Rawls's Theory of Justice, which is intended to be as value-free as possible.²³ The ethological approach, which in contrast to Rawls's work, is solidly empirical, reveals some unexpected facts about certain human characteristics normally associated with justice; for example, that inequality can be vital to the functioning of certain social

groups, that punishment is an integral part of such functioning systems, that differences in obligations can be paired with differences in rights in many functioning systems, and that these differences can proceed from acquiescence as well as by force. Social Contractarians may have difficulty in accepting some of these conclusions. In addition to the points mentioned, the ethological approach and the application of a small dose of genetic theory can give us an understanding of how factors such as age and sex are important for judging the social and moral actions appropriate in given circumstances.

(g) The resolution of relativism and objectivism

If evolution has left men as part of a functioning system of norms of conduct, then there are certain limits to the bounds of human action and possibly human belief. Understanding this is a contribution to the debate between relativists and others. It saves the relativist from being completely unable to criticise those moral systems which are not his own by allowing him a criterion of functionality. He is able to ask, 'is this moral system the most efficient one for achieving the aims of those who practise it?' and he can appeal to ethological evidence for his answer. The objectivist, on the other hand, will realize that certain 'objective' norms are required for the survival of the moral system, but the ethological evidence suggests that the form of expression of these norms is much less important than their functional content. Therefore, the objectivist will be able to admit some flexibility in his ethics without losing the force of his position, and may thus be brought somewhat closer to a relativist standpoint.

(h) Cooperation between philosophy and biology

"Scientists and humanists," says Edward O. Wilson,²⁴ "should consider together the possibility that the time has come for ethics to be removed temporarily from the hands of the philosophers and biologized." The statement is symptomatic of the overvaunting belief of many biologists that they are in certain respects more able to study ethical questions than philosophers; and yet, the attempts by some of them, such as Hamilton²⁵ and Maynard Smith²⁶ have been somewhat unsatisfying from a philosophical standpoint, as criticism in chapters two and three

will serve to show. If there is to be a full appreciation of the boundary between biology and ethics, it must be a joint enterprise, as Raphael points out,²⁷ with philosophers setting out the points of interest and biologists showing how they can be treated as evolutionary constructs. There is scope for cooperation to mutual advantage, a potential which is not being realized at present.

FOOTNOTES TO CHAPTER ONE

1. The term 'group' is not used here in its strict biological meaning of a subset of a 'society' with certain characteristics, (for definitions, see Edward O. Wilson, Sociobiology, Part I, Chapter 2) but in a loose way for ease of explanation. Here, the term covers almost any social aggregation of whatever size and relationship, but in chapter two, the definitions will be sharpened.
2. Hume, Treatise of Human Nature, Book III, Part II, Section II. Sir Solly Zuckerman is credited with the first unifying theory of primate social aggregation when he hypothesized that sex was the principal agent (see Zuckerman, The Social Life of Monkeys and Apes). With respect to human beings, Hume seems to have anticipated him. Today, however, these unifying theories of social life are generally regarded as inadequate; the binding force of social life is multidimensional. See Ardrey, The Social Contract, chapter 1, and Lancaster & Lee (1965).
3. Smith, for example, approaches a theory of natural selection of moral traits in his Theory of Moral Sentiments. On this question, see the excellent paper by Coase (1976).
4. This important distinction will be elaborated in chapter 2. See also the comments of Hayek, The Theory of Complex Phenomena.
5. For example, between Lehrman (1953) and Lorenz (1966).
6. This point is overlooked in the approaches of most geneticists. Cf. Hamilton (1970), Maynard Smith (1964).
7. Hart, The Concept of Law, chapter 9, for instance.
8. Frank Fraser Darling, A Herd of Red Deer.
9. C.S.Lewis, Mere Christianity, chapter 1.
10. (a) In less recognizable form, it can be seen as far back as Plato's division of the soul in The Republic, in which the Reason (but also, to a lesser extent, the Spirit) is alleged to have a moral-choice function.
(b) in this chapter, 'instinct' is used as a shorthand expression to cover any permanent part of human nature, not merely that part which is genetically determined.
11. The classic statement is G.E.Moore, Principia Ethica.
12. D.H.Monro, Empiricism and Ethics, chapter 10.
13. Lionel Tiger, Men in Groups, chapter 2, expands on this point.
14. W.D.Hudson, Modern Moral Philosophy, chapter 1.

15. Much of the work which has served to bring the subject to the attention of the public is of a first-order sort, in the writings of popular authors such as Ardrey, Morris and Lorenz. Even those authors, however, set down far less first-order material than has been alleged by their critics (such as Montagu, Man and Aggression).
16. See chapter 11, below. On Kant, see his 'Idee zu einer allgemeinen Geschichte in Weltbürgerlicher Absicht' (Idea of a Universal History from a Cosmopolitan Point of View), in Berliner Monatschrift, November 1784, pp.386-410, quoted by W.H.Walsh, 'Kant', The Encyclopaedia of Philosophy (London: Macmillan, 1967) vol.4. Also quoted in W.H.Walsh, An Introduction to Philosophy of History, chapter 6, page 123, and by Eibl-Eibesfeldt in Ethology, chapter 20. Adam Smith's opinions are stressed in his Wealth of Nations; further quotation from these sources can be found in chapter 11 below. For Ferguson's view, see his Essay on the History of Civil Society. Perhaps the original contribution to this line of thought was that of Bernard de Mandeville, in his Fable of the Bees.
17. This is the main thesis of Wynne-Edwards's Animal Dispersion in Relation to Social Behaviour, which prompted a great deal of biological speculation on the mechanisms of group and kin selection.
18. This point is made by Raphael (1958).
19. On these techniques of so-called 'pattern analysis', see Walter Goldschmidt, The Ways of Mankind and Exploring the Ways of Mankind.
20. Cf. Geoffrey Warnock, Contemporary Moral Philosophy, chapter V, sections (ii) and (iii).
21. H.L.A.Hart, The Concept of Law, chapter IX, section 2.
22. R.M.Hare, The Language of Morals, sections 1 and 2.
23. For a piercing critique of Rawls along these lines, see Warnock's essay 'Kant and Anthropology' in R.S.Peters (ed.), Nature and Conduct.
24. Edward O. Wilson, Sociobiology, chapter 27.
25. W.D.Hamilton (1970) is perhaps weakened by concentration on genetic transmission through kinship (see note 6 and text above).
26. John Maynard Smith (1964); although transmission of characteristics through kinship is important, so is selection of groups of individuals which are not necessarily closely related but whose behaviour is integrated. Another approach which is unsatisfying to the philosopher is the 'reciprocal altruism' notion of Trivers (1971) and others. Although highly instructive, the approach is based on a one-dimensional view of morality and is therefore weakened.
27. Raphael (1958).

Chapter 2

THE EVOLUTION OF SYSTEMS OF BEHAVIOUR

"Those groups practising the most advantageous customs will have an advantage in the constant struggle with adjacent groups."

Sir Alexander Carr-Saunders¹

To portray the mechanism of the natural selection of social behaviour is no mean task, since it operates on so many levels. The first target of selection is, of course, the individual, and it is in terms of the differential survival of individuals that the theory of evolution is most commonly understood. Nevertheless, there are other levels; closely related kin, because of their sharing some similar genes, can also be taken as a unit upon which evolutionary selection operates. Where the frequency of genes shared by common descent in relatives is selected, we may speak of kin selection.² On an even larger scale, a breeding population may be the unit of selection, that is, a local population in which breeding is random (and therefore where notions of 'kinship' do not really apply to most members of the population). In this case, where the populations survive or colonize at different rates depending upon their different genotypes, 'interdemic' or 'interpopulation' selection is the normal label. The situation becomes even more complicated when one allows the possibility that transmission processes other than the genetic are possible, and that learning or cultural factors influence the behaviour of groups or populations.

Selection can also be seen to operate at the level of species or even clusters of related species, although the working of such a process is slow and depends on changing conditions over time. This process is, however, of less importance to the evolution of moral and social behaviour.³

There is no clear line of division between kin selection and interpopulation selection; anywhere between about ten and about one hundred members are the upper limits of family size (and therefore kin selection) for most species. In social insects, of course, the whole colony is related and might number many hundred individuals. In the primates most closely related to man, however, related groups number only between ten and twenty individuals in general; beyond that limit, the kinship unit begins to split apart and new units are formed.

The notion of group selection⁴ was introduced by Darwin in The Origin of Species to account for an observation of "special difficulty, which at first appeared to me insuperable, and actually fatal to my whole theory," namely, the existence of sterile worker castes of social insects. These individuals leave no offspring, so how can they have evolved? To salvage his theory, Darwin introduced the clever hypothesis of selection working at the family level. "Hence we may conclude," he remarks, that slight modifications of structure or of instinct, correlated with the sterile condition of certain members of the community, have proved advantageous; consequently the fertile males and females have flourished, and transmitted to their fertile offspring a tendency to produce sterile members with the same modifications."⁵ For our purposes here, we should remember that the same principle will hold if we substitute 'altruistic' or 'self-sacrificing' for Darwin's 'sterile'. That is, that the selection of a family unit may be contrary to and more powerful than the selection of individuals, and hence that it is perfectly possible for altruism and other moral characteristics to emerge under evolutionary pressure.

The logic of evolution and group selection

The modus operandi of this selection can perhaps be understood most easily if we consider first an abstract situation of hypothetical

organisms and groups of organisms before moving on to consider the selection of actual kinship groups in terrestrial species. It may come as a surprise that such an abstraction is possible, because the theory of evolution is so often depicted as an assertion about the historical development of earthly species. This is, however, merely one application of the theory to particular events on Earth, and not the 'theory of evolution' itself.⁶ For the study of ethics, this distinction is of importance; fraudulent claims for the historical inevitability of certain social systems, such as the claims of Needham or in a weaker form, De Chardin, rest upon the confusion of the theory with its application to terrestrial history.⁷

The theory of evolution is based on a very simple hypothesis, namely that "a mechanism of reduplication with transmittable variations and competitive selection of those which prove to have a better chance of survival will in the course of time produce a great variety of structures adapted to continuous adjustment to the environment and to each other."⁸ Those 'structures' may be organisms, or groups of organisms, quite unknown to us on Earth, provided that they are the products of the mechanism of reduplication with transmittable variations specified in the theory.

Take, for example, a collection of individuals which can be so described. They could even be self-replicating machines, and not living creatures at all.⁹ For the moment, it does not matter how their behavioural characteristics are transmitted, although it may be noted that transmission must be from individual to individual. Selection, however, we will take to be a function of the efficiency of the behaviour of the group as a whole, which we might describe as the social 'pattern'. From this abstract example, several general comments on the relation between individual action and group performance emerge.

Firstly, it can be seen that the individuals may be unaware of the social pattern they produce, and may be unaware of the restrictions on or constancies in their own actions which are generated through the pressure of group selection upon them. In colonies of social bees, for

example, it is unlikely that each worker has a conception of the overall state of the hive and works to improve that end. True, some information about what tasks need to be done is transmitted through the hive by secretions on food particles,¹⁰ but this does not constitute individuals' knowledge of the state of the whole. Similarly, we can assume that individual members of the defensive formations of starlings,¹¹ where the flock can be very large, or of herd animals such as bison or musk oxen¹² have no awareness of the whole formation, but respond to the immediate environment in a way which produces the formation. Under the pressure of selection, it is unnecessary that the individual should be aware of the overall nature of such formations.

For ethics, this point suggests three conclusions; first, it is possible that we are equipped with a morality which is conducive to the survival of groups rather than the individual, but that we might be unaware of the pattern produced by what seems to us to be specific relations between individuals only. Second, it is likely that our moral conduct is, in general, limited; that there are certain activities that evolution has selected against in us because of their disruptive nature when taken as part of the social pattern. Hence, even activities which we might believe to be moral may be outside the power of most men to perform and may, indeed, generate quite unforeseen consequences. Third, the adequacy of conventional morality to support the survival of groups of individuals should be noted. Even where conventional morality is strange and confusing to us, in the moral systems of primitive human communities, for example, it may produce a social pattern which is in continuous adjustment with the environment, though it would have been difficult for us to trace the pattern from the individual actions, and even though it might be impossible for us to formulate new codes of individual action which would fulfill the same function so efficiently. This is, perhaps, an argument against an over-vaunting confidence in our construction of moral systems.

The second point to notice in our abstract example is that the social pattern is not necessarily the conscious aim of the individual. There might well be "establishments, which are indeed the result of

human action, but not the execution of any human design,"¹³ as Adam Ferguson called them. As an example, one might take the successive wearing of a path by persons whose sole objective is to walk from one point to another. The operation of the stock-market, which is an efficient system for the transference of property and the equation of supply and demand, is possible only through the personal interest motives of hundreds of individual stockbrokers and their many thousand clients. Or again, in the economy as a whole, Adam Smith's famous dictum is appropriate, that:

It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own self-interest. We address ourselves not to their self-love, and never talk to them of our own necessities but of their advantages.¹⁴

This point deserves some further comment, because it is in direct opposition to the methodology of Hobbes and of the Cartesian rationalism which dominated much seventeenth-century thought. It is, indeed, still assumed widely today that orderliness or pattern in social activities is impossible without conscious control and without the individuals who make up that pattern cooperating for the good of the whole. Nor is the mistake an old one. The sophists of the fifth century B.C. had considered the problem and had mistakenly concluded that practices and institutions must be the products either of nature (physei) or due to artificial convention (thesei), with no third alternative. Through his acceptance of this dichotomy Aristotle laid the foundations of an error which confounded European thought for two millenia and made impossible a social theory which took account of the unintended regularities often found in human societies. Those foundations were rebuilt principally by Bernard Mandeville, in his Fable of the Bees¹⁵ where each individual acts out of motives of greed and narrow self-interest, and yet finds that his actions are part of a functioning social pattern which benefits the bee-hive as a whole. Unwittingly, these 'knaves' are 'turned honest', since

The worst of all the multitude
Did something for the common good.¹⁶

A more extensive and rigorous treatment of the subject, however, is found in the works of Hume, Montesquieu, Tucker and particularly in Smith and Ferguson.¹⁷ Modern forms of the principle have been set down by Carl Menger, Friedrich Hayek and in economics, Friedman and others.¹⁸ It is being widely recognized in animal social biology.

This point is of importance to philosophy, since it demonstrates the inability of rationalist constructivism to arrive at a social theory that accommodates a satisfactory criterion of justice. Perhaps the most dominant school of thought in jurisprudence at the moment is legal positivism, the doctrine that all rules of justice are a product of design and of conscious human invention. Indeed, such theories seem to have the greatest difficulties with 'natural law' and allow it only the most moderate mention in their enquiries.¹⁹ From their position that a law creates justice, and is wholly the deliberate action of a legislator, our concept of justice is eroded; for what the legislator deems to be just, is just, and what he deems to be unjust, is unjust. Such a philosophy forgets that the whole authority of legislation rests upon a prior set of beliefs and conceptions about justice, accepted within the community and not necessarily the products of rational reflection or design. The development of laws which embody this non-rational justice, the interpretation of laws and criticism of laws on grounds of justice would become quite impossible without this foundation.

Furthermore, the possibility of there existing social patterns widely accepted as being for the benefit of the members of the pattern, but which are founded on individual actions of self-interest (like those of Mandeville's bees), forces us to acknowledge the possibility that similar 'unsociable' or 'immoral' tendencies may in fact serve a function greater than the individual. Accordingly, it may be impossible for us to discuss moral rules and moral acts without reference to the social pattern they produce, and such discussion will require some understanding of the elements of human nature as revealed through the ethological method. In any social order corresponding to that of our

abstract model, individual action is not a function solely of relations between individuals, but it is in some way related to the outside environment, however indirectly and abstrusely. Moral relations will, like any part of social activity, have this external component, and therefore cannot be described with reference only to other individuals.

The third point to emerge from the model is that the social pattern is formed by the multifarious actions of all the members of the society, and that those actions can be motivated only through appetites and drives acting on individuals. For the regularity of a whole society to emerge, there is no requirement that the action of the individual members of the society should itself be regular or uniform. To take the example of bee colonies again, the tasks performed by any individual worker change over its lifetime; its role in the society is a function of many stimuli operating upon it and also of its particular age and sex.²⁰

Similarly in ethics, it does not necessarily require the uniform or regular action of individuals for a social pattern that is capable of surviving to come into being. The actions guiding individuals must be complementary, not necessarily uniform. Attempts to devise a society founded on uniform moral rules with respect to determinants like age, sex, or status (that of Rawls, for example,²¹) may therefore have no practical content because of their inability to describe functioning wholes.

The fourth point worthy of note is that the survival of the group will depend on external environmental conditions and the ability of its members to act appropriately to these conditions. Therefore, different responses by the members may be required under changed environmental conditions. Furthermore, the adjustment of the whole group to the environment will also depend on each of its members acting appropriately to the behaviour of the other members.

Where morality is concerned, this principle suggests that different moral actions may be required under different external circumstances, and that the appropriateness of one action will depend upon the actions of other members of society. This may seem a trivial observation, but

it rejects the possibility of uniform moral rules that are applicable in every set of circumstances.

Group selection in real-world societies

So far we have been considering the relationship between individual action and the social pattern of actions in a hypothetical group of self-duplicating structures, where the unit of selection is the group as a whole. Some rather general observations have been made upon that part of their action constituting 'morality'.²² Now it is time to consider group selection in terrestrial species: what it is, how it comes about, what patterns of action emerge and how they are transmitted through the generations.

Here we will consider what has been called interdemic or inter-population selection, where the unit of selection is a set of organisms of the same species and occupying a clearly limited space at the same time. Naturally, kinship and individual selection will be going on simultaneously, but our task here is to extract the principles of interdemic selection alone. Study of interdemic selection with respect to moral behaviour was really begun by J.B.S.Haldane,²³ although he overlooked the importance of differential population extinction in the establishment and survival of moral traits; that step was left to the ecologist Kalela²⁴ and its elaborations were documented by Wynne-Edwards. The latter's contribution, Animal Dispersion in Relation to Social Behaviour, is a series of illustrations of the theory that animals sacrifice individual interests, personal survival and fertility rates in certain circumstances where this is required for the survival of the group, particularly for the control of population growth in the light of a fixed food supply.

The concept of interdemic selection in animals must be approached in the knowledge that there are two circumstances in which extinction of a population is most likely. These are when a colony is being founded, which biologists call 'r-extinction' and when an established population is in danger of exhausting the scarce resources upon which its life depends - 'K-extinction'. In the former case, communal defence

and foraging, and other measures which increase the average fertility of group members will be the most important factor in selection. In the latter case, however, the opposite is true; restraint by individuals upon their fertility rate and use of resources will be at a premium. Selfish behaviour tending to reduce the reproductive capacity of the group may even be selected, provided that it is not sufficiently incapacitating to engender population collapse. According to Wynne-Edwards, appropriate behaviour under such conditions may include the abandonment or killing of offspring as well as the purely individual sacrifices of reduction in fertility or migration, for example.

As for the general traits which we might expect interdemec selection to produce, a mechanism for the avoidance of population crashes, or indeed of any major population fluctuation, would be expected, and it is one of the firm tenets of Wynne-Edwards's theory that successful species do indeed show social-behaviour which tends to keep such fluctuations to a minimum, thus preserving the continuous adjustment of the population to environmental conditions in a 'homeostatic' system. Instances of particular behaviour patterns which constitute this general mechanism will be discussed in chapters four and five below.

Does the theory of interdemec selection have any application to real species? What are the conditions for it to occur? Are those conditions easily achieved in terrestrial species? These questions can be answered satisfactorily only upon application of advanced techniques in population genetics; the presentation of those techniques is beyond our scope here. Nevertheless, at least two of the most extensive theoretical models are agreed that the conditions for the evolution of what might be called an 'altruist gene' are fairly precise.²⁵ They are, firstly, that in order for the altruism (or any characteristic promoting group survival) to become predominant in a population, most of the competing populations are likely to become extinct. Secondly, the rates of extinction of competing populations in terms of populations per generation must be comparable with the rate of individual selection in terms of individuals per generation in order for the group selection to outweigh the effect of the opposing individual selection. Thirdly, popu-

lations must be partially isolated from others, so that the 'altruism' genes are not wasted on other populations, and so that the altruistic population is not corrupted by intrusions of non-altruistic characteristics from other populations. Although these conditions appear stringent, it is likely that they have applied to the historical selection of many terrestrial species. Certainly, the condition that breeding populations should be partially isolated from others is "commonly and indeed normally found in animals" according to Wynne-Edwards.²⁶ Salmon or trout returning to their natal streams, is an illustration of breeding isolation. The learned 'dialects' of bird-song²⁷ or the dialects and languages of human populations are other factors promoting breeding isolation.

Kin selection

Another way in which moral attributes may be selected is the process of kin-selection. If a population contains related members, then these relatives share some of their genes, and were they to cooperate in such a way that one or two individuals suffered a diminution in fitness, but the genes common to them in other members of the kinship group were to be improved in fitness as a result, then genetic characteristics of the sacrificed individuals would continue in subsequent generations and their bearers would increase in number. Hence, as Hamilton has pointed out in a number of important articles,²⁸ the inclusive fitness of a kinship group, that is, the sum of the individual's fitness plus the fitness of the portion of his genetic constitution shared with relatives, is more important to the survival of any gene than the individual fitness of the principal bearer of that gene.

In the absence of inbreeding, an animal and its brother have half their genes in common; an uncle has one quarter in common; first cousins, one eighth, and so on. If an individual who left no offspring were to increase the fitness of others at the expense of his own fitness - which we call altruism for our purposes here - then he would have to increase his brother's fitness twofold, his uncle's fourfold and his cousin's eightfold to equal the loss of his own extinction. If his sacrifice improves the fitness of his relatives by more than these amounts, then the inclusive fitness of the kinship group is raised, and the survival

of the genetic basis of that altruistic trait is made more likely, since (it can be assumed) many of the genes shared by the individual and the relatives whose survival he promotes will be the ones that encode the self-sacrificing traits themselves.

Here again it may be seen that we have an evolutionary model to explain the existence of moral characteristics. Although the biologists and geneticists have kept their version of the model artificially simple, dealing only with the single trait of 'altruism', it would be no overwhelming task to extend the analysis to cover other moral traits and values in addition to this single one. That would seem to be a prime objective for future dealings between philosophers and biologists.

Nevertheless, the kinship selection model is troubled with a certain weakness. An altruistic individual need not necessarily be able to calculate exactly the proportion of genes shared by him and relatives before he makes a sacrifice for their benefit - this we have seen in the abstract evolutionary model described above, where it is the performance of the whole system which is important for selection, and not the recognition by an individual that he is a functioning part of that system. An individual need not know or be able to formulate the regularities of his action in order to function as a member of the social group. But for kinship selection, it would be necessary for an individual to be able to recognize his relatives and act appropriately towards them. In most species this may not be a problem, but biologists have questioned the appropriateness of kinship selection to certain animal aggregations or flocks.

For the moralist, there is another problematic feature of kinship selection; it suggests that nepotism, a general favouring of one's own blood relatives, is a necessary feature of the evolution of morality. Without nepotism, altruistic tendencies would not arise, according to those who believe in the primacy of kinship selection; and yet favouring one's own relatives is, under certain circumstances at least, commonly regarded to be an 'immoral' characteristic. If it is indeed impossible to separate one from the other, then this model shows how far

our traditional moral notions may need revision.

It should be noted parenthetically that this mode of selection could favour selfish behaviour if the selfish individual enlarges his own fitness to an extent which more than compensates the loss of fitness in his relatives. Unprovoked harm to non-relatives may also be selected under this mechanism, even though it might reduce the fitness of the individual perpetrator, provided that the fitness of a relative is increased (for example, because there are fewer non-relatives around to share scarce resources) by a more than compensatory amount.²⁹ Examples of this latter behaviour, while common in humans, are very difficult to find in animal societies.³⁰

A detailed application of the theory of 'selfishness' spread by kin selection is contained in Richard Dawkins's recent book, The Selfish Gene. His intentions are to displace the theory of interdemic selection by explaining apparently cooperative groupings in terms of individual and kinship selfishness, and to demonstrate how these selfish tendencies come about. For example, he considers a society of doves. Such a society will be highly susceptible to attacks from hawks. The hawks will be so successful, indeed, that they will increase in numbers much faster than the doves on whom they prey until the hawks largely dominate the doves, and a natural balance will be achieved when the proportion of doves to hawks is exactly that at which the dove population sustains the appetite of their predators. Or in human societies, truthful individuals will be at the mercy of those who are prepared to lie for personal gain. Eventually, the liars and their lying descendants will become relatively more successful because of their superior fitness. Their rise will stop at the point where the proportion of liars to truth-tellers is high enough that it becomes worthwhile to call someone's bluff. Thus, he concludes, selfish behaviour is strongly selected; and while some social actions appear to be altruistic, this is no more than selfish individuals improving the inclusive fitness of their kin.³¹

Were this principle to be valid for the evolution of human societ-

ies, it might seriously change our views on ethics; but some arguments can be advanced to show that while kin selection undoubtedly does have a role in shaping the social behaviour of many terrestrials, interdemic selection based on purely altruistic traits is also possible. Dawkins seems to ignore the possibility that an increased proportion of 'liars' in a population will diminish the fitness of the whole population in contrast to populations which are, for one reason or another, more perfectly altruistic. The population with a high proportion of liars will suffer many difficulties because its members will not be able to rely on one another or make agreements with one another in confidence, whereas the altruists will have no such problems and will therefore tend to be more fertile. Secondly, one way purely altruistic populations could arise would be by descent from a single altruistic individual (or pair) under conditions of breeding isolation. It would not be difficult for these populations to become established and to become an increasing proportion of the species as a whole.³² Thirdly, Dawkins takes a one-dimensional view of animal nature, and ignores the possibility that other characteristics may be selected along with his 'selfishness' and 'altruism'. One may suppose that cooperative defence against selfish individuals is always present in altruistic individuals, in which case the 'truth-tellers' in a population would take measures against the 'liars' or that the 'doves' have sufficient courage to ward off attacks by the 'hawks', while remaining altruistic to each other. For the study of the natural selection of human morality, we can conclude that while Dawkins's principles no doubt apply to some extent, they are by no means a definite substitute for the group selection mechanism.

Dawkins is unwilling to admit group selection as a possible mechanism for the selection of moral traits partly because he feels that if a population were a unit of natural selection, then we should have to admit whole species, genera, orders and classes. If 'survival of the group' is acceptable, then what about 'survival of the vertebrates' or 'survival of the mammals'. Fortunately, these jibes can be met without much difficulty. In the first place, the theory of evolution is about self-duplicating structures. 'Vertebrates' or 'mammals' are not a

self-duplicating structure, since only the individual species within those categories can reproduce themselves, except in comparatively rare cases when fertile offspring are possible through inter-species mating. Although it may be possible to speak of 'mammals' displacing 'reptiles' over evolutionary time, it is really the various species of mammal and reptile which are the elements of change. The information about how to adjust to the environment that is encoded in each species cannot be transmitted to other species, so to apply the theory of evolution to larger categories than species is mistaken. In the second place, the rates of extinction of species, and the larger, arbitrary categories we divide nature into, are very slow compared with individual or population extinction. Individual, kinship and interdemic selection are clearly the quickest and most effective way of duplicating or extinguishing traits and their bearers, and will have much more force in shaping individual behaviour than any other sort.

The theory of reciprocal altruism

Kin selection theories will never be useful to the philosopher until they depart from the unidimensional view of animal nature we detected in Dawkins's model.³³ One concept of evolutionary selection has been formulated by Robert Trivers³⁴ and can be used to explain a wide number of moral traits even though it concerns moral action of a single sort: Trivers calls this action 'reciprocal altruism', with altruism being defined as behaviour that benefits another organism, not closely related, while being apparently detrimental to the organism performing the behaviour, benefit measured against a criterion of inclusive fitness. One human being leaping into a stream to save another would be an example.

Trivers asserts that under some circumstances natural selection favours these altruistic acts. If the chance of the drowning man actually expiring were one half, while the chance of his rescuer drowning is much smaller, say one in twenty, and if the drowning man always dies when his rescuer does and always lives when his rescuer does, then in this singular case, the rescuer would have been at risk for no advantage to himself. But if the drowning man reciprocates at a future

time, under comparable survival prospects, then each man will have traded a one-half chance of dying for a one-tenth chance, and each has benefitted. A population exposed to many such risks over the course of a lifetime would therefore enjoy increased genetic fitness if its members are altruistic.

Failure to reciprocate ('cheating') may be discriminated against in selection if cheating has later adverse effects, for instance, if altruists confined their altruism to other altruists or took severe action against the cheaters.

The principal conditions allowing this type of selection to occur are less stringent than those for interdemic selection. The length of the individual's lifetime is an important factor, since the greater the lifetime, the more chance of an individual needing assistance and being able to reciprocate for assistance given. Second, a low rate of dispersal during the lifetime of the individuals in a species will increase the chance of reciprocal altruism being possible. Third, a high degree of mutual dependence, since this will tend to keep individuals near each other, would have a similar effect. The degree of rationality possessed by members of a species may enhance reciprocal altruism, but selection would favour those populations showing the trait even where reasoning and foresight were absent.³⁵ The emergence of moral characteristics and the performance of moral acts, therefore, is not dependent on the existence of any rational faculties.

As will be argued in chapter six, the conditions for the emergence of reciprocal altruism have been met in human evolution and it is reasonable to assume that this mode of selection has indeed been important to our own evolution. Given that assumption, we may follow Trivers and make the following predictions.

(1) Because cheating is of advantage to individuals, individual selection will encourage cheating, but group selection will favour a complex psychological system for the detection and elimination of such behaviour.

(2) Selection will favour our liking, and being more altruistic towards,

individuals who are themselves altruistic. (In the human situation we can take 'altruism' to cover many activities such as sharing of food and resources, cooperation in defence and at work, helping injured or infirm individuals, and many others). A number of writers from Darwin forth have recognized the importance of friendship in promoting reciprocal altruism, although it is not a prerequisite, as those writers believed.³⁶

(3) Hostility toward cheaters, attempts to change their ways through disapprobation, punishment, exile and the reward of altruism, will be selected.

(4) Emotions such as the sympathy which forms the base of Smith's Theory of Moral Sentiments, and gratitude for aid given, have been selected as part of the mechanism of reciprocal altruism, and motivate us to altruistic acts by becoming stonger when the plight of the recipient is the most dire.³⁷

(5) Guilt, if it deters cheating or prompts a cheater to change his behaviour towards altruism, may also have been selected as part of the system. So too with feelings of distrust for those who perform altruistic acts without the emotional basis of generosity, because the altruistic tendencies of such individuals may be less reliable in future.

(6) The establishment of friendships with strangers, if they enhance reciprocity, may be selected. (This cannot be accounted for in a purely kin-selection model of behaviour).

(7) The elaboration of norms of reciprocal conduct is possible through the use of language. Particularly, individuals may be expected to aid not merely those who have aided them before, but other members of the society in a complex entanglement of 'debts' and 'credits'.

(8) Learning and the development of emotions concerned with these debts and credits may be selected, since it contributes to the flexibility of the social arrangement.

(9) The strength of the altruism deemed appropriate to any individual is likely to vary according to physical qualities in actor and patient. For example, young individuals who represent a potential contribution to fertility and future altruism, and chronically infirm individuals who are incapable of future altruism, may be treated quite

differently.

(10) Although rationality, like language, aids the natural selection of a group in many ways, its emergence will be made more likely by the effects it has on making the system of reciprocal altruism a more effective instrument in the promotion of group fitness. If intelligent reflection enables us to perceive more accurately the costs and benefits involved in any proposed act of altruism, then it will help us to be able to raise the inclusive fitness of the group through appropriate action.

It can be seen that this analysis accounts for many subtle emotions associated with morality, including guilt, sympathy and what Trivers calls 'moralistic aggression' towards individuals who do not participate in the system of reciprocal altruism. Furthermore, Trivers's analysis can be extended to cover the practice of altruism over a whole population, and not merely between individuals. If each of the individuals aided by an altruist incurs a 'debt' not only to the altruist (although point (2) above suggests that this bond will be stronger than most others) but to any other member of the population, then the same increase in inclusive fitness is enjoyed by those members. Indeed, in larger populations, the increase will be much greater if the 'debt' is due to all others as well as the altruist, because in the two-individual form of reciprocal altruism, the opportunity for reciprocation might be limited by the distance between the two individuals. Therefore, when taken in its broadest sense, the theory of reciprocal altruism can explain how complete social systems requiring altruistic behaviour on the part of their members can come into being through the forces of individual selection.

There is no reason why the theory should not be used to explain other features of social life besides the sharing and mutual aid which is included under the definition of altruism. Restraints upon personal conduct in many matters may be selected by this mechanism. Adherence to certain laws, for example, would be selected if the individuals observing them enjoyed greater fitness. Not merely the tendency to aid others at some risk to one's own fitness, but the tendency to restrain oneself

from harming others at the same risk would be selected. The obligation of promises, since they often increase the fitness of one individual at negligible risk to the other, will be selected as a principle of high value. Cooperation in many endeavours will be promoted by nature in precisely the same fashion.

The consequences of this theoretical model are remarkably similar to those emerging from the interdemic selection models. Each model has its limitations and its advantages, but it is fair to say that the reciprocal altruism model, extended as it has been here, gives us a clear explanation of the growth of morality within a group, and suggests that such growth can be remarkably rapid, moulded as it is by the emotions of the actors and the emotional displays of other members of the population. The interdemic selection model, on the other hand, reminds us more strongly that it is the social order of actions which decides the fate of the individuals in a population, more so than their individual actions at any time.

Once more it must be stressed that the individual does not necessarily act with any notion of the relevance of his action for the social pattern of actions. He will, for the most part, respond in his own way to particular local circumstances and to the behaviour of other individuals around him. If his actions promote the continuing adjustment of the whole population to the environment, then that population is more likely to survive and its members will enjoy increased fitness. If his actions disrupt the social pattern, then everyone will suffer reduced fitness. Nevertheless, his actions, like the operations of buyers and sellers in the market, may be purely selfish and still contribute to the stability and efficiency of the whole pattern.

Conclusion

These then, are the models we use to explain the emergence of moral actions under the pressure of natural selection. Selection of whole populations, selection of kinship groups and selection of individuals who act in certain regular ways are all possible. Often it would be impossible to separate out the effects of these various forces. Common to them all is the understanding that it is perfectly possible for a

complex network of moral relations to be the product of evolution by natural selection. Each mechanism of selection - interdemic, kinship or individual - may pull in opposite directions from time to time. Certainly, the different mechanisms would seem to promote slightly different moral principles; kinship selection theory predicts nepotistic traits, interdemic selection theory predicts traits for breeding isolation and indiscriminate altruism within a breeding population, reciprocal altruism theory suggests complex moral mechanisms to prevent non-reciprocation by individuals.

The general nature of the theory of evolution by natural selection insinuates that the moral networks moulded by the various selection processes are no more than quantitatively different between animal and human societies, although in the latter case there is much more scope for complexity, given the reflective and calculating abilities of human beings. Nevertheless, if our species is indeed subject to evolutionary selection, then it is easy to believe that there are evolutionary limitations upon the possible scope of our morality. Consideration of the importance of such limits to the formulation of moral systems and the conduct of moral philosophy is unnecessary here, but will be developed more fully in chapters 10 to 14 inclusive.

One problem of this theory which should be resolved immediately, however, is that of the heady naturalism which it seems to entail, and which many schools of philosophy find disagreeable. If morality evolves through the natural selection of particular patterns of action and particular values within organisms, then our highest moral values assume a status akin to animal appetites. Questions of morality may therefore become mere questions of empirical description about what our values in fact are, and how they affect our 'perception' of the so-called 'non-natural qualities' of good and evil. This naturalism will be described and defended in the following chapter.

FOOTNOTES TO CHAPTER TWO

1. The Population Problem, page 223.
2. The term was coined by John Maynard Smith (1964).
3. Rates of extinction of species or larger systems are very much lower than rates for individuals or small populations. The process of adjustment to environmental circumstances is therefore much faster for the smaller structures, since the 'testing' period of the various structures is shorter.
4. This term can be used to cover selection of any unit greater than one individual.
5. Darwin, Origin of Species (1859) page 238.
6. Hayek, in 'The Theory of Complex Phenomena' discusses the importance of this point. He notes that even Popper makes the confusion when he says that "the evolutionary hypothesis is not a universal law of nature but a particular (or, more precisely, singular) historical statement about the ancestry of a number of terrestrial plants and animals." (The Poverty of Historicism, p.107) Since the first publication of Hayek's essay, Popper has repeated his comment, saying that "There exists no law of evolution, only the historical fact that plants and animals change, or more precisely, that they have changed." (Conjectures and Refutations, p.340) In a more recent chapter based on a 1961 lecture, however, he qualifies this view somewhat: "There are no Darwinian laws of evolution. In fact, it was Herbert Spencer who tried to formulate universal laws of evolution... but they are vague, and... almost devoid of empirical content." (Objective Knowledge, p.267)
7. Needham, History is on Our Side is a classic statement of such a mistake. See discussion of Needham in Anthony Flew, Evolutionary Ethics, chapter III (iv), and of Needham and De Chardin in chapter nine, below.
8. Hayek, 'The Theory of Complex Phenomena', section 5.
9. See L.S.Penrose, 'Self-Reproducing Machines', Scientific American, 1959.
10. See M.Lindauer, Communication Among Social Bees, and discussion in Manning, An Introduction to Animal Social Behaviour.
11. Mohr (1960).
12. Tener (1954).
13. Adam Ferguson, Essay on the History of Civil Society, page 187. Although this principle applies to human individuals, it could equally apply to any structure with or without the power of 'design'.

14. Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations, Book I, chapter 2.
15. Mandeville, The Grumbling Hive, or Knaves Turned Honest. (See F.B.Kaye, The Fable of the Bees).
16. This is only one of many such passages in the original poem of 1705.
17. See, for example, Smith's doctrine of the 'Invisible Hand', in The Wealth of Nations, Book IV, chapter 2; Josiah Tucker, The Elements of Commerce, in R.L.Schuyler (1931) page 59.
18. For Menger, see L.Schneider, Problems of Economics and Sociology, especially page 158. For others see Popper, The Poverty of Historicism, p.65 (on the "undesigned results of human action"); Hayek, "The Results of Human Action but not of Human Design"; particularly note 12 for these and further examples. Also Hayek, The Constitution of Liberty, chapter 10, "Order without Commands", and Law, Liberty and Legislation, volume 1 part 1.
19. See for example Hans Kelsen, What is Justice?; also John Rawls, A Theory of Justice.
20. For an examination of this changing work pattern, see M.Lindauer, Communication Among Social Bees.
21. A Theory of Justice; Rawls may not attempt to extinguish all human differences, but he makes a strong try to limit their effect.
22. The correctness of applying this term to animals is discussed in chapter five, below.
23. Haldane, The Causes of Evolution.
24. Kalela (1954, 1957).
25. These are the models of Levins (1970) and Boorman and Levitt (1972, 1973). For these and other models see Wilson (1975). By 'altruism' here is meant the definition accepted among biologists, that is, behaviour increasing the fitness of others while risking or diminishing the fitness of the agent.
26. Reply to Maynard Smith in Nature, March 14, 1964, page 1147.
27. Nottebohm (1967). See also Tinbergen (1951), Manning (1967) and Thorpe (1961) for similar or related mechanisms of display leading to breeding isolation in birds.
28. W.D.Hamilton (1964, 1970, 1971, 1972).
29. Hamilton (1970) calls this 'spite'. For another model of the evolution of 'spite', see G.R.Price (1970).

30. Hamilton (1970) asks: "why, if the model is correct, are more convincing examples of spite hard to find?" Wilson observes that "Examples of spite in animals may be rare and difficult to distinguish from purely selfish behaviour." (Sociobiology, p.119)
31. Dawkins gives many examples, but all are open to question. See, for example, my discussion of the defensive mechanism of the Thomson's Gazelle, chapter five below.
32. For a model of the spread of a gene under these conditions, see Maynard Smith (1964).
33. Other biologists make the same mistake. Maynard Smith (1964) for example, notes that avian breeding colonies are often regulated in number because the too-aggressive birds will spend time on acquiring and defending a territory, to the detriment of their young, while too-timid birds will be unable to defend a nest area sufficient to meet their need for food and space. Hence, he concludes, population control such as this can be explained without recourse to group selection. However, it is possible that in every generation, aggressive and timid birds are bred, like the infertile worker castes of bee colonies, because of the usefulness of their other qualities to the fitness of the group. Smith is confusing an individual's response to the social environment with individual selection.
34. Robert L. Trivers, 'The Evolution of Reciprocal Altruism,' The Quarterly Review of Biology, March 1971.
35. Wilson (1975, page 120) notes that there are few examples of true reciprocation in animal societies, partly because of short memories and casual animal relationships. However, altruism between all members of a population is common in animals (see chapter five) even where the animal lacks much intelligence.
36. See Darwin (1871), quoted in Williams (1966). See also Hamilton (1969).
37. For studies of the dependence of gratitude and sympathy on the cost/benefit ratio of altruistic acts, see Gouldner (1960) and Aronfreed, Conduct and Conscience.

Chapter 3

VALUES AS CONSTRAINED BY EVOLUTION

"whatsoever is the object of any man's Appetite or Desire; that is it which he for his part calleth Good; and the object of his Hate, and Aversion, Evill... For these words... are ever used with relation to the person that useth them; there being nothing simply and absolutely so: nor any common Rule of Good and Evill to be taken from the nature of the objects themselves."

Thomas Hobbes¹

"The theory of group selection," says Edward O. Wilson, "has taken most of the good will out of altruism. When altruism is conceived as the mechanism by which DNA² multiplies itself through a network of relatives, spirituality becomes just one more Darwinian enabling device."³ It would be timid to stop there, however; for the theory of group selection also takes the metaphysics out of human values and allows them to be treated as empirical and biological facts. The-ethical naturalism implicit here requires some detailed supporting arguments in view of prevailing philosophical opinions on the subject, but the usefulness of our being able to provide an empirical foundation for human values justifies the effort.

Values as an instance of appetite

The evolution of any structure depends upon its ability to remain in continual adjustment with the environment. In terrestrial species,

the resources necessary for personal life (such as food and water) are obtained in quantities commensurate with the needs of the individual through his search for and acquisition of them according to internal drives or appetites. Other things necessary to maintain the continued life and adjustment of the species (such as sexual mating) are also acquired on the prompting of appetites. Not only the resources themselves, but the type of resource (the kind of food, for example) that an animal consumes is also moderated by appetites which - ignoring solipsistic objections for the purposes of this argument - we call 'likes' or 'dislikes'. Avoidance of stimuli that are harmful to organisms is explained by emotions complementary to appetites which we often call 'aversions'. Likes, dislikes, appetites and aversions are subject to evolutionary selection, since the fitness of individuals and of groups, families and populations depends upon their acquisition of some resources and attraction to some stimuli, and upon their aversion to others.

It is very commonly supposed that 'appetite' describes only the hedonistic, individual appetites of bodily comfort, food, thirst, sex, sleep and so on, and that 'aversion' describes only personal avoidance of material things. Where structures larger than a single individual are the units of natural selection, however, more complex appetites and aversions may emerge. For the survival of some populations, for example, individuals will have to be attracted not only to feeding, drinking and the like, but also towards cooperation in defence, care of infirm individuals, and other acts necessary to sustain the social pattern of the population. Similarly, individuals in some populations will have to be averse to selfish activities which would disrupt the social pattern of actions and would diminish the selective fitness of the population or society.⁴

The likes and dislikes of individuals in human societies selected with respect to reciprocal altruism, for example, are complex indeed according to Trivers's analysis. Liking persons who are themselves altruistic would be of selective advantage. Disliking those who are not altruistic or who do not reciprocate acts of altruism would also be selected. Acts of altruism themselves will require the disposition, in

individuals, to commit them. Selection should favour the detection of cheaters and the attempt through punishment or disapprobation to discourage them, and it will favour the positive valuation of such attempts by other individuals. Those attracted towards cooperation with others in detection and punishment of cheaters will promote the fitness of the whole society by their efforts. Those averse to transgressing rules or norms which embody the recognized duties of each individual to act in altruistic ways will do likewise. All of these traits can be regarded as appetites and aversions without too much difficulty, although they are far removed from the simple somatic appetites and aversions we normally associate with the use of those terms. It appears, then, that there are desires which are 'sociable' in that they affect and promote the fitness of individuals other than the agent, and that these are selected in evolution along with the somatic appetites.

These complex tendencies can, of course, be in the self-interest of the agent. Where reciprocal altruism occurs, the altruist who rescues a drowning man at some personal risk is merely trading a small risk now for a large gain on some other occasion. Even in those species where the calculation of costs and benefits is impossible, the altruistic behaviour could be selected because of the increase in fitness it bestows on the individual. The difference between these tendencies and the somatic appetites, which we also regard as 'self-interested', becomes steadily more invisible. Those traits which we value most highly can be regarded as no more than the expression of tendencies implanted in us through the long process of natural selection.

We have to be somewhat careful about our use of language, however. There are clearly some actions which are not in the 'self-interest' of an individual as this is commonly understood, even though they are valued by others, and even though individuals are drawn to their performance by powerful psychological forces that have been shaped by group selection. The soldier who, in Urmsion's example⁵, accepts certain death to save his fellows, has not gained as an individual, although it may well be that the inclusive fitness of other individuals who share some of his genetic endowment is much increased. Such actions cannot be properly

regarded as 'self-interest': they are moderated by group survival and not individual survival.

The concept that there are groups larger than the individual which are the basic units of altruistic actions is, of course, highly damaging to many social contract psychologies, particularly the egoistic psychology of Hobbes. To the latter an acceptable excuse for giving alms to a beggar outside St. Paul's was that "it makes him pleas'd, and it pleases me to see him pleas'd." This psychology is esoteric, and was recognized to be extreme in its own time, since other individuals are regarded as mere data to be reckoned with in calculating the welfare of the self. Even this extreme psychology supposes some connexion between the pleasure of the beggar and the pleasure of Hobbes, so that Hobbes is driven to altruism even for selfish motives. But this hardly stands up to close scrutiny. Hobbes ignores the fact that we pursue our internal drives and motives, follow our values and affections, whatever they are called, simply because they are our drives and motives. We do not pursue them because we derive consequent pleasure or consequent avoidance of pain; pleasure and pain may be consequences of an action, but they are not to be confused with the motive force of the action itself in all circumstances. I cannot be said to enjoy my visit to the dentist, even though I know that it will spare me future pain; and I do not always act altruistically out of pleasure.

The sociable traits are, then, examples of motives that have been the objects of group selection.⁶ They are, of course, also those things upon which we place the highest valuation and esteem, and those values are in themselves a functional part of the selection process. Group fitness would be imperilled if we did not value and strive toward some things and find ourselves repelled by others, including the relatively complex phenomena of social interaction and mutual assistance.

Moral judgements as relative

One question which must be settled (and to do so is the principal aim of this chapter) is whether human appetites, and statements about them, constitute good reasons for action. When appetite is taken in its limited form, then there will indeed be strong objection to any notion

that appetites can be so employed; it is difficult to see the morality of following one's appetite for food when other people are hungry. But if we extend the term to cover personal valuation not merely of bodily necessities but also of social and moral actions which promote the welfare of a social group or population, then the case is very different. Here, it seems that personal desires and social welfare could very well be in complete harmony.

To reduce ethics to a field so dependent on relativistic principles would, of course, be anathema to those who, from Plato's theory of Forms through Moore's Principia Ethica, have made the mistake that normative terms signify the presence of non-natural qualities in the abstract nature of actions or things, and have busied themselves in attempts to find out what these qualities are and how we 'perceive' them. We can see, given the theory of group selection, that some agreement on moral questions is highly likely; successful societies will have a high measure of concurrence on moral issues because it is upon the regularity and reliability of moral actions that their life, to some extent, depends. If groups are to function smoothly, certain norms of individual behaviour are necessary; societies in which social learning takes place will solidify these norms in the minds of their members through teaching and emulation, for if they did not, the social pattern of actions would be disrupted and the fitness of the society would be diminished.⁷

The existence of agreement on values does not mean the existence of incontrovertible qualities within objects and actions themselves, as a few detailed examples will show. For instance, with Aristotle,⁸ we know what is expected from 'a good knife' or 'a good soldier' or 'a good midwife'. A good knife must be strong and keen, because it is the function of a knife to cut. A 'good' knife is one which will be efficient when applied for this function. Similarly, a 'good soldier' must be courageous, disciplined and accurate with his aim, so that he too can perform his function efficiently. Likewise with other uses of the word 'good'. Note, however, that each of these evaluations of objects depends on a notion of efficiency, certainly empirical, with re-

spect to the nominated end of the object. That end has to be specified before any judgement is possible. Yet individuals may disagree on what the standards appropriate to an object actually are. An army captain might be looking for a 'good sword' to use in a ceremonial parade, for example, in which case the normal qualities of sharp cutting edge or strength will count for nought, and size, decoration and brilliance will be the ruling standards against which swords are judged.

Thus is it that in ethics there is no incontrovertible way to recognize a 'good' action; the question is about what standards we choose to specify actions, and not (for the most part) about how we measure an action against those standards when chosen. There may well be some general agreement through chance or through evolutionary necessity; but the estimation of moral goodness depends upon individual notions of the good. It is misleading to talk of normative principles as if they were non-natural 'qualities', because this suggests that they are wholly without relevance to the perceptual or evaluative constitution of the perceiver or valuer.

In fact, not even physical qualities enjoy this status. A simple example would be that of colour perception. By and large, there is agreement about what things are red, which are green, which yellow; but there are some people who are partly or wholly colour-blind and who say with full conviction that a certain object is red when the majority of others perceive it as green. When asked to pick out the green figure from a field of red ones, they might be unable to do so; but the colour-blind person would insist that there simply is not a green figure to be detected. Or perhaps on another test, he would insist that there simply is a difference between the colours of certain objects which other people cannot see. Can we they say that things are really red or really green in the light of such objections? Were the situation reversed, and were the colour-blind people in the majority, could normal people still insist that they were mistaken in their perceptions? Of course not, for our notions of perception are founded in convention, and what is conventionally accepted become linguistically 'the correct' perception of 'the quality' of any object.

Colour perception may be too easy a case to illustrate the ultimate relativity of judgements of quality (physical or moral), and critics may argue that it would be impossible for men to disagree about other qualities, especially the 'primary qualities' of figure, extension, motion, number and solidity.⁹ They would be wrong, because even these things depend upon the perceptual equipment of the perceiver. There is a schoolboy game where you cross your fingers, close your eyes, and then feel the end of your nose with the crossed fingers. It is unnerving to find that it feels as if you have two noses instead of the familiar one. Or again, it is quite possible for a person to be mistaken about whether he is being pricked by two pencil-points or only one if the points are set about an inch apart and applied to a relatively insensitive part of the body, say the upper arm or thigh.¹⁰ Were a particularly malevolent neurosurgeon to mix up our nerve-endings, we would probably remain completely confused about size, shape, number and motion for ever more. If he mixed up our optic nerves as well, we would find it even harder to say how many sides there were on a matchbox or how many noses we really did have. And were we to meet an individual whose perceptual equipment was completely different from ours, say an alien creature, and were we able to communicate with him at all, which is doubtful, then we would find that his view of qualities we take to be definite would be novel and strange. His notion of number could be quite contrary to ours. He might see the most marked differences in snowflakes that we take to be identical. He might be unable to distinguish philosophy books from bananas, and may proceed to gorge himself on even the most indigestible scholastic tomes.

The 'qualities' which we take to be in the nature of things are, then, dependent upon individual perceptive capacities, however similar those capacities may be. Ethical values likewise cannot be called 'non-natural qualities' unless we remember that they do not derive from any unimpeachable a priori characteristics inherent in actions or objects themselves.

On what seems altogether inconceivable

Some characteristics we recognize as being quite distinct and in-

admissible as a definition of others. The colour 'green', for example, cannot be used to describe 'white' or 'red', nor can it be described in terms of those colours. To attempt to make a definition of one such characteristic in terms of a different one would be what Frankena calls the 'definist fallacy'.¹¹ The particular case of this fallacy of most interest to philosophers is, of course, the definition of ethical terms by non-ethical terms which G.E. Moore called the 'naturalistic fallacy', although it is by no means original to him.¹² An analysis of human ethics which attempts to describe moral actions and values in empirical, evolutionary terms must face this problem directly, and some brief remarks are appropriate here before we continue the question of whether some statements about appetites (and other nonmoral things) do in fact constitute a foundation for ethical action.

The naturalistic fallacy is less of a problem for real-life naturalists than has been commonly supposed. In the first place, the fallacy is not a logical one, but a material one. Not even a naturalist sets out to define one characteristic in terms of other characteristics which he recognizes to be different. Rather, he insists that when we examine both characteristics carefully, they amount to the same thing. Utilitarians, for instance, define 'good' as 'producing the greatest happiness', and insist that there is no context in which the ethical term 'good' can be used without the new phrase 'producing the greatest happiness' being equally applicable and causing no change in meaning. So when Moore says that ethical terms cannot be defined in terms of natural characteristics, he is putting forward a personal opinion, and not a logical contradiction. The naturalist will disagree with him and will insist that his own terms are completely synonymous with the ethical term. Provided that he accepts all the consequences implicit in such synonymy, he is logically free so to do.

Furthermore, the formulation of the fallacy rests on the assumption that the characteristics being confused are in fact different. But as we have seen from the consideration of apparently objective qualities, the difference between any two characteristics rests upon the perceptual equipment of the perceiver. The colour-blind person may feel himself quite able to define one colour in terms of another, to

take an example. For him, a statement such as 'red is a type of dark green' would be intelligible and would describe just what he perceived; or again, he might recognize a difference between two colours which most other persons detect as identical. Likewise in ethics, if a naturalist is convinced that there is an identity between two characteristics which non-naturalists have overlooked, then he is logically entitled to explain that identity. He is not making a mistake, necessarily; he is merely pointing to something which he claims others have overlooked or (like Moore) have excluded from consideration without sufficient cause.

Lastly, the objection of the 'naturalistic fallacy' does not fit most naturalists, as we have seen, and it certainly does not cover the kind of naturalism developed here. For ethical terms are not simplistically defined in terms of a natural quality: rather, all ethical terms such as 'good' or 'ought' are deemed in this analysis to contain implicit reference to the feelings of approval for the object or action which are experienced by the user of the term and possibly (depending on the scale of agreement between individuals) his audience. 'Good' is not held to stand for a simple quality, but for a complicated relation between objects or actions and individual appetites and aversions, broadly defined. Therefore, it is quite possible to define 'good' in terms of a number of statements which contain a prescriptive element founded on principles which we, as human beings and products of natural selection, commonly recognize to be good reasons for action. Let us now go on to consider such possibilities.

Appetitive utterances and values

There is a revealing debate on the subject of whether certain statements about human appetites do in fact constitute a good reason for action. This is the discussion between Anthony Quinton in his short but lucid and intelligent essay 'Ethics and the Theory of Evolution', and Anthony Flew in his book on the same subject.¹³

Assuming the naturalist position, Quinton leads off by saying that if a thing is subject to an appetite, and is desired, then that constitutes a reason for pursuing it. So an 'appetitive utterance' about some object or action is not merely a description of empirical

fact, but a reason for action. If I tell you, for instance, that of all the hotels in town, you will most enjoy the Red Lion, and if you believe that my advice is likely to be correct, then my statement, which is really a statement about your appetites and how they may be satisfied, would constitute a good reason for your staying there rather than anywhere else. My advice might even be couched in highly evaluative terms; I might say that the Red Lion is the 'best' hotel, and provided that my terms 'best', 'good' or whatever have this appetitive portion, then they do have this prescriptive nature. At the same time, though, (says Quinton) they are statements of fact, because they are concerned with the facts of your particular appetites; and so the traditional dichotomy between normative and factual statements is broken and the naturalistic fallacy can be circumvented.

Examination of the debate between Flew and Quinton shows that it is possible to maintain this novel position, but reminds us that we have to be very careful with the naturalistic use of language if we are to avoid replacing the unnecessary 'is/ought' dualism with an unworkable 'schizophrenic monism'.¹⁴

Quinton considers the situation in which you ask, "Where should I stay?" and are told "The Red Lion is the best hotel," meaning, roughly, that you will most enjoy the Red Lion or that the Red Lion will most effectively satisfy your desires. Therefore the statement "The Red Lion is the best hotel" does indeed afford you a reason for going to the Red Lion and not another hotel. But in reply, Flew claims that the facts of the case show that an 'appetitive utterance' such as "You will most enjoy the Red Lion," which is contained in the statement "The Red Lion is the best hotel," does not, in fact, constitute a reason for action. As evidence for this claim, Flew cites the various personal motives which might prevent or preclude action. "You may, for instance, not be able or willing to afford the best, just as you may have some special reason, moral or other, which forbids indulgence on this (or any other) occasion."

Flew's argument illustrates how the naturalistic approach can be misinterpreted if the term 'appetite' is not sufficiently defined. Flew

is correct that there are an infinite number of possible reasons why you would not in fact enjoy the Red Lion at this particular time. You might indeed find that it is more expensive than you are prepared to accept; or it might be a long way from your work and you dislike walking; or you might be on such good terms with the landlord of the Frog and Peach that you get much better than the normal service there. But all that these factors amount to is that the original advice, and the assumption in it that "you will most enjoy the Red Lion," was actually mistaken. On balance, given all these other whims of yours about which your advisor was ignorant, you would not enjoy the Red Lion at all.

So for you to act on a piece of advice such as "The Red Lion is the best hotel," you must be confident that the person giving the advice has taken into consideration your own particular desires and aversions. There is sufficient agreement on such questions that advice of this kind is usually taken without serious question; Quinton claims that "no special knowledge about your particular tastes is necessary to predict the action which will follow upon your sincere acceptance of this advice." For most people, the sincere acceptance of the advice would be a routine matter, because there is agreement upon what is meant by a 'good hotel' just as there is agreement upon what constitutes a 'good knife'. But personal differences do colour our judgement of these things. Where there is agreement, Quinton's resolution of the dichotomy between normative and factual statements is indeed valid.

Flew's further question, "ought these things to be desired?" is, then, strictly meaningless. Whether some desires are morally superior to other desires is a problem that can be solved only by appeal to some value transcending those desires, a possibility which we have already excluded. Logically, then, there can be no court of appeal higher than the individual. Appetites and aversions are manifold, covering far more than simple bodily drives. You may, of course, weigh one desire against another, for example your desire for comfort against your desire to save money, or your desire for good food against your aversion to extravagance. When that has been done, then a statement of advice which correctly diagnoses your appetites is a good reason for action.¹⁵

The resolution of relativism

A relativist position such as this requires some further comment, because it might be construed as having no prescriptive possibilities. The problem is analogous to the strict relativism which we noted with respect to our perceptions of physical qualities; if there is a dispute, it is difficult to say that one perception is 'right' and another is 'wrong'. For the most part, however, there is much agreement on the perception of physical things, and we use the term 'objective' when agreement is substantial. In coming to such agreement, two factors are relevant. The first is the organizing power of our perceptual equipment, which is remarkably similar between individuals. We all perceive squares, circles and other figures as sui generis and not simply the sum of the experiences which would arise if the various portions of our perceptual equipment were stimulated independently, for example.¹⁶ By and large we judge extension uniformly; we find it hard to be in dispute about the reading of a pointer on an instrument scale, except from a distance; motion is obvious to us. In these things, our perceptual abilities are very similar. The second factor promoting agreement is social pressure and learning. A boy learns to classify bird songs, for example, and on subsequently hearing a particular song he can identify the species of bird; in fact his perception will be permanently changed by the learning, because he will always perceive song as representative of a particular species once that learning has taken place. Our perceptions are subtly changed by learning in this way.

The debate between Balguy and Hutcheson on relativism is a good summary of the problems of ethical relativism.¹⁷ According to the latter, to say that something is 'right' or 'wrong', 'good' or 'bad' is to say no more than that it is commonly approved of or disapproved of. Balguy is then able to note that if human nature happened to be different, then we would have to say that some things which are 'right' now would be 'wrong' then and vice versa. If we came across a society with values completely foreign to us, we would simply have to accept them as different, immune from our criticism. Hutcheson's escape is to argue that the standard of morality is indeed relative to the observer,

but that insofar as there is agreement on moral questions, we possess a convention by which to judge other individuals and other communities.

Regrettably, Hutcheson's defence suggests that morality can be consciously chosen because of its conventional nature, when in fact it would seem that like questions of physical perception, moral values are founded partly in human nature and partly in learning and only to a limited extent in conscious choice.

The uniformity in human values is not a convention, but an important and functional part of social life. Because of that uniformity, concerted actions of many sorts are possible, such as cooperation in defence and employment, sharing resources and caring for the infirm; and all of these actions promote the fitness of the society displaying them. More refined values are also functional, such as the preference of altruistic personalities to selfish, the common indignation felt against untrustworthy or selfish characters, and the feeling of the appropriateness of punishment or exile as a response to acts of selfishness. Uniformity of opinion on these matters allows large social aggregations to prosper, since any individual has a better notion of what are the likely responses of other individuals in any circumstance, and so these responses can be anticipated, and social life can begin.

Through the ethological method and the examination of social patterns in human and animal societies, we are able to discern the relative importance of behaviour and values to the continuing life of a society, and to learn which actions and values do have a wide basis of support in human nature. Hence our relativism can be tempered, and our desire for objectivity in ethics¹⁸ partly satisfied.

The next few chapters will consider many examples of functioning social systems in animal and human societies. So great is the wealth of data on such matters that a full treatment is impossible; but the examples will serve to show that there are many instances of behaviour directed toward the welfare of groups larger than the single individual, behaviour which in human societies we call moral or altruistic. Simultaneously, we will be searching for those traits which under the analysis in chapter two would be expected in societies shaped by the process

of evolution by natural selection. Specimens of animal traits that are identical in content to human morality will be considered and will serve to reinforce the view put forth here that moral sentiments are indeed a Darwinian device necessary to most species, that they do not require rational faculties for their emergence, and that the evolution of the human species would have been impossible were it not for their prior existence in our earliest ancestors. If this takes the good will out of morality, then we are that much poorer; but if it substantiates a more accurate picture of human nature with respect to morals, then our gain will greatly meliorate the situation.

FOOTNOTES TO CHAPTER THREE

1. Leviathan, Book I, chapter 6.
2. The non-biochemist may visualise DNA as the fundamental self-reproducing chemical basis on which terrestrial life is founded.
3. Wilson, Sociobiology, p.120
4. A society can be taken as a group of individuals of the same species, organized in a cooperative manner, while a population is a set of conspecifics who occupy a clearly limited space at the same time and amongst which breeding is more or less random. For most cases treated here, an identity between the two may be assumed, but there can be populations within a society (India and South Africa, say) and several societies within one population.
5. Urmson, 'Saints and Heroes'.
6. Group selection covers both kin and interdemic selection, and refers to the selection of any unit greater than a single individual.
7. For a discussion of factors promoting the constancy of behaviour within societies, see Lorenz, Behind the Mirror, chapter 10.
8. Nichomachean Ethics, Book I, and Book X (6-8).
9. Use of the term 'primary qualities' does not imply acceptance of its validity. (For initial introduction of the term, see Locke's Essay Concerning Human Understanding, Book II, chapter 8; see also criticism in Berkeley, Principles of Human Knowledge, section 9 - 20).
10. For a description of this experiment, see Woodworth and Schlossberg (1954)
11. For an exposition of the notion that the mistake is a general fallacy of which the 'naturalistic fallacy' is a special case, see W.H. Frankena in Mind, 1939, reprinted in W. Sellars & J. Hospers, Readings in Ethical Theory.
12. G.E. Moore, Principia Ethica. See also Hume, Treatise, Book III, Part I, Section I on the is/ought question.
13. Quinton's essay appears in I.T. Ramsay's Biology and Personality. For Flew's response, see his Evolutionary Ethics, chapter IV.
14. The phrase is from Kenneth Hanly, 'Zimmerman's is-is: a schizophrenic monism', in W.D. Hudson (ed) The Is/Ought Question.
15. It can of course be challenged, e.g.: "It is your moral duty to stay somewhere cheaper and give the money to the poor." Even this proposition, however, would not give the individual a reason for acting unless it was in fact in accordance with his system of value.
16. The so-called Gestalt theory of perception. For details, see K. Koffka, Principles of Gestalt Psychology.
17. Richard Balguy, Foundations of Moral Goodness; Francis Hutcheson, Illustrations upon the Moral Sense, section I.

18. Cf. Joseph Wood Krutch: "Standards are imaginary things, and yet it is extremely doubtful if men can live well, either spiritually or physically, without the belief that they are somehow real." (The Modern Temper) The same principle guides Duncan Williams's thoughtful book, Trousered Apes.

Chapter 4

SOCIAL ORDER IN THE ANIMAL KINGDOM

"... social life is not an accident which appears sporadically among a few highly developed animals. It is a normal and basically widespread phenomenon."

W.C. Allee¹

A theory must explain our observations, and a theory of ethics phrased in terms of the evolution of altruistic and cooperative tendencies in group-dwelling or related animals would be idle if cooperation were never found and group-dwellers nowhere existed. The purpose of this chapter is to give examples of social cooperation in animals, and to emphasise the point (which contractarians such as Hobbes or Rousseau did not have the power to detect and which they would have found very damaging to their theories) that social life is found in a multitude of species whose rational powers are decidedly limited.

The ubiquity of animal social patterns is almost as great as the diversity of their forms. Accordingly, animal social behaviour can be of interest to philosophers only if these manifold varieties of pattern can be presented as the various expressions of behaviour which, by and large, has the same functional importance in each species. It is the content of social behaviour which is under scrutiny here, and not the multiplicity of its forms. For the sake of simplicity, we will treat here a small number of particular characteristics prevalent in animal social life. In this chapter we will be concerned with aspects of

group organization, and in the following chapter we will consider traits of cooperation and self-sacrifice more usually associated with morality.

Traits to be considered

The study of the determinants of animal social life is a recent one, but it has already filled libraries. Only the most superficial coverage of the subject is therefore possible here. In particular, we will be restricting our attention to the following determinants:

(a) The structure of animal social groups, including aspects of behavior conducive to social aggregation itself, systems of rank and dominance within groups, and the importance of characteristics such as age and sex in the determination of social roles.

(b) The maintenance of the group, including cooperative defence, isolation from other groups, and traits influencing dispersion of the members of the group.

(c) Altruistic behaviour, parenthood, sharing of knowledge and resources. These factors will be discussed in the following chapter, while (a) and (b) will be discussed here.

The structure of social groups

(1) Widespread nature of social life

Social aggregation seems to be an advantageous state, even in the simplest animals. W.C. Allee² suggests that even protozoa, minute creatures with very little learning ability and apparently no faculties for rational calculation, thrive best together. In conglomerations of a certain optimum size, they are able to survive the effects of toxic substances which would be fatal if administered in proportionate quantity to each separate individual. Allee concluded that the survival advantage of many forms of social life made it "inherent in living organisms."

At the other end of the size scale, Darwin himself observed the strength of social bonds in cattle.³ A herd he found in Uruguay numbered many thousand, although they were clearly assembled in small

groups of between fifty and a hundred, as the herdsmen knew. One night, violent electric storms caused the cattle to bolt and panic, breaking up the small groups. Psyche would have had an easier task sorting the seeds than attempting to restore the associations. Yet within another day, the cattle had found their old groups and were back with their fellows. The forces binding such companies seem to be of considerable power.

Between and beyond these extremes there are thousands of social species. The colonies of microorganisms, of social insects; the schools of fish and flocks of birds; the small social groups of mammals, including representatives from the carnivores, the herbivores, the primates, the ungulates, the land-borne and the water-borne. In each, a definite pattern of social life can be discerned, different for each species and even between varieties from each species, but nevertheless structured and regular; often highly cooperative and quite unlike the 'state of nature' upon which the classical social contractarians founded their ethical systems.

(2) Cohesive forces

In 1932 Solly Zuckerman proposed that the binding force of primate sociality is sexual attraction.⁴ In the cages of London Zoo, the males fought for possession of females, and there was to him no indication that the sexual stimulus was ever absent. Two centuries before, Hume had come to the same conclusion about human societies, that they were founded in the biological necessity of family life.⁵ Since the 1950s, however, the explosive growth of field studies has required biologists to abandon this unifying theory of social organization. Primates in the wild have sharply defined breeding seasons, and yet they remain in social groups: as Jane Lancaster and Richard Lee reported, "It is clear that constant sexual attraction cannot be the basis for persistent social groupings of primates."⁶ The same observations would undoubtedly apply to many other social animals, and certainly to our own primate species.

What is it then, which makes species form their social aggregations? There is probably no single factor which will explain it. A

great variety of behaviour seems to require the presence of other members of the species, whether feeding, sexual behaviour or even sleeping. The appetites for these and other behaviour need the stimulus of conspecifics for their satisfaction, it appears, in addition to the other stimuli.⁷ Social life is often secured by bonds of apparent affection between individuals. In many species, sexual pairing is for life,⁸ and in many more it is annual but very firm. Bonds between parents and offspring may be broken only by death: although animal relationships are generally more limited in scope and duration than human ones, it is nevertheless common to find members of a social group remaining together in that group for their lifetimes. Hence it seems that social life is not only highly prevalent in animals, but that animal societies are often powerfully cohesive.

The advantages of social life are many, and it is no surprise that natural selection has favoured it so broadly. The possibility of defence against predators is greatly enhanced by aggregation, as will be shown later in the chapter. Competition with other species for food or territory is made easier. The chance of finding new food sources is improved. Learning from successful individuals becomes a feasibility. Adapting the environment to suit species needs can be a reality. Increases in reproductive rates and early survival are also common outcomes of social life.⁹ So advantageous is this state, indeed, that selection has apparently favoured mechanisms to prevent the emergence and spread of nonsocial tendencies; for instance the infant monkeys separated from all others by the Harlows had difficulty mating and neglected their own offspring.¹⁰ Participation within the social group was an important ingredient in personal fitness; were a nonsocial tendency to arise naturally in this species, it would be unlikely to survive a second generation.

(3) Dominance and social structure

The backbone of many social organizations is the so-called dominance, rank, or pecking order. The latter name was coined by Schjelderup-Ebbe to describe the phenomenon in domestic hens, although the concept is older.¹¹ If a number of hens are placed in an enclosure,

antagonism and fighting commonly occur. Gradually, however, the overt aggression decreases and each individual assumes a place in a 'pecking order' such that he is dominant over those below him and submissive to those above. Sometimes this means that an individual is able to peck others without retaliation, but in other animal societies the pecks go both ways, although predominantly in a single direction. The rigidity of the order also varies in different species and circumstances.

The dominance concept has been useful in the study of many animal societies, from social insects up to the higher primates.¹² While irregularly distributed among species, dominance is found mostly among vertebrates and some invertebrates of large size, possibly because the degree of memory required to sustain any dominance relationship is to be found only in the more highly evolved forms.

Although sometimes linear, dominance orders are prevalently rather complex. Altman has noted from his field observations that rhesus monkeys engage in what Lionel Tiger calls "quasi-political coalitions and pacts" within the dominance order, and it is known that challenges to a dominant individual are frequently made by such concerted efforts by two or more less dominant ones.¹³

Factors influencing dominance position are many. Intelligence is certainly one, as Jane van Lawick-Goodall suggests with her story of the rapid rise in dominance of a chimpanzee with a clever way of scaring rivals.¹⁴ Masculinity may be another factor - the lowest-ranking female gull of one experimental group, injected with the male hormone testosterone, rose to the primary rank over all the males, in a matter of days.¹⁵ Rank orders nevertheless do exist between females in common cattle, where order is followed with 95% regularity, in Fraser Darling's red deer, in common sheep and many other species.¹⁶ The greater the cohesiveness and durability of a social group, the less pronounced are dominance differences, but in the unnatural surroundings of zoo enclosures, dominance disputes are more numerous and often much more violent. Additionally, the breeding season may see an increase in dominance disputes. Age is another factor; adults are dominant over juveniles.

Dominance relationships, then, are settled by inequalities. Although the philosopher may find such a system far removed from conventional notions of social welfare and unacceptable as a foundation for any system of morality, there are certain advantages of dominance orders without considering which it is impossible to appraise them.

The first is that the order, once settled, makes it clear where the leadership of the group lies. One can imagine that in the absence of this, there would be repeated conflicts about where to feed, when to sleep, what ranges to defend, and so on. Continual squabbling between individual for mates, food or space would be the norm. The dominance order offers an alternative, probably more peaceful way of settling such questions, so that they do not disrupt daily life. Dominant animals of some primate societies use their position to terminate fighting between lower-ranking individuals, an obvious aggression-reducing function of dominance orders.¹⁷ Although the order might be sustained by force, it reduces the need for force as a whole.

Second, a rank order is a powerful and unified barrier to outsiders. A chicken being introduced to an established flock, for example, represents a threat to each one, and so they all behave aggressively toward it, often until it expires. This is clearly a way of maintaining a partial breeding isolation of a society which, as we have seen in chapter two, can be necessary for the emergence of altruistic traits within that society.

Third, defensive formations are made more possible. Human armies are founded on strict observation of rank, and animal societies are often similar. It is often the dominant animal who determines the direction of group movements, particularly in the primates, and in systems where everyone knows his own function, defensive cooperation becomes highly efficient.

Fourth, the didactic nature of dominance and leadership assists the spread of new and improved practices through a society. When introduced to a new food (sweet potatoes), the Japanese macaques studied

by Kawamura copied the example of the dominant troop members and quickly accepted it. The opportunity for the spread of such innovations is probably larger in hierarchical societies with high levels of emulation than it would be in more uniform societies.¹⁸

Fifth, the dominance hierarchy offers compensations even to those of subordinate stature. Often they move up in rank automatically on account of age. Females and juveniles are outside the male rank competition and are rarely the objects of aggression; they are, in fact, protected better by the efficient defensive systems of the order than they would be in an unstructured group.

Lastly, the hierarchy usually enables the more intelligent, stronger individuals to oust others for mates. Consequently, there is an improved chance that these individuals will pass on their genetic characteristics to future generations.¹⁹

It is evident that the dominance order confers positive advantages on many species. Were we to discover a similar arrangement in human societies, we might be inclined to believe that these advantages are so powerful that the system could only be the product of rational calculation and the voluntary acceptance of that product by intelligent and foresighted people. And yet, here we find a similar system in the social groups of animals to which we ascribe no capacity for calculation, and certainly no ability to form contractual agreements. In the light of such observations, there is no alternative but to reconsider the foundations of human society and to question the extent to which they are in fact rationally derived.

(4) Age and sex in animal societies

As already pointed out, juveniles are usually at the bottom of animal rank orders, and very young individuals are outside them. Characteristically in primates, they are the object of defence; Hall and DeVore have noted that a baboon troop moves in an orderly way with females and infants at the centre of the troop and the males at the outside, except for the more dominant males who will be close to the centre.²⁰

As far as group fitness is concerned, this arrangement is clearly

advantageous to species where each sex is about equally represented in a social group. The younger males are less important to the inclusive fitness of the society, since one male could fertilize many females (particularly in the promiscuous society of, say, baboon troops). The very young infants and the females, however, would be much more crucial to group survival, since they represent the future generation of the society and continuing contribution to it. In free-ranging primates, it is broadly true that infants are protected, adolescents guard and explore, dominant males lead and keep order, females raise infants and keep order among them, and more senior males serve as useful and experienced members of the troop, while posing no threat to the dominant individual.

Again, the parallel with human society is striking. We also put a high value on the protection of women and children. "Women and children first" in times of danger is such a widespread conviction that any system of ethics has to take account of it. Our human adolescents, particularly adolescent males, are widely recognized to be rebellious, even reckless, and it is they who we send (or who volunteer) to fight our wars, just as in other primates they occupy a position at the bottom of the dominance order, and are to be found at the edge of a troop where they are in most danger.

Maintenance of the society

(1) Cooperative defence

Defence is probably one of the most important factors that has led to the evolution of group-dwelling. Konrad Lorenz in his celebrated book On Aggression notes that the simplest social aggregation is the anonymous flock, but that even in these gatherings, defensive mechanisms are often impressive. Starlings, for example, fly in close formation when a hawk threatens above them; a diving hawk would be in great danger of personal damage if he tried to attack one, because he would almost certainly hit others. Similarly some predatory fish find it difficult to catch school fish because of their rapid movement in all directions. A dog in a rabbit warren (unless trained to follow only one rabbit) suffers the same problem and is rarely successful.

In some social insects, defence depends not only on behaviour but on caste. The termite-hill is guarded by a caste of soldiers, much larger than other individuals and equipped with large serrated mandibles. The term 'caste' is, according to Manning, "well suited to describe the division of labour within insect societies. It implies a rigid, limited role... largely determined by one's upbringing."²¹ Defence in many insect societies relies on this division of role. On occasion, other cooperative ventures are possible only because of the morphological differences, and cooperation based on behavioural distinctions are common.²² Furthermore, the defense of social groups can be regarded as highly altruistic in many animal societies. The reputation of bees as an ill-natured species hinges on their willingness, despite loss of individual life, to sting large animals near the hive.

Defensive formations can be developed more highly in those species where individual recognition and dominance relationships are possible. Allee in The Social Life of Animals notes that baboon troops are often ordered in the distinctive way outlined by Hall and DeVore, and that when a warning cry reaches the ear of the dominant member of the troop, he acts swiftly to assemble the other dominant males, arrange the males on the outside and the females with their young inside a defensive ring.²³ As already mentioned, the success of such formations is a function on the differences in behaviour shown by individuals according to age, sex, and other factors. Were it not for those factors, defence would be difficult.

(2) Territoriality

A 'territory' is an area of space, whether earth or water or air, which an animal or group of animals defends as an exclusive preserve. The importance of the territoriality trait in animal societies is hotly disputed by ethologists and psychologists, many of the latter insisting that territoriality is learned rather than acquired genetically, and disputing the inevitability of territoriality and the aggression which sustains it.²⁴ Whatever the origin of the phenomenon, however, there are a number of fiercely territorial species; and whether inevitable or not, the history of mankind must have convinced us of the predominance of territorial and aggressive conflict.²⁵

The defence of territory by individuals or breeding pairs can take quite different forms from one species to another. It may be more or less aggressive, more or less widespread, and more or less seasonal. Territoriality is, however, normally a male function either in these cases or in the case of group territory defence against other groups. The overriding importance of territoriality in animal social repertoires can be illustrated by the single example of Tinbergen's studies of nesting flocks, where the male is easily distracted from his mating activities if his territory is threatened by another male.²⁶ Like dominance orders, individual territories serve a number of subtle functions. The defence of breeding territories can give each pair a sufficient range for foraging to feed themselves and their offspring: feeding within territories may require less energy and involve less aggression than unrestrained competition; the number of species members on any particular foraging site is regulated by territorial defence so that over-utilization of the site's resources becomes less likely.

Examples of group defence are well documented. Not all the areas visited by any particular group are defended in such an arrangement, however; baboons for instance seek a specific sleeping place in the trees, which is defended against others, but waterholes are commonly shared between groups without fatal conflict.²⁷ Territories can be rather flexible, and the territory of any group may change from time to time depending on many conditions and upon the internal state of the group. Their extent is settled by fighting (though rarely by fatal fighting) with neighbours, and their limits are often marked by scent or other secretions which warn others.

All this is defence against conspecifics. By contrast, on a tropical reef, several dozen different species may exist side by side, but each species defends its own portion of the reef against other members of the same species, identified by the bright markings typical of coral-feeders. Other species are tolerated in an individual's territory, and this gives us the clue to the function of the intraspecific defence. Territories serve to space out a species, ensuring that populations do not grow to be too concentrated for the available food supply.

If other species do not compete for the same food (and the diet of most coral-feeding fish is highly specific) then they can be tolerated without harm being done. Territorial defence is a non-Malthusian mechanism of population control.

(3) Other dispersal mechanisms

There are many other instances of mechanisms to achieve the same results through different means. One is the migration of lemmings, springboks, the American grey squirrel and other mammals. This latter species grows to such huge numbers that periodic thinning increases the survival prospects of the species as a whole. The swarming of bees is another example of a dispersal mechanism. Parameters such as predation and disease limit the concentration of many species.²⁸

When overcrowding occurs, sexual and parental activities are among the first to suffer. Sexual abnormalities arise in crowded rodent populations, so compensating population growth. Infant mortality soars under these conditions, due largely to maternal neglect.²⁹

In some species, such as the magpies observed by Carrick and the red grouse studied by Jenkins, Watson and Miller, the animals unable to establish sizeable breeding territories do not settle for very small ones, but often do not breed at all. The advantage of this for the fitness of the group is clear; their attempts to raise nestlings in overcrowded conditions would be futile. It has already been noted that there is discussion in the literature about whether such behaviour is conditioned by individual selection or group selection; whatever the source, the fitness of the population as a whole is certainly improved by the restraint of the non-breeders.

Violent behaviour is often associated with severe overcrowding, although this is commonly found only in the laboratory, where species members have no possible route of escape from a crowded enclosure. Experiments by Steiniger and others on rats and Chitty on field voles have recorded the upsurge of fatal conflict at these times in startling detail. Eventually, of course, the violence leads to a reduction in the population.³⁰ In normal conditions, however, animals have inhibitions against seriously injuring other members of the species (except

in some fish and avian societies, where predation on the eggs or small offspring are common, but where the numbers of offspring born and hatched are sufficiently large to compensate). In normal conditions also, escape would be possible; but under artificial crowding, the usual inhibitions against seriously wounding conspecifics evaporate. Indeed, were the inhibitions retained in such conditions, the results as far as population survival is concerned could be much worse than they are. If similar behavioural mechanisms exist in human societies, then the prospects are ominous; most ethical systems would have difficulty when faced with a trade-off between violence and annihilation.

(4) Aversion to other species and groups

Aggression between neighbouring groups may be found in those species which defend group territories, and several examples are given (with full documentation) in Holloway's book Primate Aggression, Territoriality and Xenophobia,³¹ so that little more than marginal comment is needed here. 'Xenophobia' seems common to territorial species; monkey groups, for example, will move when they encounter higher-ranking groups. Macaques hold group territories of 20 or more square kilometers and show aversion to other groups. In human children, fear of and aggression toward strangers is well known.³² In the latter case, ritual shows of aggression against the outgroup individuals appear to increase the cohesion of the group itself. Xenophobia is not restricted to the primates; even invertebrate societies such as bees take precautions against intruders from other social groups.

Sometimes the xenophobia serves an obvious function, namely to prevent mating of different species or varieties whose offspring would be infertile or inadequately adjusted to the environment. Bird species which flock together have distinctive species colours, as individual as the national flags of human societies, which perhaps mark them as inappropriate for breeding one with the other. When two avian species share a dwelling-place, they commonly inhabit different parts of it, which helps to avoid interbreeding; in Britain, the chiff-chaff and the willow-warbler inhabit the same woodlands, but the chiff-chaff feeds in the higher trees. When combined with morphological differences, this

is sufficient to debar interbreeding. In other avian species, it is necessary for the calls of one partner to be answered by the other if mating is to occur; hence species-specific bird calls are a powerful mechanism for breeding isolation.³³

The illustration of the case of lovebird behaviour quoted by Dilger is an interesting one, and it shows the importance of partial breeding isolation with respect to the effective performance of behavioural traits. It is possible that altruistic behaviour could be affected in the same manner. Dilger cross-bred two varieties of lovebird, one in which nesting material was carried in the bill, and another which tucked nesting materials in the back feathers to carry them to the nest site. The hybrid offspring displayed confused behaviour. Occasionally they tried to carry and tuck; sometimes they tucked and then removed the materials, being unable to succeed in carrying anything at all. Similar maladaptive confusions appear in the bees cross-bred by Jones and Rothenbuhler.³⁴ Given such effects, it is easy to see why the American geneticist Theodosius Dobzhansky should declare that "The biological function of all reproductive isolating mechanisms is essentially the same - inhibition and eventual stoppage of the gene exchange between populations... Without reproductive isolation, species would disappear, submerged in a mass of genetical debris."³⁵ Perhaps this explains why in human societies, xenophobia remains a persistent feature of life, despite the attempts of reasonable men to demolish it. There is no problem of infertility when members of different races or cultures combine; but there may be real problems of cultural values and habits that would be difficult to reconcile. Even in the most integrated countries, inter-racial marriage is rather rare; and it is not altogether absurd to postulate a potent xenophobia with some beneficial effects, despite its appearance.

FOOTNOTES TO CHAPTER FOUR

1. W.C. Allee (1941).
2. W.C. Allee (1941).
3. On his famous voyage: the incident is recounted with helpful comments by Sir Arthur Keith in A New Theory of Human Evolution and in Ardrey, The Social Contract, chapter 3.
4. Sir Solly Zuckerman, The Social Life of Monkeys and Apes.
5. Hume, Treatise, Book III, Part II, Section II.
6. Lancaster & Lee (1965). See also Washburn & DeVore's (1961) comment that "Our data offers little support for the theory that sexuality provides the primary bond of the primate troop."
7. Hinde, Biological Bases of Human Behaviour, page 14. Specification of social behaviour in terms of such stimulus situations (and not in terms of a general 'instinct' for gregariousness or sociality) avoids a descriptive vagueness and is much preferred by biologists.
8. See, for instances, Lorenz, On Aggression.
9. For these and other advantages of sociality, see Wilson, Sociobiology, chapter 3.
10. Harlow and Harlow (1962).
11. Schjelderup-Ebbe (1922, 1935) began the most systematic work on vertebrates, but the dominance concept appears in Pierre Hubel's study of bumblebees as far back as 1802.
12. For reviews see Allee & Emerson, Principles of Animal Ecology, Eibl-Eibesfeldt, Ethology, and Wilson, Sociobiology, chapter 13.
13. Lionel Tiger, Men In Groups; a leading piece of observation on this is by Thomas Struhsaker (1970). See also Altman (1967, 1962)
14. The individual is the one called 'Mike' in van Lawick Goodall's book In the Shadow of Man.
15. Other examples of avian sex differences with respect to aggression are in Cullen (1957) and Hohn (1964).
16. See Dickson (1967) for observations of cattle. Sexual hierarchies are well known in diurnal prosimians and vervet monkeys, in which females are dominant over males (Cf. Sussman and Richard, 1974), as they are with the Sykes's monkey and other exceptional species such as the brown booby and the hyena.
17. For examples in primates, see Tiger, Men in Groups, chapter 2.
18. Kawamura (1963). When low-ranking males were given the novel food first, they adopted it, but its acceptance was very slow to spread through the troop.
19. For a review of the advantages, see Wilson, Sociobiology, pages 286ff; see also Tiger, Men in Groups chapter 2, passim.

20. Hall & DeVore (1965); see also Rowell (1969) and Manning An Introduction to Animal Behaviour, chapter 10; Hinde, Biological Bases of Human Social Behaviour, chapter 23.
21. Manning, An Introduction to Animal Behaviour, chapter 10.
22. For examples, see discussion of the weaver ant in Chauvin, Animal Societies, and comments on the leaf-cutting ant in Eibl-Eibesfeldt, Ethology.
23. Such observations have, however, been contested by some. Cf. Richard Dawkins, The Selfish Gene.
24. For the ethological view, see Lorenz, On Aggression, and Ardrey, The Territorial Imperative. For opposition, consult Montagu, Man and Aggression, and Hinde, Biological Bases of Human Social Behaviour, section E.
25. For impressive remarks on this see Tiger & Fox, The Imperial Animal, chapter 8.
26. Tinbergen (1953, 1953a).
27. DeVore, Primate Behaviour.
28. For work on this, see Solomon, Population Dynamics, and Wynne-Edwards, Animal Dispersion in Relation to Social Behaviour.
29. For sexual abnormalities, see Calhoun (1962); for maternal neglect, see Solomon (1969).
30. On rodent studies, see Lorenz, On Aggression. For Chitty's work, see Chitty (1967a, 1967b).
31. See also Wilson, Sociobiology, chapter 12.
32. For monkey groups, see Wilson (1968); macaques, see Chauvin Animal Societies; human children, Schmidt (1960).
33. Discussion of the chiff-chaff and willow-warbler appears in Manning, An Introduction to Animal Behaviour; bird calls in Thorpe (1961).
34. Dilger (1962); Jones & Rothenbuhler (1964); Rothenbuhler (1964).
35. Dobzhansky (1958).

Chapter 5

MORALITY IN ANIMALS

"...nobody with a real appreciation of the phenomena under discussion can fail to have an ever-recurring sense of admiration for those physiological mechanisms which enforce, in animals, selfless behaviour aimed towards the good of the community, and which work in the same way as the moral law in human beings."

Konrad Lorenz¹

This chapter is devoted to a series of examples showing that certain overt patterns of behaviour which fall within the scope of morality (as traditionally accepted and broadly defined) are exhibited by social animals as well as human beings. In particular, the traits which were outlined at the beginning of chapter four will be considered. Because of the fact that these tendencies are displayed by animals, it seems plausible that we should speak of morality, without inverted commas, in animals. Let us investigate the point.

Moral action from inside and outside.

Perhaps the most penetrating criticism of our considering morality as a set of overt activities would come from one such as Warrnock, who says that² "it seems that, when moral issues come up, there is always involved, more or less directly, some question of the doings or non-doings of rational beings." This, he says later on, is a necessary condition, since, "For one's doings to be a proper or possible

object of moral evaluation whether by others or by oneself," it must always be the case "that one should have at least some ability to perceive and consider alternative courses of action, to appreciate what is to be said for or against the alternative, to make a choice or decision, and to act accordingly." It is a simple fact that we do not normally ascribe such faculties to most animals.

The dispute, then, between Warnock's position and the one I wish to develop here is one of definition; Warnock starts from the point of view that morality requires rational powers. He believes that the definition of morality does not rest on a question of what overt behaviour is to be considered, but upon the necessity of conditions of free choice for the agent, power to consider alternative forms of action, and the ability to evaluate the possibilities on some ground associated with the advancement of the general welfare.³ Such a position has been characteristic of moral discourse, with the exception of the anti-rationalists of the Scottish School, perhaps, since the time of Plato. It has common-sense, even the evidence of introspection, to support it. Can this view be challenged?

To some extent, these contrasting positions are a matter of opinion. It is, I think, perfectly possible to brand certain kinds of actions themselves as moral without necessarily considering motives; indeed we do say that someone 'did the right thing' when he acted in a certain way, even though he may insist that he 'did not think about' his actions and, at the time, did not take questions of the general welfare into consideration. Further, it is possible to maintain that a commitment to the general welfare does not presuppose any rational faculties; a school of philosophy was founded on the notion that morality could be 'intuitively' recognized. Perhaps the most serious point, however, is that our introspection, as psychologists know, can be wildly inaccurate. It seems altogether probable that a man, in a situation where conflicting motives of self-preservation and altruism are resolving themselves, might confuse this momentary conflict with a rational decision process. If the altruistic tendency was

superior, as could well be the case because of the natural selection of altruistic traits, then the man might pride himself on doing what was 'against his own best interests' and will assume that this is the product of a rational choice based upon a high morality. Considering such situations from the inside as we do, it is difficult to avoid such self-flattery; but suppose that for once, we consider the same situation from the outside.⁴ It is under such a consideration that the identity between our own morality and the "physiological mechanisms which enforce, in animals, selfless behaviour" can be most clearly appreciated.

Let us say that a martian visitor came to our world, but that, unbeknown to him, his appearance is very frightening to our earthly species, his odour is repulsive and his breath is poisonous. At first, wishing to make contact with our species, he approaches a lone family who are enjoying a picnic in the corner of a meadow. He does not understand the motives of the family, but he will observe that the head of the family, being immediately concerned for the welfare of the others, will probably push them behind him, pick up a stone or any other weapon which is to hand, and make advances towards the intruder, albeit rather gingerly. As he gets closer, he might even attempt to hit the martian with his weapon, until eventually, the martian's poisonous breath overcomes him. I imagine that our visitor would be rather disappointed at this outcome, and might try to contact some other species, say a group of baboons who are a short trip away by flying saucer. As he steps from the vehicle, however, the same thing happens. The females and the young retreat behind the big males, who make threatening sounds and noises. Perhaps one or two of the larger animals will lurch toward him with the obvious intention of scaring him away, but again, they are overpowered.

What can the alien conclude? On the evidence of his senses, he would conclude that these two species are just alike; that automatically, an intruder like himself (whom he now realizes must be quite frightening to earthly creatures) is met by the large males in the family or group, while the others retreat under their protection. If

the martian is in the habit of handing out praise or blame, he would probably record in the log of his flying saucer that both acted very courageously and that both seemed to share the same moral ideals of self-sacrifice in the face of danger. But human beings would be less likely than he to call the baboons heroes.

Where two such similar pieces of behaviour are concerned, it would be unnecessarily complicated to choose the most difficult explanation - that one was the result of rational reflection, while the other was an innate behavioural trait - when a far simpler one - that in both cases, inherited altruistic behaviour accounted for the corresponding actions in both species - would suffice. We have already noted that the principle of natural selection would tend to produce altruistic traits in social species; why should we suppose that our own species should not be so? Why should we require any more complicated explanation for what we call morality?

Other reasons for the identity between moralities

Before turning to illustrate further cases of morality in animals, let me give some further reasons why the identity should be acceptable between animal and human morality.

Firstly, we recognize that animals have physical organs similar in function to our own. Most animals have eyes to see with, ears to hear with, noses to smell with. The same function is served by the corresponding organs, even though the dog may be insensitive to colour but can hear high-pitched whistles that we cannot. We still do not hesitate to call the animal's organ of sight an 'eye' nor his aur- al organ an 'ear', nor his olfactory organ a 'nose', even though these features may look quite unlike human ones. The same comparisons are used concerning behaviour; an animal is said to 'run' or 'jump' or 'bite'. When a dog is left on its own, it is said to 'pine', and when it has misbehaved, we often say that it 'looks guilty' as if it understands that it has committed a transgression (an appearance which does not suggest any element of fear of punishment, and which cannot be explained on those grounds). If these morphological and

behavioural descriptions are used for animals as well as human beings, then there can be little ground for objection that behaviour which in men we call 'moral' should not be so called in animals.

Secondly, a part of human morality is popularly visualized as a set of 'restraints' upon our 'base nature'. The moral man is the one who is able to override his 'self-interest' and help others, to repress their desires, however strong, to act selfishly. Precisely the same phenomenon can be detected in many animal species, as Lorenz has noted in detail.⁵ For instance, a chicken will attack any small animal which approaches her brood, a reaction which protects the nest from many predators. However, a deafened chicken will even attack her own brood; it is the characteristic 'cheeping' of the chicks which restrains the attacking urge in normal chickens. This, although it is a simple example, seems to be rather analogous to the notion of morality as a 'restraint' upon other motives.

Thirdly, moral behaviour in human beings is normally reckoned to be learned (at least in part) and to respond to praise or punishment. There can be no doubt that animal behaviour toward species members, including the response of the individual to the relations of age, sex and dominance, is learned in the social situation, at least in those species where instinct alone would be unable to support the life of the community.

In summary, there are sufficient points of comparison that certain animal behaviour which is similar to human morality should also be called moral. This point has deserved some detailed exposition, because its acceptance allows us to assert that the relevance of animal behaviour for human morality is not that the one has evolved from the other; for although this is certainly the case, the many events and forces which have shaped the evolution can never be known perfectly. Rather, its importance is as a direct analogue to human behaviour and a way of observing, in societies far simpler than our own, the selective advantage of certain modes of conduct that are the subject of human ethical enquiry.

Altruism and sharing in animals

Do animals show traits that are easy to accept as being 'moral'? The familiar example of avian 'distraction displays' seems to answer in the affirmative. A distraction display is a pattern of behaviour used to draw a predator (or any enemy) away from an object which the animal is trying to protect - usually eggs or young. One exemplar is the behaviour of the female nighthawk; when a predator is spotted, she deserts the nest, flying low and erratically, feigning injury; the prairie warbler flies from the nest and settles just in front of the predator. Many other distinctive displays are known. There can be no doubt that the individual performing this display suffers a greater chance of individual harm from the predator than if she merely made off. Certainly she exposes herself to the opportunity of the predator striking; and it may be that even if the parent stayed on the nest, quietly and inconspicuously, that she would be in a safer position. The success of her offspring, however (and hence the success of her own genetic constitution in future generations) is much benefitted from her distraction activities.

It might be objected that this is scarcely a case of what we call 'morality' in humans. These distraction displays are merely demonstrations of parental care, outside the scope of morality as such. Nevertheless, there are other cases where relationship seems to have little to do with the practice of altruistic activities. Many avian species have characteristic warning calls; when sighting a predator (say, a hawk) members of several species such as robins, blackbirds, and thrushes will utter the characteristic cry which encourages the other species-members in the vicinity to take cover or to take flight. Yet the utterance of the cry makes the individual who gives it more discernible to the predator; it makes him much more likely to be attacked and even killed. Although it is certainly true that many relatives of the caller might be within range of him, the degree of relation within a large avian flock is probably rather small. Very few of the individuals who benefit from the warning are likely to be offspring of the caller. In this case, therefore, some explanation beyond

parental affiliation is needed - such as a theory of interdemic selection. Quite how the trait arises, however, a subject which is under continuing dispute, is not important if we are to establish merely that such traits do exist in animal societies.⁶

Perhaps even less controvertible examples of animal altruism exist in mammalian species. When members of a herd of Thomson's Gazelle (a species of small gazelle living in Southern Africa) sight a predator such as a lion, according to naturalists Estes and Goddard, they break into a conspicuous, stiff-legged, leaping gait.⁷ This strange way of running is called 'stotting'. Other African antelopes seem to have the same reaction when they detect danger. This activity spreads quickly through a herd, and may be maintained for a distance of eight hundred yards or so, until the herd settles into its normal, and much more rapid, running gait. Estes and Goddard describe actual confrontations between gazelle herds and packs of hunting dogs in these words:

Undoubtedly a warning signal, it spread wavelike in advance of the (dog) pack. Apparently in response to the stotting, practically every gazelle in sight fled the immediate vicinity... every gazelle began the run for its life by stotting, and appeared to lose precious ground in the process... time and again we have watched the lead dog closing the gap until the quarry settled to its full running gait, when it was capable of making slightly better speed than its pursuer for the first half mile or so. It is therefore hard to see any advantage to the individual in stotting when chased, since individuals that made no display at all might be thought to have a better chance of surviving and reproducing.

This does indeed seem to be a case of animal 'altruism'; the individual which performs the action places itself at much greater than the normal risk, according to Estes and Goddard. If it began its full running gait immediately, it could escape much more readily. The display is nevertheless of benefit to others; it is highly conspicuous, and serves, apparently, as a warning signal to other members of the gazelle herd. Upon seeing this, the others join in and spread the signal in like manner. Accordingly, the behaviour may be described as an altruistic alarm display.

When we are considering mechanisms of kinship or group selection,

it is often difficult to distinguish the benefit or the loss to the individual which practises an apparently altruistic act. It is possible that the stotting Thomson's Gazelle, although apparently at higher risk, in fact enjoys some advantage. For example, predators may be confused by the movement of a whole herd, and so the advantage would be with an individual who raises the alarm. Also, if the animal detects the presence of a predator at some distance, it would be advantageous to start flight immediately, before the predator approaches nearer, and the conspicuous stotting might elicit a chase which the predator will soon give up because of the distance between him and his quarry. A third hypothesis comes from Richard Dawkins's book, The Selfish Gene. It is suggested there that the stotting behaviour is actually selfish, because the high leaps of the individual gazelle demonstrate to the predator that he is agile and speedy; the gazelle is saying "don't bother to chase me, I can jump this high!" Such a hypothesis is clearly mistaken, however. The high stotting, and the flashing of the white rump which is a feature of it, does seem to invite pursuit from the predator. Furthermore, stotting would seem to be of little advantage to an individual if he continues it for so long; the gazelle's natural ability to outpace most predators would seem to be a much better signal to the predator about the escape potential of the individual than would any high stotting, during which the gap between prey and predator is closed. Lastly, the Dawkins theory does not explain similar altruistic traits in other species. Does the female nighthawk, falling as if crippled before the fox, really demonstrate to the fox that she is so sprightly that she is not worth pursuing? Does the man who rescues a child from a burning building really wish to show the flames that he is not the sort to be cowed? To hold that these acts, and the action of the Thomson's Gazelle, are merely instances of a selfish display, is to cling too desperately to a dogma. The original sources on the gazelle controvert the 'selfishness' hypothesis, and the familiar cases of other animal altruistic actions demolish it entirely as a unitary explanation of individual behaviour.

Once again, we see the importance of distinguishing group selection processes from the traditional notions of 'survival of the fit-

test', which are usually equivalent to 'survival of the fittest individual'. Selection, however, can operate at a level higher than the individual, although transmission of any characteristic must be an individual-to-individual affair. The evolution of sterile worker castes in beehives causes no great concern to the population genetecist; the selective fitness of the hive as a whole is maintained under the present arrangement. Similarly, there should be no puzzle about the existence of altruistic behaviour, arising uniformly or randomly inside a colony or herd. Explanations of altruistic behaviour that rely on principles of a universal selfishness are unnecessarily complicated.

Many further instances of animal co-operation or altruism can be given. Mowrer demonstrated that a laboratory rat would exert itself so that both it and other rats may feed: Daniel also discovered that a rat would take turns with others in sit on a platform which acted as a switch that disconnected an electric shock given to the animals who were feeding elsewhere in the cage.⁹ Church has complemented this finding with evidence that rats are sensitive to the discomfort of con-specifics and will forgo food in order to save another from electric shock, administered when the first animal began feeding.¹⁰ Rice and Grainer's work revealed that one animal would do work in order to release another from a precarious position; Hanson and Mason discovered that chimpanzees would change their established preferences and habits in order to save others from electric shock.¹¹ Wechkin, Maserman and Terris showed that hungry monkeys were subject to the same kind of resistance to discomforting others as Church's laboratory rats, in that they would forgo feeding if it entailed the simultaneous shocking of another monkey.¹² Some avian species co-operate in caring for the clutch, with one parent sitting in the nest while the other finds food for them both. Knight and Knight have quoted the case of one such arrangement where a female pigeon was killed by a cat soon after the young had been hatched. The male continued to take his own regular turn on the nest, even though the fledgelings had died of cold during the absence of the female.¹³

Co-operation is also shown in the form of playful activities. It

is generally recognized that during play, the individual learns skills which will be of subsequent use for his own survival; and therefore play is important to many species. But play-fighting predators have stringent inhibitions against biting each other, as Eibl-Eibesfeldt has illustrated in polecats and other animals. The inhibition on biting during play is characteristically linked with an absence of the threatening behaviour which accompanies a real conflict; this is true in any play-fighting predator.¹⁴ Squirrel monkeys, according to Winter, Ploog and Latta, will squeak continually while at play; should the squeaking stop, it indicates that a serious fight has started. The squeaking seems to be a kind of signal that co-operative, playful behaviour is being followed, and that no serious intentions are present.¹⁵ Squirrels themselves play chase or escape games; young deer play territorial games rather like our own 'king of the castle', and similar games occur in other territorial species. Each instance of playful behaviour requires a co-operation and understanding between the partners in the play; it is a co-operation which is necessary for the play to occur, and therefore, since play seems to have a didactic function with respect to later activities, is necessary for the future development of the animal. In many cases, it is clearly the product of an instinctive mechanism, requiring signals like that of the squirrel monkey to be effective. Animal species are fully able to play games and to follow certain 'rules' of behaviour in those games without any conscious agreement; co-operation is an outcome of the interaction between instinct and early learning and is common in animals.

Care of wounded and infirm.

Natural co-operation in animals extends to the care and attention of wounded or infirm species members. There are many recorded cases of apes carrying away wounded companions, as in the reports of Alverdes.¹⁶ Elephants have a particularly strong compulsion to assist-wounded conspecifics, deploying tusks to prompt another to its feet, it appears.¹⁷ Terns fly around a wounded conspecific; if it struggles, they will circle wildly, and according to Konrad Lorenz, if it is severely injured, they will attack and hasten its death. Dolphins will

come to the aid of wounded ones and will raise them to the surface of the water on their backs, so protecting them against shark attacks and allowing them to breathe, report Siebenaler and Caldwell.¹⁸ David Lack records the case of a blind pelican who was kept alive by the endeavours of the others in feeding him continually.¹⁹ It is easy to see the evolutionary advantage of such altruistic helping. Even if the general rule is inappropriate in some instances, such as Lack's, it would be, on balance, of selective advantage for group-living species to take care of their wounded or infirm members under most conditions.

Symbiotic relationships

Mutual assistance crosses species boundaries. Birds of one species have been known to 'adopt' the nestlings of a neighbour which has abandoned them or which has been killed, even though the nestlings need not be conspecifics. Pilot fish are almost never seen alone, but always with mantas or whale sharks, and clean the body and mouths of these hosts, an arrangement which keeps the host fish free from disease and provides the small pilot fishes with food. Cleaner fish (Labroides dimidiatus) have developed a 'language' to communicate with the host, rapidly tapping the larger fish with their ventral fins in order to keep him aware of the region being cleaned and thus preventing any unintended mishap. The fish living on coral reefs will even travel to take the services of the small cleaners. Eibl-Eibesfeldt records that "we once observed that at times the fish actually crowded around cleaner stations. Various species awaited their turn, and as antagonistic as these fish are at other places in the reef, they were peaceful here. The cleaner station was, so to speak, a barber shop on the reef, owned by all and therefore neutral ground."²⁰ On dry land, the same hygienic cleaning is practised by oxpecker birds on zebras, rhinosceros, cattle and other large animals, which will stand silently and passively throughout the operation, in response to the calls of the birds. Other avian species can be seen near to herd animals at all times, picking up insects in the air. Insects themselves work in similar harmony; ants will tap greenfly with their antennae to stimulate them to secrete their sugary milk; some aphids can no longer remove the milk from their bodies without stimulation from the ants. These aphids are protected ag-

ainst predators and cared for in other ways by the ants, who will make roofs for them out of earth and bring winter eggs into the lower part of the anthill for safe keeping.

Defensive alliances between species are commonplace. Perhaps the most unusual is the relationship between the hermit crab and the sea anemone, the latter often attaching itself to the shell of the crab. The crab is given an increased measure of protection from the stinging filaments of the anemone, and the anemone is able to scavenge food particles from the prey of the crab.

The precise nature of the selective pressures which generate these altruistic symbioses is, again, open to question. Trivers has attempted to show that reciprocation between individuals of different species may account for most of the phenomena of cleaning in coral-dwelling fish, for example. Cleaners tend to be site-specific, hosts tend to use the same cleaners repeatedly, and the length of life of the cleaners is sufficient to allow discrimination of 'cheaters' - that is, hosts who do not reciprocate, but who make a meal of the cleaners once they have finished their task. Whether this explanation is correct, or whether there is a process of selection acting upon clusters of species (in this case, the functioning unit formed by the hosts and the cleaners) it is evident that the biological selection of altruism seems to operate in such cases.

Intraspecific aggression and morality

It has been mentioned already that aggression in animals and probably in human societies has a number of positive functions, in terms of species dispersal and the maintenance of a strong dominance order which in fact reduces the total amount of aggression likely to be manifested in any society. The fact that these positive, group-uniting functions of aggression have been long ignored by moralists and philosophers explains the formulation of many inadequate theories of social life. For example, Rousseau presumes that aggression is common between animals (or between presocial men) and that one of the functions of a rational social contract is to inhibit aggressive tendencies on a multi-

lateral basis, such that social life without mutual harm becomes possible. Philosophers and anthropologists alike (the latter being typified by Ashley Montagu in his chapter of Man and Aggression) have often assumed that the ability to control aggressive characteristics is what distinguishes human morality from the 'immorality' of animal species.

Yet this view is entirely mistaken. Animals very often show marked inhibitions upon aggressive traits. The aggressive tendencies within species are an important part of social life - so important that it would be difficult for animal social groups to survive if they were extinguished completely - and in situations where aggression would be maladaptive, it is often suppressed by a specific inhibitory mechanism. It will be useful to review some examples of this sort of inhibition, which is so analogous to human morality and which confounds many traditional divisions between animal and human behaviour.

Aggressive conflicts in territorial species serve to disperse the members of a population. It would, however, be maladaptive if the members of any species fought to the death over some territory; and so, while the aggressive tendency is never wholly absent, special mechanisms to prevent harm to each of the combatants are commonly seen in animal territorial conflicts. It is actually quite rare for animals to fight to the death with conspecifics, although this is well known in zoos and enclosures where a defeated individual cannot withdraw. In more natural environments, however, there is nearly always an inhibiting mechanism. Wolves certainly do fight, for example, with bared fangs and upright ears; but the weaker opponent will eventually show his defeat by turning away the fangs and laying down the ears, and by turning the nape of his neck to the superior combatant. Although this is his most vulnerable part, the superior animal will not continue the attack after such a signal has been given. Accordingly, the loser's action is often called an 'appeasement display' because it inhibits the aggression of the winner. Darwin also noted the same phenomenon; an aggressive individual attempts to make himself look larger, raising the fur (or fins) and ears. The submissive posture is exactly antithetical; the individual makes himself as small as possible, often crouching

to appear even smaller.

Territorial conflict in cichlid fishes has been well documented, and affords us another illustration of the phenomenon.²¹ This species uses highly stereotyped - or 'ritualized' - mechanisms to indicate threat. A species member will threaten possible rivals by spreading the fins, which are large and brilliantly coloured, apparently for the purpose, by showing itself broadside on, and making itself look very large. At the same time, the individual beats its tail, generating a pressure wave in the water that serves to inform the other of its strength. Only rarely do the two actually come into contact. If fighting does occur, it is rarely damaging, usually taking the form of a harmless pushing match with the two individuals locked mouth-to-mouth. Since the mouth parts of cichlids are thick-skinned, this conflict is unlikely to injure either partner. When the match is settled, the defeated individual will collapse his fins and change colouration; the cichlid Tilapia marie, for instance, changes from its conspicuous normal colouration to the dull juvenile colours, which provide excellent camouflage and which seem to defuse the aggressive tendencies of the other individual. Few species will attack the young of their own kind, and this particular species apparently takes advantage of the fact.

These ritualized conflicts pose a moral problem. Why should the winner be inhibited against finishing off his rival? For the rival may return on a subsequent occasion to fight again, possibly even defeating him. The winner exposes himself to some risk (if not physical, at least in terms of his ability to hold a territory and breed successfully within it) by his inhibition. Assuming that we do not credit fish and other creatures with the power to evaluate the impact of their inhibition upon the whole species and upon their own long-term survival, evolutionary considerations are required to explain the behaviour. Interdemic selection would certainly yield such traits; kinship selection would also, provided that by not killing a defeated opponent, an individual would be likely to preserve the bearer of some genetic characteristics which were shared by each party to the dispute.

If such traits are adaptive in animals, then what of human mor-

ality? If, as it seems fair to say, inhibitions upon damaging aggressive conflicts can be explained in animals by evolutionary selection, it may be possible that they can be explained in human beings by the same principles. To be sure, human morality is accompanied by a large measure of rational reflection about the consequences of any action, the possible effect if everyone did the same, and so on. But it would appear to be possible that these rational activities are an elaboration of traits laid down by human evolution, and not something in complete opposition to evolutionary characteristics (as Huxley's opposition of the 'moral process' and the 'cosmic process' would suggest).

In summary, then, not only aggression but also certain inhibitions against the use of aggression are both products of evolution, necessary to a functioning social life. The situation is described by Lorenz: "The problem thus presented... is always solved in the same manner: the generally useful, indispensable drive remains unaltered, but for the particular case in which it might prove harmful, a very special inhibitive mechanism is constructed ad hoc."²²

Inhibitions on fighting between the sexes

The females of many species could be at the mercy of male aggression (since it is more frequently the male of the species which acquires and defends territory). Again, Lorenz's ad hoc inhibitive mechanisms are to be seen. Dogs, for example, will never respond to an attack by a female, except to turn away. So too has the wolf, Dante's 'bestia senza pace', developed the same inhibitory mechanism.

Other mammals share this reluctance of biting females. The hamster male is much heavier than the female and has sharp incisors. During the short mating period, the female can be very aggressive towards the male, but he never defends himself against her assaults. In confinement the female could (and often does) kill the male after mating, so strong is his aversion to responding.²³

Non-mammalian species share this inhibition, like the bullfinch,

which never responds to the attacks of his mate. Reptile species are similar. When Kitzler and Lorenz²⁴ painted a female emerald lizard in male colours, and introduced her into a male's territory, she elicited immediate attack, and he rushed at her with the obvious intention of biting. "Then," recalls Lorenz, "he perceived the female smell of the painted lady and checked his attack so that he turned a somersault over her. Then he examined her carefully with his tongue and took no more notice of the fight-eliciting colours - a considerable achievement for a reptile." The same author goes on to note that the female emerald lizard does not take advantage of the male's inability to attack but will, on the contrary, fall in submission before the youngest and lightest male.

Inhibitions against aggression toward juveniles

I have pointed out in the case of the chicken's aggression against small creatures moving in the vicinity of the brood that the maternal behaviour of some species depends upon ad hoc mechanisms to suppress aggression. This seems to be true in many species; European dogs almost never attack puppies, and infantile behaviour is used in many dog varieties as an appeasement gesture which prevents combat or ends it immediately. The same sort of inhibitions occur in non-mammals, such as the night heron, for example, where an adult male makes aggressive moves towards any juvenile which has invaded his territory, an attack checked immediately by the characteristic 'begging calls' of the young bird.

It is also hypothesized²⁵ that certain characteristics of young mammals make them attractive to adults, eliciting maternal behaviour; such characteristics include the proportions of head to body, puffed-up cheeks and body-characteristics which are used by human illustrators to create 'lovable' characters. Of course it may be that our affection for these general characteristics is transferred from our specific love of human infants, rather than the other way around; but the widespread nature of the characteristics in mammalian species suggests that this is a simple and general response in all mammalian par-

ents. Furthermore, whatever the source, it seems that the relevance of this set of examples for human morality is that animal species simply do treat infants differently from others, and just do treat members of the sexes differently; and that there is a biological reason why this should be so. So we must question the assertion, which some moralists have thought that they could take for granted, of equality of treatment as a moral ideal. Given the function of dissimilar treatment, which we can see in animals species, this question must be raised; and it will be discussed more closely during later chapters.²⁶

Other examples of inhibitions

It would be verging on vacuity to say that aggression is effective in animals except when it is ineffective. Nevertheless, there are many instances in the animal world where intraspecific aggression is checked by inhibiting mechanisms or where it does not occur. Such instances are of interest to philosophers because they are strikingly analogous to situations in human societies where traditional, received morality says that actions similar in form to the animal behaviour patterns that are exhibited in those cases are appropriate in the human situation. One such case is the deep inhibition against a predatory animal taking a member of its own species as prey. Such a restraint is of clear importance in those pack animals, like wolves, where adult members of the species have advanced natural weaponry. Most animals will not eat the flesh of a conspecific, and this is true in the human situation also (except for some very limited cases of cannibalism, most of which is practised for ritual reasons and is not engaged in without strong ceremony²⁷). Some birds of prey will consume conspecifics in captivity but probably not in the wild; herring-gulls will consume chicks which wander on to their territory, it is true,²⁸ but they will also attack any small predator. Gulls never attack their own chicks.

Inhibitory mechanisms are many and varied: baboons of either sex will often ward off an attack by presenting the hind-quarters, a sign of sexual submission, and it has been noted by at least one

popular author²⁹ that similar, if less extreme, practices reduce aggression in human societies. Another, completely different, inhibitory mechanism seems to be that of individual distances, a phenomenon common in mammalian and avian species (but not reptiles) in which the members of the group, like gulls or starlings sitting on a wire, keep just outside pecking range from each other. Human society considers it 'impolite' to intrude too near to another person; and the lines drawn across the floor of the House of Commons, over which no member is allowed to tread while speaking, are exactly two sword-lengths apart.

Parental conduct in animals

Parental conduct is an example of a pattern of behaviour in which one individual cares for the welfare of another, often for a period of many years. Its position as an explicitly 'moral' relation cannot be doubted in human beings, even though we usually think it impossible that any normal parent would act in any other way than to care for her offspring just as long as was necessary. The same type of behaviour can be seen in a great many animal species, except those such as fish and reptiles. Of course, the examples most strikingly similar to the human all occur in mammals.

The function of parental behaviour is, of course, the protection of the infant until it is able to fend for itself; although the observation that some animal species are quite able to take care of themselves at birth suggests that a long period of parental care may have some further, group-uniting function, and a function to allow the education of species members in those species where instinct has a smaller role in social life.

When nursing young, as shown by studies of post-natal activity in mice, cats, monkeys and many other species, the mammalian parent changes her behaviour towards others, not only the infants themselves, becoming much more defensive about the nest. Then, as the young develop and begin to explore their world, the parent typ-

ically becomes more vigilant and certainly more actively engaged in restraining them. Retrieval has been studied in many different mammalian species by a number of investigators, and work on this and other similar phenomena associated with parent-infant relationships reveal the similarity between much animal behaviour and parental conduct in human beings. In our own and other mammalian species, the parent-child bond seems to last indefinitely long.³⁰

Once again it might be objected that parental conduct does not deserve the description 'morality'. However, this behaviour seems to be highly selfless, and it is difficult to know what else to call it. In large mammals, including man, the period of dependence may last for many years, during which social skills necessary to the later life of the infant are learned and developed. The investment by the parent in her offspring is major, and places her own survival at risk. The kinship selection aspects of parental behaviour are obvious; the parent's genetic constitution will be much more likely to be represented in subsequent generations if her own offspring are protected, encouraged and trained: nevertheless, there are many other occasions where an individual raises the inclusive fitness of his relatives by some actions, where we would still call the action 'moral', or 'altruistic'. Parental behaviour is of such duration and intensity that it perhaps deserves this label better than most.

Imprinting and the acceptance of ways of behaving

According to Waddington in his book The Ethical Animal, men are 'ethicizing beings' and they accept norms of behaviour, like language, through the emulation of their parents and social group. Although attempts to teach language to animals have not been overwhelmingly successful,³¹ there is strong evidence that many species do learn socially reinforced ways of acting while very young. Experiments by the Harlows on infant monkeys have revealed that deprivation from contact by parents or peers can lead to lasting disruption in animal social behaviour; and in human infants, according to John Bowlby, long maternal deprivation can cause lasting behavioural abnormality and severe disturbance of the ethical values of an individual.³²

The phenomenon of imprinting, discovered by Konrad Lorenz demonstrates that much behaviour can depend on incidents during a certain 'critical period', usually at the beginning of life. Hence, hatching chicks will 'imprint' onto the first large object they see, usually the parent. Experiments by Lorenz and others have imprinted chicks onto many different objects, even patterns and configurations. The infant remains attached to the same object for the first few months or years of its life, will follow the object and show signs of distress when it is not to be found. But the real importance of the phenomenon in ethical terms is that future social behaviour may depend upon imprinting. Young jackdaws raised by hand perform abnormal mating behaviour; Klinghammer's³³ ring doves which were so raised attempted to mate with human hands. By exposing ducklings to drakes upon hatching, Hess has³⁴ induced homosexual behaviour.

Once again, we find that these observations - and they are a very brief pick of many examples which could be chosen - raise questions about human ethics. Were our own sexual behaviour (or any other behaviour or set of values that come within the scope of the moral philosophy) to be so determined by early upbringing, as Bowlby's evidence in particular suggests is the case, then how do we judge this behaviour? Is the disapprobation which most societies place on abnormal activities appropriate in the case of behaviour over which the individual has no control and of desires which the individual cannot suppress? Are we not to reserve our blame (or, in other circumstances, praise) for the parents of the individual for being negligent in allowing such abnormal imprinting to occur? These seem to be important ethical questions, which deserve closer consideration.

Summary

After considering the widespread nature of social life in animals, and the existence of altruistic tendencies in many social species (of which only a very few examples are possible here) it becomes clear that the traditional dichotomy between human 'morality' and ani-

mal 'instinct', regrettably still accepted by many who are not well informed about biological and ethological concepts, is in need of repair. There are many traits, from food-sharing through defensive cooperation to the inhibition of aggressive tendencies, which are observable in animals and in human societies. Although it may be that in human groups, the consequences of any action are considered much more thoroughly than by animals, it remains true that there are many similarities in the content, if not the expression, of human and animal social life. Since selection can operate upon groups larger than the single individual, this similarity, and the tendency of certain behaviour to promote the interests of a kinship group or population, is less than surprising.

Animal altruism raises the fitness of a group on most occasions, despite personal risk or loss of life by the altruist. Bees of certain species will defend the hive fiercely, stinging large mammals which approach, even though this causes them to forfeit their own lives in the process, since the barbed sting remains in the victim and tears out part of the bee's viscera. Yet the fitness of the hive as a whole is undoubtedly improved by this self-sacrifice by its members. Similarly, human morality is often defined in terms of the welfare of the society or population.

Even behaviour that is classified as 'immoral' by traditional moral codes can be seen, in animal societies, to have a functional purpose. Aggression, for example, has many purposes, including the dispersion of territorial species, which prevents exhaustion of the available food and water supplies. When we observe this functional aspect, as we are able to do in the simple societies of many animals, we may begin to question whether the same 'immoral' behaviour in human beings, which is subject to vilification in civilized societies and rationalistic philosophy, but which is so difficult to remove, does not in fact have an important functional component, of which we must be aware before we are able to make any useful evaluation of it.

Similarly, the aggressiveness of animals is sometimes limited by ad hoc inhibitory mechanisms that come into play when the important,

general drive is inappropriate. This again is very similar to the human conception of morality as a restraint upon other drives and desires. Yet such restraints in animals have emerged spontaneously, according to the pressures of natural selection, and without any rational reflection being necessary on the part of the individual animal, and sometimes, where no rational reflection would be admitted as possible by members of the species. We may begin to reflect upon how our own morality, so often regarded as a conscious and rational choice between alternatives, and a conscious and rational inhibition of rather broad and general personal drives, is limited by natural constraints that have emerged in the long course of human evolution. Animals are guided, through tendencies implanted by similar selection processes, to act in ways which we often feel forced to admire - in helping other species members, caring for offspring, and defending the group, for example - and so much is the survival of the group as a whole advanced by these traits that it is difficult to avoid comparisons with human morality.

Certain other philosophical problems arise from this ethological approach. One is that animal social life seems to rest upon the functional nature of individual action, and not the similarity of action of all the individuals in a population; it is, for example, the very inequality of the dominance order which allows some animal societies to flourish. What, then, is the functional importance of inequality in human societies, if there is any at all? What are the limits to which a degree of political inequality will be functional? Are the differences of age and sex as important to moral relationships in human societies as they are in the higher mammals? Are we justified in treating such qualities differently for functional considerations? And what is the vehicle of selection to which we must refer our functional considerations - the family, a social group, a population, or some other aggregation, or even the whole species? These are the sorts of question which are undoubtedly of interest to moral philosophers, but which rest on an empirical, ethological foundation. But before we can begin an answer, we must establish that evolutionary considerations are truly as important to human nature as they are to animal nature.

FOOTNOTES TO CHAPTER FIVE

1. Konrad Z. Lorenz, On Aggression, chapter VII.
2. Geoffrey Warnock, The Object of Morality, chapter II.
3. As he suggests strongly in Contemporary Moral Philosophy, chapter V, section (ii).
4. Cf. Malinowski, who insisted in The Sexual Life of Savages that the account of a particular society given by a member of that society must necessarily be inadequate.
5. On Aggression, chapter VII. This is discussed more fully later in this chapter.
6. For views on the debate, see Maynard Smith (1965), Williams (1966) and Trivers (1971).
7. Estes and Goddard (1967). See also descriptions of the same phenomena in Ardrey, The Social Contract, chapter 3; and Wilson, Sociobiology, chapter 5, also Estes (1967).
8. Estes & Goddard (1967).
9. Mowrer, Learning Theory and the Symbolic Process. For descriptions of this and other work discussed below, see Stuart Dimond, Animal Social Behaviour.
10. Church (1962).
11. Rice & Grainer (1962); Hanson & Mason (1962).
12. Wechkin, Maserman and Terris (1964).
13. This incident was first noted by Lorenz in the Journal. Ornithologie Berlin (1935) and recounted in English by E.S. Russell, The Directiveness of Organic Activities (1946) and by Knight and Knight, Modern Introduction to Psychology, chapter XIV.
14. Eibl-Eibesfeldt, Ethology.
15. Winter, Ploog & Latta (1966).
16. Alverdes, Social Life in the Animal World.
17. Berger, In Afrikas Wildkammern als Forscher und Jaeger.
18. Siebenaler & Caldwell (1956).
19. David Lack, The Life of the Robin.
20. Eibl-Eibesfeldt, Ethology, chapter 15.
21. For reviews of the work done on the behaviour of this species, see Eibl-Eibesfeldt, Ethology, and Konrad Lorenz, On Aggression, chapter IV, chapter VII.
22. Lorenz, On Aggression, chapter VII.
23. See Eibl-Eibesfeldt (1953), recounted in his Ethology.

24. Recounted in Lorenz, On Aggression, chapter VII.
25. See, for example, Eibl-Eibesfeldt, Ethology, chapter 20.
26. See below, chapters 8, 10, and 11.
27. Cf. Herman Helmut, 'Cannibalism in Paleoanthropology and Ethnology' in Ashley Montagu (ed) Man and Aggression.
28. On this question see Tinbergen, The Herring Gull's World.
29. Desmond Morris, The Naked Ape, chapter 2 and passim.
30. See the work of Barnett, A Study in Behaviour; Beach & Jaynes (1956); King (1958). Other studies are referred to in DeVore, (ed) Primate Behaviour, and H.L. Rheingold (ed) Maternal Behaviour of Mammals. For a lighter treatment of parent-child bonds in chimpanzees, see Van Lawick-Goodall's In the Shadow of Man.
31. To date the most successful attempts have been to teach American Sign Language to the chimpanzees raised by Gardener and Gardener, but other research continues.
32. Harlow & Harlow (1962); John Bowlby, Attachment and Loss.
33. Klinghammer (1967).
34. Hess (1959).

Chapter 6

ORIGINS OF HUMAN SOCIETIES

"Throughout the five million years or so of man's evolution, the highest premium has been placed on cooperation... or there would be no human beings alive today."

Ashley Montagu¹

This is not an essay on paleoanthropology, but some observations on the origins of human social groups are necessary at this stage, for several reasons.

Firstly, we must be confident that the conditions in the early evolution of our own species were right for the evolutionary selection of altruistic and cooperative tendencies. If the conditions for group and individual selection of such traits were lacking in early human evolution, then a general theory of human moral evolution is clearly inadequate. Although, as Hayek has pointed out in his brilliant essay on 'The Theory of Complex Phenomena', it is impossible for us to know fully the events that have shaped our own selection, we can make some general guesses with the help of anthropologists, and perhaps we will be more fully aware of the reasons for the remarkable success of the human species.

Secondly, we wish to know what the contribution of cooperative traits has been to this success. Was group living really of such importance, and how did our psychology equip us for it?

Thirdly, we want to be confident that not only were the conditions right for the continuation of cooperative and altruistic traits under natural selection, and that present human societies share similar traits with our distant animal ancestors (as best as we can judge from their present descendants), but also that these traits have remained continuously in our repertoire, and did not disappear and then emerge once more. The latter possibility would be fatal to the theory of the natural selection of morality, unless it could be demonstrated that unusual environmental conditions made morality maladaptive during the disappearance phase.

Fourthly, it is important to recognize what refinements or adjustments, if any, have been made in our morality by cultural practices. Since cultural variations in behaviour and the possibility of individual calculation upon the social impact of individual actions seems to have emerged in early human evolution, the period is well worth our scrutiny.

Fifthly, consider this analogy. Anticipating a man's actions is much easier when we know something about his background, his habits, his attitudes and personal circumstances. If human beings are the objects of a long biological and cultural evolution, then it is quite possible that our evolutionary background has left our physiology and behaviour with visible marks of its origin. The understanding of our early evolutionary condition would be as important a guide to our actions as our knowledge of a man's background would be an explanation of his.

The time dimension in human evolution

The striking feature of the 'fourth dimension' of human personality - that is, its evolution - is the vast scale.² Carl Sagan suggests that we imagine life on Earth condensed into the period of the last thirteen weeks of a year (a year which begins with the formation of the universe itself).³ Months pass before the emergence of the first vertebrates on December 19th. Mammals emerge a week later. Only on the last day of the year do humans emerge. Stone tools are made at 11p.m. on that day. Agriculture is developed nearly halfway through the last minute of the year. Civilization can be placed between this moment on

December 31st and the stroke of New Year. In the history of human evolution, complicated industrial societies are comparatively very recent. Tiger and Fox employ an analogy similar to Sagan's to demonstrate this point. They say that "If we made an hour-long film to represent the history of tool-making man, industrial man would flash by in a few seconds at the end - he would barely be seen."⁴ According to them, industrial man is an "evolutionary afterthought" that has yet to prove its durability as an evolutionary structure.

The duration of evolutionary time occupied by prehomimid forms makes us question the role of reason and culture in behaviour, including social and ethical behaviour. Evolution depends on a balance between the retention of some characteristics that are successful, and the emergence of new characteristics which may or may not be more successful. Efficiency would suggest the appropriateness of a diversity of different structures between which nature could select, but a large measure of constancy within those structures, so that the characteristics selected would be retained over the generations. Since the vast bulk of our own evolution involves creatures that we would not want to describe as rational, then if their behaviour were completely without limit, their survival would be unlikely in the long term. Animal societies appear to function because of the regularity of the behaviour of their members, for example the regularity of workers in a bee-hive (even though, as Rotherbuhler's articles obliquely show, practical differences between hives may still occur).⁵

Used in this sense, rationality can be taken to describe the ability to calculate the social consequences of individual actions. Some animals that we suppose are fairly similar in morphology and behaviour to our direct prehuman ancestors do have a small ability to calculate some results of their actions, of course; monkeys can solve puzzles and will use tools in novel ways to reach their objectives (distinguishing them from species like the galapagos finch which uses a tool, but in a stereotyped way), and other mammals may share the power to a limited extent.⁶ But this is not comparable with the ability to calculate the results of actions on a social order, and

the formulation of social policy, which requires far greater depths of calculation. Indeed, in human societies we cannot be certain of the actual outcomes that may be expected from any particular piece of behaviour, as Ferguson, Smith and the others clearly demonstrated. In selective terms; the haphazard and confused situation which would emerge from such uncalculating, perfectly variable behaviour would have been much less successful than the results of more regular, stereotyped behaviour. During most of our evolution, this was probably so.

Another feature of the theory of evolution, in addition to its balance of retention and variation of characteristics, is that the more complicated a structure, the less likely are innovations to be adaptive. Take for example the human nervous system. It contains million upon million of cells, each of them with specific functions relative to the performance of the whole. If some change in the system were present in a mutant organism, the chances would be minute - literally million upon million to one - that the change would be a selective improvement, or even equal. Similarly in behavioural structures; the more complicated a structure is, the less likely is it that a change will be of advantage. When we are talking about the comparatively complicated social structures of primates including early man, it is likely that a large measure of retention of characteristics would have been adaptive. Where a complete change of habitat occurs, as can be shown in the evolution of early man, then a new set of behaviour patterns may have been needed for survival; but due to the complexity of the change required and the unlikelihood of the adaptiveness of any particular change, we can assume that any such adjustment would have been rather slow to emerge and become established. The logic of the theory of evolution offers us a theory of change, but it is a theory of slow change, the change being the slower the more complicated the structure is. Rarely do we find any major mutational variations in animal evolution. Variation arises slowly after a series of small changes, each one building on the last, each one slightly more successful than the one preceding it.

According to this implication of the theory, it would be strange indeed if we found any revolutionary mutations in our own natural

history. Rather, we would expect the beneficial factors of the past to be retained, while successful variations would be added to this heritage. This is why Waddington, Campbell and others speak of the 'wisdom' of evolution; because its survival power in a relatively constant environment is cumulative.⁷ In our case, the regularities in behaviour, and the constraints upon a perfectly malleable psychology would have been preserved to the limit of their usefulness. Subsequent chapters will demonstrate the importance of predictability in human action and will emphasise therefore the functionality of this rather constant evolutionary 'wisdom'. Its retention is to be expected, even where cultural innovations have built upon it. The building may be high and mighty, but the foundations prescribe the limits of its area. By examining the origins of the human species, we are examining the shape of those foundations set down over the vast length of the time dimension.⁸

Our evolutionary heritage

Men are not descended from the apes, at least, not from the living apes. They are descended from ancestors which they and other living primates hold in common, as do cousins several times removed. All modern men, it appears, have emerged from a common ancestry, although many hominid forms were unsuccessful over the long course of evolutionary time. From the same initial source sprang the other primates whose descendents live today, and then emerged at different times the monkeys and the apes. The tree of evolution is complicated with many branches, and we have to jump across so many to reach our nearest living relatives that it may be surprising to find any resemblance at all. Yet, as Dobzhansky recognizes, "A considerable amount of ingenuity was expended in trying to find some component part or structure in the human body that was wholly absent in other primates. This would have made man somehow 'unique'. These attempts did not succeed; the differences between man and apes are quantitative and not qualitative, as are the differences between one ape species and another."⁹ The form of a structure may change, although in human evolution that change has been rather small. Its function, however, is much more difficult to change without loss of evolution-

ary fitness. Perhaps that is why so much of animal and human behaviour and morphology shares a similar function.

The picture of the evolutionary tree cautions us against the use of overconfident examples of traits shared between us and other species, however, and it warns us also against apparent refutations of behavioural selection processes based on dissimilarities in human and animal traits. For example, some anthropologists note the placid and apparently non-territorial nature of the gorilla, our nearest living relative, saying that its behaviour refutes any notion that men are aggressive and territorial by nature.¹⁰ In reply to this view, however, it may be objected that man is not descended from the gorilla, even though he may be our nearest kin. On the contrary, we have a common, but very distant ancestry. Furthermore, the gorilla has remained an arboreal creature, while men developed on the savannahs of Africa, as hunters. This crucial difference can explain the entire divergence; a lush forest and plentiful food supply reduces the need for groups to defend a feeding territory or be remotely aggressive. Savannah existence, on the other hand, requires large territories and mechanisms to space out groups if the food supply is not to be overrun.

The stages in primate development

Crook and Gartlan recognize five stages in the development of primate life, although these should serve as a rough guide only because the behavioural correlations associated with the stages are rather hazy.¹¹ In the first adaptive grade, they place forest prosimians, nocturnal and insectivorous, for the most part solitary but pairing on occasions. A nocturnal, agile insectivore in a plentiful environment needs no complicated social life. In the second adaptive phase are placed larger simians, the Lemur and others, all of them forest fructivores, living in small groups and showing minor territorial defence. Being diurnal, these species can be seen by predators, so some cooperation in defence and some social life is of selective advantage. In the third grade are placed other lemurs and higher pri-

mates including the gorilla. These are forest or forest-fringe creatures, fructivorous or vegetarian and occasionally territorial, mostly cooperative. In the fourth grade, forest-fringe and tree savannah animals are represented, including most of the macaques and a number of baboon species. They are omnivorous, occasionally carnivorous, and the size of their groups tends to be larger than the other grades. Territorial defence and xenophobia are marked in some of these species, as may be expected in a situation where predators are many and where food is scarcer than in the forests. In the last level are classified the grassland and hamandryas baboon and other savannah primates. The difficult conditions make the size of groups difficult to predict; the gelada in the Ethiopian mountains form herds in good feeding times which split into smaller harem groups when conditions deteriorate. In such species, single-male groups are the norm, and sexual dimorphism and division of labour is pronounced.

The savannah conditions seem to have determined the course of evolution of our own species to a major extent.¹² Our own evolution appears to have followed this radial pattern of adaptation, dietary change, and socialization. The prosimians are the only primates to have left fossils from the early days of primate evolution, about 60 to 75 million years ago. After that, they disappear somewhat from the fossil record, being supplanted by the other classes of primate (and nowadays their descendants are to be found only in island and tropical refuges where they are safe from predation). Fragmentary remains of creatures that seem to bridge the gap between the prosimians and the living old-world monkeys have been found dating from 40 million years ago. The development of new primates continued, it seems, since about 30 million years ago (according to most usual interpretations of rather fragmentary evidence) ground-dwelling apes inhabited the shores of Lake Victoria. Their bodies were not adapted for forest life, and their human descendants emerged, it would appear, from this ground-dwelling stock.

Australopithecus Africanus

The emergence of human forms is most importantly associated with

this change in habitat from forest-fringe to savannah. Between 10 and 20 million years ago lived strange European primates, which have been proclaimed by Hurzeler to be so humanoid in their dentition and limb structure that they may be classed as a subfamily of the human species.¹³ Australopithecus is to be found about five million years ago and is the first example of an indisputable man-ape - one might say the 'missing link' of nineteenth-century speculation (although this phrase is misleading in that it suggests, contrary to all evidence, a series of major 'links' when a gradual procession is more appropriate a description of human evolution). With the change of habitat came a very rapid expansion in brain size; one can imagine that in the difficult savannah conditions, a high premium would be placed on such qualities. Within two million years they appear to have speciated into many forms, including Homo, perhaps. Their remains are to be found mostly in the savannahs of southern Africa, but the fact that there is evidence they travelled half the globe is suggestive of their evolutionary success.

Statements about the social condition of Australopithecus are somewhat speculative. They were hunters, and there can be little doubt that this would have entailed a social life very different from the forest-dwellers. For one thing, the ecological rule of thumb that a carnivorous diet takes ten times the area of a fructivorous diet to maintain would have made them require a dispersive mechanism to avoid over-exploitation of savannah resources. This has led Birdsell and others to suppose that they were definitely territorial.¹⁴ They lived in small groups, and some commentators believe that it can be inferred with some accuracy (partly because of the widespread nature of the trait in other hunter societies) that males were dominant over females, and that males were usually the hunters while the females foraged for vegetable food.¹⁵ Some element of cooperation must have been present; it would be impossible for single individuals to hunt and trap the sort of prey that Australopithecus seems to have hunted (as evidenced by the extinction of many large species at this same time and by the signs of violence on the fossils of many such species).

This cooperation seems to have been present long before the spread of cultural changes in human life, and before the rapid development of the human forebrain. The Piltdown hypothesis that human social life became possible after the expansion of the brain is not compatible with the facts of Australopithecene life, and the evidence for it lies exposed as a fraud.

The expansion of the brain does, however, stem from this hunting and weapon-using life. A species, originally arboreal, with no restraints on using new-found weapons would find itself undergoing rapid evolutionary changes. Strong inhibitions on aggression, even cooperative altruism, would be selected. Territoriality and the prevalence of small hunting bands would have preserved breeding isolation and would have allowed the emergence of such traits. Indeed, there seems no doubt that the conditions necessary for the development of altruism were present at this stage of our evolution. Groups were small and independent, probably aggressive toward outgroup individuals, which would contribute to make dispersal rates small. Animal food may have increased the potential lifetime, making the scope for reciprocal altruism greater. Members of hunting groups were interdependent. The term of parental care seems to have been increasing. In short, the conditions were right for the evolution of (or the continued development of) morality, and the necessity of morality in creatures using artificial weapons suggests that this development did indeed take place.

Neanderthal man and the importance of culture

Perhaps the second major development in human evolution is the emergence of cultural differences; with the emergence of Homo sapiens neanderthalis, a tool-using species, this development probably took a great leap. They were descended from Homo erectus, which lived between 240 and 600 thousand years ago, and whose brain size was larger than Australopithecus but less than neanderthalis. The neanderthal man was, says Dobshansky, "a hunter, a meat-eater, a dresser of animal skins, which he probably used for clothing, and a possessor of a rudi-

mentary spirituality."¹⁶ He was also (like Homo erectus and Australopithecus) a maker of weapons, which we have seen to be a probable factor in the rapid evolution of early man.

Factors other than group predation must be considered, however, when we attempt to account for the spectacular rise of human forms from neanderthalis. That species was cultural by nature, and therefore it is evident that they enjoyed more behavioural flexibility than earlier forms; so it would be unwise to suggest that modern social life is based on foundations completely unaltered since the dawn of Australopithecus. Yet the factors in addition to group life which went to shape their selection (as far as we can establish) are of interest because of their possible implications for morality.

In the first place, sexual selection would have had an effect. This refers to the ability of some individuals, because of their behaviour or appearance, to attract more mates than others. For reasons developed by Fox and others which need not be considered here, this selective pressure is likely to have been important in hominid selection.¹⁷ We can hypothesize that sexual selection would have been associated with qualities that are favoured in hunting societies even today. Not only group selection, but also individual selection would have drawn the strongest females to those males who were the best hunters, skilled in tool-making and innovation, and who were of the highest rank in the dominance order. Qualities such as rank and high ability in socially useful activities are still admired in every society today, and it is tempting to speculate that our attraction to them is a function of the evolutionary success of our species.

The division of labour between the sexes is the second factor which seems to have emerged at this time and which would have been important in selection. Sexual dimorphism is much more prominent in the human species than in any other primate, and it certainly emerged somewhere on the course of human evolution. As Tiger notes, the male of our species is an efficient hunting machine, while the female is not.¹⁸ In early cave paintings, the division is distinct; hunting scenes are common, but those represented are invariably men. Some

representations show women gathering honey and fruits, but never hunting. Similarly, men are shown in distinctive armour and carrying weapons, while women are depicted in peaceful ornamental clothing. Although the paintings are generally much later than the emergence of neanderthalis, commencing during the ice age of about 14 thousand years ago, it is most likely that sexual dimorphism, and the differences in the 'proper' role attributed to each sex are far older, and that their functionality in terms of promoting the fitness of individuals and their social groups reinforced their spread.

A third feature which may help to explain the rapid rise in numbers of the early humans is warfare, which some authors claim was instrumental in promoting moral qualities of cooperation, bravery, altruism and so forth.¹⁹ In outline, the theory maintains that an intelligent hominid band may have overrun a neighbouring band and appropriated its territory. The memory of the event would be added to the cultural tradition of the band, and possibly repeated much later and in different areas under the influence of this tradition. The increase of the breeding population unit through this conquest would have allowed the spread of the genetic and cultural constitution of the band. On the other hand, the communities best able to stand up to such conquest would be those with the most efficient defensive forces, and depending on the rate of killing in such battles, modern genetics suggests that warfare alone would be sufficient to ensure a high level of altruistic and cooperative tendencies within populations.

Other evolutionary traits

We can infer other traits in neanderthalis, and yet more in Cro-Magnon and later humans which have left us such excellent records in their cave paintings. The neanderthals, for example, were indeed the possessors of a spirituality, to which Dobzhansky has referred. Their burials, for example, were highly elaborate and stereotyped, the first such phenomenon to emerge in any species. Paleolithic burials make heavy use of red colourants, a practice surviving in Greek and Roman archaeology; Homer refers to the dead being shrouded in red, something which continued widely in the West up to the fif-

teenth century and which is still found in the traditional burial of a Pope. All this strongly suggests an element of religion and magic, possibly a belief in life after death. Certainly such beliefs were very well established by Egyptian and Etruscan times.

What is at issue here is not the trappings of such ceremonies; it is their meaning with respect to the behaviour of the individual as a part of the group. Accepting the existence of a deity and committing oneself to his wishes is an act of self-denial. It is a commitment to live and work for the society rather than one's personal benefit. Religions are concerned with the purposes of a deity or of deities over long periods of time, far longer than individual lifetimes and in theory at least longer than the life of the society enshrining them. Sacrifice of personal ends to that long-term purpose is indeed an act of moral consequence. It is also an act which would have a selective advantage to most human societies. Perhaps a belief in the afterlife emerged as a functional part of the religious system, compensating the individual for self-sacrifice now - we do not know. But judging by the widespread nature of stereotyped burial customs and the diversity of their forms, which we may take as emerging independently, it appears to be a strong factor in the evolutionary history of our species.²⁰

Organized justice and punishment, though not necessarily connected with religion, can be seen in the cave-paintings, according to leading authorities. Pericot says that "In the cave at Temigia,... we see groups of archers (with five individuals in one case, ten in another) raising their bows, while at a certain distance in front of them appears a man who has fallen, pierced with arrows. There is every indication that we are witnessing scenes of execution, which we may call the first pages of a penal code."²¹

Dominance relationships were probably established very early in hominid evolution or before, and our earliest firm record comes again from the cave paintings, which show clear representations of rank in military scenes.

Conclusion

The study of the emergence of early human societies forms a bridge between the behaviour of animal groups and the behaviour of living primitive human cultures. The available evidence suggests a remarkable continuity in the broad functional aspects of social life, although customs and rituals - the expression of these aspects - vary considerably over time and between groups.

Nevertheless, it is clear that our earliest ancestors developed powers of cooperation and probably altruism long before the emergence of the enlarged forebrain and the development of faculties of calculation much in excess of present-day animals. As the use of artificial weapons and warfare spread in the newly territorial savannah species, hominid evolution becomes more rapid: a small difference in social organization, strength, intelligence or some other factor would have endowed an armed individual or society with a substantial and immediate selective advantage. From the same process of selection would emerge inhibitory tendencies on intragroup aggression, altruism and cooperation in defence and other 'moral' traits.

Other parts of moral life would be of functional importance on the savannahs, as they are in hunting peoples today, such as division of labour and notions of the 'right' role of the sexes, sexual selection by the differential evaluation of traits useful to the society and the teaching of social skills in the parent-offspring situation. Evidence of primitive spirituality reinforces the belief that altruism was extensive in neanderthal and post-neanderthal cultures because it suggests a notion of the continuing life of the individual and the social group. Prolonged maternal care (which we can safely assume to have been a feature of early human life because of its generality in higher ceropithecoids) would have consolidated social and moral life through the necessity of lengthy bonds between parents and children, and through the early socialization and education of children on a more pronounced scale. Rules of exogamy and endogamy may well have been of powerful selective advantage, as Darlington maintains, but it is impossible to be confident about this because of the variability of the

traits in living nonhuman primates.²² Nevertheless, it is safe to say that variations in cultural traditions would have promoted the selection of those sexual and other practices which generated a stable breeding system and optimum population density. These practices will be considered more fully in the next chapter, since their observation in living primitive peoples is easier than their inference from archaeological evidence.

Finally, it is of note that all these parts of human sociality were laid down in the long evolution of man as a ground-dwelling, hunting animal. Cultural changes may be possible; but to be selective, they would have to conform to certain limits determined by the functionality of human behaviour under those conditions. The evolution of man as an industrial creature has hardly begun, and so it should not be of great surprise if those evolutionary foundations and behavioural limits are occasionally at odds with the requirements of modern urban life. The limits of our evolutionary morality were not set down to encompass city-dwellers, and as subsequent chapters will show, the morality that was functional in our evolutionary life and which, to an extent, still guides our actions, may be quite dysfunctional in modern societies. But that is a question to be dealt with later.

FOOTNOTES TO CHAPTER SIX

1. Man and Aggression, introduction.
2. The term 'fourth dimension' used to describe a forgotten but important part of human personality, was coined by Ardrey in his Encounter article of 1972.
3. Carl Sagan, The Dragons of Eden.
4. Tiger and Fox, The Imperial Animal, chapter 1.
5. See, for example, Rothenbuhler (1964) and Jones & Rothenbuhler (1964) on the behavioural differences between strains of honeybees. While not strictly 'cultural', they show the possibility of different, but functional, behaviour patterns.
6. The ability of chimpanzees to solve simple problems is well known. For an early exposition of this subject, see Koehler, The Mentality of Apes.
7. Cf. Waddington, The Ethical Animal, *passim*; Campbell, (1975), pp. 1104-5.
8. Another helpful analogy is that of language. The rules of grammar are constant, in the same way that certain human behaviour is delimited. Understanding of grammar is necessary for an understanding of a language, but the grammar does not determine all that can be said in the language. (Cf. Tiger & Fox, The Imperial Animal, *passim*).
9. Dobzhansky, Mankind Evolving, chapter 7.
10. A notion widely accepted by Ardrey, Lorenz and other ethologists. The question of the aggressive character of modern man will be discussed in chapter eight.
11. See Wilson, Sociobiology, chapter 26 for a criticism of this.
12. Tiger, Men in Groups, reviews some of the evidence for this belief. Similar sentiments show in Ardrey, The Territorial Imperative, and The Hunting Hypothesis.
13. Hurzeler (1958).
14. Cf. Bartholomew & Birdsell (1953). It is noteworthy that modern hunting and gathering groups of about 25 individuals occupy between one and three thousand square kilometers. Wilson observes that "This area is comparable to the home range of a wolf pack but as much as a hundred times greater than that of a troop of Gorillas, which are exclusively vegetarian." (Sociobiology, page 565).
15. This aspect of dominance is very widespread (though not universal) in nonhuman primates and is universal in modern hunting communities; quite when the trait appeared is somewhat speculative.
16. Dobzhansky, Mankind Evolving.

17. Fox (1972), Campbell, Sexual Selection and the Descent of Man.
18. See Tiger, Men in Groups, chapter 2, 3.
19. Cf. Wilson (1972).
20. As Campbell (1975) notes, the existence of religious belief associated with moral prescriptions occurs most frequently in complex societies. It may be that the influence of religion in furthering altruism was more needed in urban civilizations than in primitive ones.
21. Pericot (1962).
22. See Darlington, The Evolution of Man, part 1 chapter 3.

Chapter 7

MORALITY IN PRIMITIVE SOCIETIES

"... if ever there was any thing, which cou'd be call'd natural in this sense, the sentiments of morality certainly may; since there never was any nation of the world, nor any single person in any nation, who was utterly depriv'd of them, and who never, in any instance, shew'd the least approbation or dislike of manners. These sentiments are so rooted in our constitution and temper, that without entirely confounding the human mind by disease or madness, 'tis impossible to extirpate and destroy them."

David Hume¹

There are two ways of checking the hypothesis that our morality has evolved along with us. The first is to consider the social and moral life of animal species. These, we assume, are the living representatives of our ancient ancestors, distant cousins in evolutionary terms. We should expect them to be, in some measure (and to the extent that the physical conditions shaping their evolution were similar to the conditions shaping our own) behaviourally similar to ourselves. Although the precise form of expression of many patterns of behaviour have changed in evolution, we find that certain moral determinants with functions similar to our own can be found in animal social groupings. When checking the hypothesis by this method, it is the content, and not the form, of the behaviour which interests us. To take an analogy, we believe that we have descended from fossil species largely because both we and they have skulls, backbones, teeth, hair,

and so on.² Our skulls are slightly different in shape; we might have more teeth or less; our backbones might be adapted for upright standing; and yet, in general, these structures do resemble each other, and the function which they have is as similar as the different conditions affecting the evolution of the various species are likely to allow.

The second way to test the hypothesis is to examine living human groups, and see whether the moral conduct exists, which has been alleged to be an indispensable part of the survival of animal or human social groups. In so doing, there is no need to rely solely upon the evidence from modern, complex, 'civilized' societies, where the content of certain patterns of behaviour is difficult to distinguish because of the complexities of its form. Primitive societies are often much easier to understand. Hence, the purpose of this chapter is to investigate, in rather broad and general terms, the morality of primitive societies which are alive today, or (like the Tasmanians) recently extinct but of whom we have full accounts, and to relate the morality of these peoples to the natural selection of behavioural characteristics and to the morality of animal societies from whence it is alleged primitive morality ultimately derives.

This consideration of primitive morality need not be lengthy because of the familiarity of the terrain to most people interested in ethics. Nevertheless, it may help to demonstrate the evolutionary functionality of many primitive institutions and practices.

Social organization in primitive societies

The parameters of social organization are rather rigid in the lower primates, but may vary from group to group in the higher primates. In human societies, however, this variation in territorial defence, group size, the barriers between groups and so on is found to be very much more pronounced. Perhaps this is largely due to the fact that human societies face very little competition from other species. With the development of artificial weapons and the enlargement of the human forebrain which was contemporaneous with that development,

men have been able to shape their own environments and to dominate all other species. Consequently, many different social systems can survive for a time, since there is no threat of extermination from environmental conditions or the competition for resources with other species. Some authors, such as Colin Turnbull in his book The Mountain People, have described communities on the borderline of existence, in which selfish behaviour is the norm and where family life has disintegrated. Nevertheless, their society - if such a collection of individuals can be called a society - lurches on from year to year, and could last well into the future. Having been freed from the discipline of inter-specific competition, are men not free to shed that morality which enabled them to survive that formerly competitive state?

Against such a point of view, it must be observed that in any generation there might arise individuals or societies which are unlikely to survive for many generations. The fact that a society of any kind is in existence now is no guarantee that it will be so one hundred years from now. Societies on the borderline of existence are clearly the most vulnerable, assuming that conditions remain fairly constant; our concern, if we wish to see what traits (moral and otherwise) equip a society for long-term survival, must be with those societies some way above the borderline.

Another question which complicates our enquiry into the evolutionary limits of human behaviour is that of the variability of culture. It is evident that cultural difference between human societies are largely a function of learning rather than genetic inheritance; and this again has led some anthropologists to believe that an almost infinite range of social life and practices is possible in human groups. But once more it must be objected that the evolutionary model does not prescribe precisely what forms of social organization will occur at any time and place; rather, it sets limits upon what is the range of possible practices. Furthermore, many character traits which themselves shape cultural differences are moderately highly heritable, and the diversity of the forms of cultural structure that it is possible to build may belie the rigidity of their foundation.³

The most accurate technique for resolving these questions is to consider behavioural traits within our near relatives in the primate order. If a characteristic is subject to very little variation within those species, then it is a characteristic most likely to have been retained during the early stages of our own evolution. If it is a variable characteristic, then we cannot make bold assertions about its relevance to human beings. Wilson, having reviewed the evidence, claims that the most conservative primate traits are aggressive dominance systems, male dominance, prolonged maternal care, socialization of infants, and matrilineal organization.⁴ More variable characteristics are group size and cohesiveness, the involvement of the male in parental care, and the intensity and form of territorial defence.

With these qualifications in mind, then, let us examine the range of social and moral behaviour within human primitive societies, and attempt to establish whether there are further consistencies of practice; for the order of primates covers many very different types of animal, living in many different habitats, with many different diets and social requirements.

(a) Hunting life and group size

For all of our species history, we have been hunting creatures, and according to Pilbeam, we and our ancestors have hunted animals for over fourteen million years.⁵ The size of hunting-gathering communities still extant today does seem to be rather confined (although of course the cities of industrial man may number many millions of individuals). Hobhouse, for example, remarking on the constancy of group size of a large number of primitive peoples, says that "it is pretty clear that the group varies from about 25 to 50 or 60 individuals. I will not give the detailed evidence which would constantly repeat the same figures..."⁶

It is significant that this size of local community (and many other observers have agreed that primitive hunting communities tend to be less than a hundred individuals strong, but larger than two dozen) is precisely the size which would support one or two hunting parties of about a dozen adult males each. This latter number is optimal for

nearly any joint cooperative venture of some difficulty, including hunting: it is large enough for the work of the band to be divided between the members, and to distract, trap and overcome most large game. On the other hand, it is small enough for its members to be fully familiar with the personalities and behavioural characteristics of the other members. In a dangerous situation, this knowledge of how others are likely to react has a clear functional importance. Although only distantly analogous to the hunting band, it is perhaps significant that modern sports teams and management committees show a marked tendency towards an average of about twelve members, a fact remarked on by Tiger in his book Men in Groups.

The hunting way of life has shaped other features of human social organization.⁷ Cooperation within the hunting band would be a necessity. Division of labour between hunters and those left at the dwelling-place would emerge. Sharing between members of the group would be highly likely, since no hunter or small group of hunters could consume the whole of a large prey animal by themselves. Teaching of social techniques to future generations would be required to ensure the continuity of the food supply. Each of these characteristics is bound up with human morality, and so some of them are worth a closer examination.

(b) Divergence in sexual roles

Men can run faster than women. They have more appropriate musculature for hunting; they can throw more accurately and exert themselves for longer. Yet there are other reasons, probably more powerful than these, why it would be hazardous to rely on women as members of hunting bands. In the opinion of Lionel Tiger, the men might be "(1) distracted from hunting by sexual blandishment, (2) certainly slowed down on a chase... (3) they might also be affected by the varying behaviour and mood of females in the various phases of their menstrual cycle as well as by (4) what may be a greater female propensity to express particular perhaps ill-adapted emotions in states of crisis; (5) females would be less able and willing to engage in physical struggle with prey

animals, and less able to defend the group from predators and possibly human opponents. In other words, there would be a definite genetic advantage to those males who insisted on hunting in all-male groups."⁸

In human societies today, primitive and otherwise, such a division of labour between the sexes is almost universal. During the day, women and infants remain at the dwelling-place while the men embark on long, ritualized expeditions to hunt for game (or in the modern world, to pursue the civilized equivalent, business). In the Cree Indians of North America, for example, the division of labour between the sexes was clearly shown and has been described in detail by Tiger and Fox.⁹ The males did all the major hunting, although the women would herd the main prey animals, buffalo, into corrals. Similarly, the men cared for the horses, which were used in hunting, while the women cared for the dogs, which were not. Although women collected vegetables and on occasion, small game birds and animals, they never travelled far from the village. In the Eskimo communities recounted by Lionel Tiger, fishing, not land hunting, was the main source of food; and women were not allowed near the boats of the fishermen. Women on board ship were regarded as 'jonahs' and it was often the case that a fisherman would not take his boat out that day if a woman had set foot on it.¹⁰ More advanced seafaring communities still preserve the same kinds of superstitions. It is interesting that these superstitions, and other subtle differences in the rights and obligations of the sexes are not without an evolutionary foundation which is probably of as much functional value today as it ever was.

Wherever one looks in the primitive world, the activities of men and women are stereotypically divergent, and the duties and obligations which accrue to individuals are affected in the same way. The rules for the inheritance of property, for example, are often strongly differentiated between the sexes, with inheritance normally passing through the male line, although the exceptions are many. In ancient Greece, for example (although not exactly a 'primitive' society) titles sometimes passed through the female line, although were exercised by males. Other characteristics are likewise varied between the sexes.

In ancient Greece and in the Eskimo communities already mentioned, for instance, it would be common or even usual for the head of the household to eat apart from the women, a practice which might help to cement the unity of the male community and which would therefore be of some functional advantage.¹¹ The Spartan state used a similar psychology of communal eating to promote public spirit between members of the state. Single-sex clubs and societies, often secret societies, are found very widely in primitive peoples, and even in advanced industrial societies. They are usually male, and female secret societies are almost never to be found. Such an indulgence of a sex-specific characteristic to seek the company of one's own sex would itself tend to promote the selective advantage of a hunting community, and so it seems fair to say that the existence of single-sex societies is probably only one particular example of a rather general characteristic, found especially in males. Given this, there arises a moral question of whether such aggregations should be allowed to continue, or whether notions of sexual equality should force them out of existence: the issue has been much debated in civilized societies, but the ethological approach suggests that it cannot be fully discussed without reference to the selective function of single-sex organizations.

In summary, the words of Hobhouse are appropriate. He noted that the sexual division "cuts every people into two portions, and the legal and ethical position of these two portions is never wholly the same. In greater or less degree. the rights and the duties of men and women differ, and the divergence is not confined to matters arising directly from the sex relation itself."¹²

(b) Dominance relationships

The differences between the sexes is never more apparent than in the dominance relationships within a community. Male dominance is a characteristic of primate societies, and human society is no exception. The higher positions in political hierarchies, whether of primitive or advanced societies, are normally filled by men, a phenomenon which is concordant with Lowie's speculation that territoriality and male

groupings are the foundation of political activity in primitive societies.¹³ The same author claims that "the number of instances can be counted on the fingers of one hand... in which women either exercise unusual property rights or play a remarkable part in public life... even among the Iroquois (where women play a part in the election of chiefs) no woman had a place on the supreme council... A genuine matriarchate is nowhere to be found." The broad characteristics of the dominance system, apart from this general feature, can now be described.

As in animal societies, dominance in the political sphere is associated with certain rights and obligations. In a number of societies, for example, the leader or chief may indulge in relations with many of the women.¹⁴ Levi-Strauss¹⁵ recounts the role of polygamy in the chieftainship of the Nambikuara of Mato Grosso. There, polygamy is held to be the prerogative of the chief alone (although the sorcerer may be a rare exception) and this is normally accepted without much concern, because it is recognized that a chief has certain duties and obligations to the rest of the group, and it is felt that he deserves some kind of reward in return. A chief may not overstep the privilege, however, and there are fairly uniform notions of the number of wives which a chief should have. If Levi-Strauss is right in his interpretation, then we have uncovered a primitive man's rationalization of a phenomenon which is very common in animal societies, namely the power of the dominant individual to have the pick of the females. This power has a selective advantage which primitive men could not be expected to understand, and which is apparently explained in other ways - in this case, that it is the just reward for obligations to the group. Such rationalization of innate tendencies that are selected in evolution is how complicated moral systems are able to come into being.

In larger social groups, and those with an increased industrial capability, the role of chieftainship becomes more and more powerful; by the side of the chief are placed sorcerers and shamans, and often a land-owning nobility. This allows for the organization of a system of justice, which is always an important part of the chief's duties in primit-

ive societies where chieftainship is stable. The more advanced the organization, the more impartial can be the justice. In the relatively primitive Kubu tribesmen, the headman settles quarrels, but in the more advanced Ojibways and Wyandots of North American, a council is held before which the plaintiff is awarded a judgement, whereupon he can demand compensation or revenge against the transgressor, and takes it with the full sanction of the community. Such institutionalized justice makes possible the settlement of disputes without a destabilizing feud between members of the community. Quite clearly, it is also an extension of the method of settling the disputes that occur in animal societies, where the dominant individual is rarely concerned in the dominance conflicts of those lower on the dominance ladder, except occasionally to intervene in a fight to part the combatants. In primitive human societies, the headman's role is often just this; but as the society becomes more advanced, so too does the manner of judgement and execution of justice become more impartial and complex. The settlement of domestic squabbles in primitive societies is often a task carried out by the women, but organized public justice is always a male affair.

Punishment is usually administered on a scale of severity proportionate to the severity of the crime. The simplest punishments would be direct retribution; and even where there is no formal system of justice, there is nevertheless an obligation for the injured party, or the clan of the injured party as in the Hopi indian practice, to take appropriate revenge against the transgressor.¹⁶ Normally homicide requires the retributive death of the murderer, and adultery is thought to be as serious in some primitive societies; and an individual or clan would be thought of as failing in a matter of honour, were revenge not to be taken.

From the functionalist point of view, the development of justice and law is a powerful agent in the elimination of disruptive influences in the overall order of primitive societies. The fact that notions of revenge and retribution are to be found in the most primitive of human societies is evidence that the selective advantage of a rudimentary

system of justice can cause that system to emerge even in peoples who are unaware of its overall effect. in eliminating the disruptive elements from a social order. It is to support this nonrational system of justice that the sense of obligation to administer punishment arises; as will be discussed in a later chapter, this belief in the obligation of a party to punish a transgressor forms the basis of the advanced judicial systems of all contemporary civilizations, in which punishment has the same biological function as that in primitive societies.

Maintenance of social structure in primitive societies

(a) Sexual relations within the tribe

In primitive human societies the nuclear family is the basic unit of social organization, although the family itself is more extended than in many modern societies, particularly those with an advanced institution for the care of the elderly. The relatively low mobility of primitive societies makes the care of relatives a common feature of group and family life.

There are usually powerful sanctions to prevent the disintegration of the family. Divorce is not readily available in many cultures, such as the Andamanese, some Papuans, the Veddas of Ceylon and other very simple primitive communities, according to Washburn.¹⁷ In some societies, divorce is impossible.

Kinship and descent systems are considered to be very important in most primitive societies, but there is considerable variation from one society to the next. The precise formulation of many moral rules, particularly those regarding marriage, incest and sexual practices, depends to a very large extent upon such systems, and the nature of the systems themselves may depend on environmental conditions. For example, it is easy to speculate, along with Darlington in his treatise on The Evolution of Man and Society, that in the middle paleolithic age, the small group was also the breeding unit, but that as population began to grow, different groups or tribal organizations of groups would begin to confront one another. Under such conditions, the arrangements for outbreeding within the tribe (ensuring exogamy, in other words) would be connected with those for avoiding outbreeding between tribes (ensuring

endogamy). Many existing customs with respect to sexual behaviour seem to preserve the unity and cohesiveness of the tribal units and the practice of endogamy. One need only consider the strange customs of mutilation, tattooing, hairdressing, and ornamentation which distinguish one tribe from another. Other customs, more directly moral in nature, serve to separate tribes. These are the tribe's specific marriage regulations, based upon kinship or clan membership. The regularity of these customs places limits upon individual action; but at the same time, that regularity promotes the integrity of the breeding unit and prevents the mating of dysfunctionally divergent pairs. It may also promote the evolutionary fitness of the breeding unit for other reasons. For example, some groups are polygamous, which is of advantage where territorial conflicts are common and where males are consequently in short supply, while some (very rarely) are polyandrous, notably a few Himalayan tribes where overpopulation of the single valleys which constitute the limits of the territoriality of the tribe or group is always a threat, and where polyandry operates to limit population growth.

(b) Functional aspects of the law

The moral relations in primitive human societies can normally be explained with respect to the functional importance of their behaviour; those following certain moral systems and rules will survive better than those not. The earliest written lawcodes offer a remarkable insight into this functional aspect of morality. As an example, one might take the best-documented of the early codes, the Mosaic law of the Israelites, described in Leviticus and Deuteronomy.¹⁸ The most surprising element in the Jewish law, as we can read in Leviticus, is its body of doctrine concerning health, clothing, the care and killing of animals and the storage of food, doctrine which originates with the beliefs of the ancestral peoples, Hebrew, Canaanite and other. Even today, these rules are kept by the Jewish people, although the pious Jew (or Moslem) is probably quite unaware that his abhorrence of pork derives from the proscriptions of the earliest lawgivers against eating an animal which was a carrier of trichinosis, and that those proscriptions have been instilled in Jewish families ever since.

Eating a particular diet, the Jews have, traditionally, had to raise food apart from other races and had to live apart from them, and therefore the scope for interbreeding with other communities would be limited, a phenomenon which is known as genetic isolation and which is the basis of the emergence of a race. This isolation would prevent dilution of those characteristics which made for an orderly and successful functioning society, and even today Jews are often regarded as being a 'race apart' from others wherever they can be found. At the same time, the law prohibits incest and circumstances which might precipitate incest, a moral rule which became more precise over time, although there does not seem to be any real understanding that incest would contribute to a loss in fertility rates.¹⁹ The Mosaic law also forbids other practices which tended to limit fertility rates. It requires segregation as a defence against venereal diseases (Leviticus 15) even though this segregation is couched in terms of 'uncleanness of issue' rather than in terms of the transmission of such diseases by heredity.

Jewish law favours the survival of the groups and races which obey it, which is one reason for its survival even today. Yet the functional importance of the law is rarely understood by those who follow it, and the reasons given for adherence to the law in the scriptures is generally expressed in terms of 'cleanness' or 'pollution' or even in terms of the will of God, rather than in terms of selective advantage and survival. As this is so, Jewish law affords us with an enlightening example of how rules and obligations which we assume are the work of reason are actually derived through selective pressures upon those who first adopt the behavioural standards but who do not necessarily recognize their effect in promoting the survival of those who do adopt them.

It is also noteworthy that although the breeding isolation of the Jewish people has caused them to be the object of much scorn by other cultures, the isolation of breeding units is a prerequisite for the emergence of moral and other traits. through a mechanism of inter-demic selection.

(c) Relationships with other groups

The primitive human group of perhaps a few dozen individuals may or may not be affiliated to a tribal unit, according to its stage of development and other environmental factors. In those which are tied together by tribal links, kinship systems will extend throughout the tribe because of intermarriage between groups. This mechanism will promote the unity of the tribe as a territorial unit. The tribal organization, with these kinship links between its members, is a useful device not only with respect to territory, but with respect to the survival of individual families and groups when times are harsh. It is quite common for individuals of different societies to be absorbed by other bands within the tribe during a famine or drought, or where warfare with other tribes has rendered their residential area impossible.

Between tribes, or between non-tribal societies, relations may be less amiable, particularly where territorial defence is necessary for the preservation of the society. Typically, the code of morality which applies to members of the group is not applied to others;²⁰ often, injuring or even killing outsiders is not frowned upon and may even be commended.²¹ Spacing between groups is maintained by continual raiding and occasional murder during skirmishes between raiding bands. So common is this form of territorial aggression that Tiger and Fox claim that most of the history of human warfare is the history of small raiding-trips between neighbouring villages or townships.²² On a more subtle level, the !Kung Bushmen of the Nyae Nyae area call themselves 'pure' or 'clean' but refer to other !Kung bands as 'murderers' or 'poisoners'. No doubt this suspicious attitude helps to preserve the distance between groups, irrespective of its truth or falsehood, and it is tempting to say that this is a very primitive form of the propaganda that industrial societies use so effectively in warfare.²³

Continuing skirmishes between groups are very widespread, from the stone-age culture of the Kurelu of New Guinea (who endure a persistent state of warfare with one another) to the blood feuds of pre-

Hellenic Greece. Such activity is usually a male task: "Throughout most of human history," writes Washburn, "society has depended on young adult males to hunt, to fight, and maintain the social order."²⁴ Yet it is comparatively rare to find that the activity is serious in terms of the loss of life. Certainly there may be a few fatalities, and weapons are used; but the wounding of one of the enemy is often sufficient to end hostilities for the moment.

(d) Territory and property

In animal communities, territorial defence is an integral part of the social psychology of some species. Psychologists have often queried the role of territorial defence and aggression in human groups; but if we recognize the broadness of the concept of territory and the diversity of the forms of threat, self-advertisement and hostility which are used to maintain territory, its existence as an important part of human life can hardly be doubted. This is certainly true within most primitive communities. For the moralist, then, it is important to be aware of the boundaries of this territorial behaviour; if a natural territoriality has evolved with us, then by understanding it we may approach closer to an understanding of typical human values with respect to the possession and control of property. We might not necessarily approve of the natural system (and when this leads to the fatal consequences of modern warfare, something with which our primitive aggressive tendencies and ancient inhibitory mechanisms find it impossible to deal, we will undoubtedly not approve of it) but in recognizing its purposes and evolutionary functions, we may also recognize its resistance to change, and be prepared to anticipate and accommodate it.

The natural emergence of systems of conduct concerning property is a subject of interest to philosophers for another reason, because it demonstrates that justice does not derive from our reflecting on the promotion of public welfare, but upon a more direct 'instinctive' sentiment. Hume was more wise than he knew when in the Enquiry he wrote: "The dilemma seems obvious: As justice evidently tends to promote public utility and to support civil society, the sentiment of justice is

either derived from our reflecting on that tendency, or... arises from a simple original instinct in the human breast... if the latter be the case, it follows that property, which is the object of justice, is also distinguished by a simple original instinct, and is not ascertained by any argument or reflection. But who is there that ever heard of such an instinct? Or is this a subject in which new discoveries can be made?"²⁵. Since Hume's time, many ethological discoveries on the subject of territorial possession and defence have in fact been made. Had Hume been equipped with this knowledge, he would have been able to devise a theory of morality and justice much simpler than the one he did, because he would have been able to insist that our notions of justice were derived from a 'moral sense' just as our other notions of morality, and were not the product of rational reflection upon the utility of the rules of justice with respect to these other moral notions. Furthermore, the understanding that property is 'distinguished by a simple original instinct' is something which cautions the moralist against devising moral systems in which the rules of justice, although sanctioned by rational reflection upon their utility to the community, are out of accord with the natural justice which is a part of human psychology and against which posited rules are ultimately judged. Let us now examine the specific practices associated with property in primitive communities.

Most often, property is shared between the members of a primitive human community, and certainly, land is so shared. Group or tribal land is given the status of common ground, although in the Vedda peoples (for example) there may be land held privately within it. In other cases, trees or other objects of utility may be owned by an individual who would enjoy most, but rarely all, of its products. Dwelling-huts of Andamanese groups belong to each one of the family in occupation, and communal huts which are to be found in some primitive communities are divided internally among the several families occupying it, each family having its own part or corner, and each recognizing an obligation to maintain its portion.

As with animal territoriality, human territories may be a function of several conditions, a variability which may be of selective advantage for the group, the tribe, or even the species as a whole. Between the world wars, the Bushmen of the Dobe region in southern Africa came to recognize a dual structure for territorial possession. Families would have exclusive rights to vegetables within their own territory during the wet season, but other bands would be allowed to hunt animals through the family areas. Other hunting and gathering peoples have developed similar dual systems.

The size of group territories may vary. Nearly all primitive communities are stationary and the territory they defend has to be large enough to support them. Where tribes are nomadic, it is usually because a particular area will not support them for long; this is true, for example, in the nomadic groups of the north African deserts. The size of the territories also varies according to local conditions and to the dispersion of food resources and population. The Andamanese group controls a territory averaging about sixteen square miles. The average area occupied by a whole tribe would be about ten times that, and different groups could hunt on the same piece of tribal land while they remained at peace. Normally, however, hunting territories are mutually exclusive. Each Tasmanian tribe, for instance, occupied its own hunting territory, the boundaries of which were well respected, and to overstep the mark was considered reason for conflict. The same is true in some of the South American aboriginals. In general, primitive human societies are fiercely territorial.

Morality in primitive societies

(a) Sharing and cooperation

Sharing and mutual assistance are perhaps more common in primitive peoples than in animals. Food, for example, has a special significance in the norms and rules of primitive groups and is frequently shared between the members of the group, although not necessarily equally. The pygmies of central Africa will call in neighbouring groups to share a large kill, such as an elephant. A strict sharing of food was observed

by members of Botocudo groups, but the best parts were commonly reserved for the hunters and their relatives; in the Cree and Hopi Indians, food collectively acquired was collectively shared. Families who were short would be invited to share food with friends or distant relatives.²⁶ In primitive groups throughout the world, there is a widespread belief that to trade for food, especially to sell it, is reprehensible.²⁷

Other cooperative traits in primitive cultures are so obvious that they hardly merit repetition. Parental care is usually intense, and youngsters are educated and socialized into the roles appropriate to their sex at an early stage. Cooperation through division of labour with the advantages which an economy brings, is widely established in all but the very simplest peoples. Exchange and barter for mutual advantage is much more common in human groups than in the nonhuman primates, probably because intelligence, foresight and language make trade much easier. Speech also makes possible the transmission of information through a group concerning the trustworthiness and reliability of other group members; if reciprocal altruism is to become an established way of life, this is the cultural stage at which it will take root. Except in those rare cases of borderline existence cited by Colin Turnbull and some others, cooperation within a tribal unit is an altogether unremarkable feature of primitive human society.

(b) Religious practice

Culture may be learned by the individual, and it may vary from one group or tribe to the next; this does not mean to say that it does not enjoy some measure of permanence. Indeed, cultural repertoires seem to change rather slowly in any human group. Fashions of dress or language certainly come and go rather quickly; but these can be altered without great social upheaval. Political views, especially attitudes towards other nations, seem to be rather more permanent; while the slowest of all cultural changes are, according to Wilson,²⁸ changes in sexual regulations and of the belief in particular deities.

The slow-changing forms of culture, which are probably a functional part of the human social system in a Darwinian sense, are most usually encapsulated in strict ritual. Jacob Bronowski quotes the elaborate ritual surrounding the manufacture of Japanese swords, a

technique that has been passed through single families since the thirteenth century.²⁹ The ritual calls for precise - and effective - metalwork, with a series of important stages being executed in just the right way at just the right time, when the flame is just the right temperature, say 'the colour of the morning sun' or 'the colour of straw'. In a society without books and without thermometers, this way of recording the technique in fixed ritual practices would be of considerable advantage, once the technique itself had been perfected. It is a tribute to the permanence of these semi-divine rituals that they have survived so intact for many centuries.

It has been seen that the rudiments of religion or magic are recorded in the cave paintings of early man. Magic and totemism, and the power to manipulate the environment (particularly the movements of prey animals) seem to be associated with these paintings, a fact inferred from their singular content. Unchangeable myths and traditions occur within nearly all primitive societies, although a belief in a deity or deities is perhaps not the norm in hunting and gathering societies, with the evidence suggesting that about one third of hunting bands share such religious beliefs.³⁰ In agrarian societies, however, particularly in herding cultures, the rate of group belief in an active and moral deity rises greatly, something which might be associated with the greater foresight and rational capacity needed for agricultural life.³¹

Religious belief seems to be a way of codifying a belief in some transcendent moral norms and values. High intelligence might lead individuals or families to adopt their own moral norms, perhaps more functional for their particular situation; but if every intelligent individual were able to set his own standards, the society as a whole would quickly collapse. Consequently, it would be of selective advantage to the society if some particular moral code were accepted with little deviation by all the members of the group, no matter how arbitrary it happens to be, as long as that code, when practised, promotes the selection of the group. Religious belief and ritual serves to make the code appear more necessary and permanent than would otherwise be

the case, and threatens punishment against those who ignore it, group rejection of those attempting to reform it. Human beings are very willing to accept religious and other authority, and this 'indoctrinability' referred to by Waddington, Campbell, Wilson and other authors is clearly useful to the group if it ensures the unity and cohesiveness of a set of moral rules.³²

(c) Ethics and morality

It should not be assumed, however, that all primitive societies are attached to one particular code of morality. Between societies there may be quite different codes, depending on kinship structure, environment, feeding habits, and other factors. The morality which was appropriate in the arboreal life, for example, would not be appropriate to the hunters of the African savannah. The groups which have made the transition might have adopted some parts of the new morality, but retained some parts of the old, a situation which will engender some confusion about moral value, and which could well explain disagreements about morality even in advanced societies. The same kind of confusion will spring from the fact that a moral system which discriminates on the basis of age and sex will be more successful in evolutionary terms than one which does not, and a system which is adjusted to meet changes in environment or population density will likewise be more efficient. Different groups facing different conditions could therefore adopt divergent moral systems, each of them appropriate to the conditions they face. Within any single group (at least within those advanced enough to be able to distinguish the world as it is from the world as it ought to be) there may, likewise, be disagreement on the appropriate code of ethics.

(d) Art and culture

The religious life of early man, as has been said, is recorded in his art. Like so many aspects of human social life, we find that art is also found in other animal species. The most obvious forms are the paintings of chimpanzees in zoos throughout the world; their daubings are not random, but follow definite patterns. Other 'artistic' achievements can be seen in other species, however, particularly the spectacular nest-building of the bowerbird.³³

The study of aesthetics may be able to make use of the ethological approach to explain why it is that certain forms of art appeal to us, and why we bother to notice them at all. The question is not a novel one: in one of Conan Doyle's stories, Sherlock Holmes mentions the hypothesis that we are still moved by music because nonverbal, tone communication was important in human societies before the adoption of language. Similarly, it might be that the features of representational art which we find pleasing today are those which would have signified something of importance to our early ancestors, say a source of food or water. The scope for hypothesis is probably limitless, but some general theories on this subject are so broad that they are immune from test. It would seem to be a subject in which field-work on the aesthetics of primitive human communities could pay dividends.³⁴

Conclusion

The study of morality in primitive societies is necessary to the ethological approach. It helps us to discern which traits are malleable in human evolution, and to discern which traits are rather more conservative. Also, it enables us to see the functional nature of moral codes, working within comparatively simple communities. Lastly, it helps us to discern the limits which natural selection places upon human morality.

Although considerable variation is possible between groups, the striking feature of primitive human communities is that within a local community, the acceptance of the moral system is almost complete and highly rigid. If an individual transgresses a moral code, he will often await his punishment quite calmly, as if it were impossible to escape. Religious practices, myths and traditions help to preserve the cohesion of the moral system, and slight differences in practice serve to isolate one breeding population from the next, a feature of social life which preserves the integrity of the social pattern of actions itself.

FOOTNOTES TO CHAPTER SEVEN

1. David Hume, A Treatise of Human Nature, Book III, part I, Section II.
2. As well as the fact that the historical placement of these early forms along a smooth progression is possible, due to the recent advances in dating techniques.
3. Wilson, in his Sociobiology, p.550 quotes neuroticism, dominance, introversion, extraversion, personal tempo and bodily activity, all of which could differentiate one culture from another. In modern society we see the heritability of such personal distinctions, and were they to differentiate one group of persons from another, then the cultural differences could well arise.
4. Ibid., p.552.
5. See David Pilbeam (1967), quoted in Fox, Men in Groups.
6. Hobhouse was referring to a cluster of races, arising from different origins but showing remarkably similar ethical traits, (and very primitive social organizations) so much so that were it not for their morphological differences, one might be tempted to ascribe a common ancestry to them. These groups include the island peoples of the Indian Ocean, the South American mountain dwellers, the Central and South African tribes, as well as the Andamanese, Sakai, Negritos, Punans, Tasmanians, Pygmies of Africa, Bushmen and Fuegians. Some are now extinct.
7. For an extended account of the implications of this, see Ardrey, The Hunting Hypothesis.
8. Lionel Tiger, Men in Groups.
9. For a full account of the life and relations of the Cree, see Mandelbaum (1940), discussed in Tiger, Men in Groups, and Tiger & Fox, The Imperial Animal.
10. As, for example, in the Eskimo fishing community of Cat Harbour, researched and described by James Faris and referred to in Tiger, Men in Groups, chapter 5. For further comments on Eskimo communities, see Weyer (1967).
11. On Greek popular morality, see Adkins, Moral Values and Political Behaviour in Ancient Greece; Pearson, Popular Ethics in Ancient Greece; and Dover, Greek Popular Morality in the Time of Plato and Aristotle.
12. Hobhouse (1966).
13. Lowie, Primitive Society, quoted by Tiger, Men in Groups.
14. On this, see Powell (1960); Wilson (1949); Levi-Strauss (1944).
15. Levi-Strauss (1944).
16. R.Brandt, Hopi Ethics.
17. Washburn, Conflict in Primitive Society.

18. For a fuller discussion of the functional aspects of Jewish law, see Darlington, The Evolution of Man and Society, chapter 3.
19. A number of rationalizations of the incest taboo and other sexual proscriptions occurs in the Jewish law; but these are clearly subsequent rationalizations upon an accepted (natural) standard of conduct, and not a foundation for positive law.
20. See Garnett, Ethics, chapter 2.
21. Westermarck, Origin and Development of the Moral Ideas, passim.
22. Tiger & Fox, The Imperial Animal, chapter 8.
23. For a strong argument on this point from an eminent ethologist, see Niko Tinbergen (1968).
24. Washburn, Conflict in Primitive Society.
25. Hume, Enquiry Concerning the Principles of Morals, Section III, Part II.
26. Brandt, Hopi Ethics,
27. Hobhouse (1966).
28. Wilson, Sociobiology, p.560.
29. Jacob Bronowski, The Ascent of Man, chapter 4.
30. J.W.M. Whiting, in a discussion 'Are the Hunter-Gatherers a Cultural Type?' in R.B. Lee & I. DeVore, Man the Hunter. Chicago: Aldine, 1968.
31. G. Lenski, Human Societies: A Macrolevel Introduction to Sociology. New York: McGraw-Hill, 1970. Quoted in Wilson, Sociobiology, chapter 27.
32. For exposition and views on this see Wilson, Sociobiology, p.562; Waddington, The Ethical Animal, passim; Campbell (1975).
33. The achievement of the bowerbird is discussed in Eibl-Eibesfeldt, Ethology.
34. See D'Azevedo, 'An Approach to Aesthetics', American Anthropologist, vol. 60.

Chapter 8

INHERITED TRAITS IN THE MODERN WORLD

"If man were indeed a blank slate for his culture to write on at will whatever perverse message it chose, we would be in even greater peril than we appear to be."

Lionel Tiger & Robin Fox¹

In our examination of the evolution of a number of social traits including those which we normally call 'moral' traits, we have seen that there have been strong selective pressures at work to produce those moral traits. In human society, the pressure has been at its greatest, and the mental facility for altruistic behaviour, because of the use of language and the ability to calculate the consequences of an action (to some degree). Through religious beliefs and through the cultural traditions of human societies, men have found themselves committed to the welfare of the society as a whole, rather than to their individual and narrow self-interest. The values which called for that advanced cooperative state were laid down long before human beings evolved however, although in human evolution they were at a high premium; but values can never be established by rational reflection and calculation, for that calculation may only clarify what are the most appropriate means of satisfying our values.

Modern man uses his faculties of calculation far more than animal or even primitive human agents. The selective advantage of this

power may be maintained by the fact that modern men live in compact industrial societies, with which our evolutionary morality did not emerge to deal. It does not follow, however, that we have the power to select our values at will. In addition to the values which they do not need to be taught, human children are continually bombarded with the elements of social and moral practice common to the society in which they live. As will be outlined later on, human beings seem to be culture-acceptors; children crave to learn these established practices, and their acceptance reinforces those practices in future years. This is a human addition to the 'retention and variation' equation of the evolutionary process. In large breeding populations, the genetic constitution that produces sociability can be diluted with other elements, and so education is probably of the largest functional value in maintaining social life in such populations, characteristic of industrial man.

In this chapter we will review the moral and social traits that we appear to have in common with animal societies and with our early human ancestors. This is not to imply a genetic basis for such characteristics, but it will help to show the remarkable continuity in practices that is of functional importance to all societies. We will follow the usual pattern of social organization, maintenance of social organization, and altruistic traits.

The elements of social structure

(1) Widespread nature of social life

Human nature has not changed to one important extent, that we continue to live in social groups. Our mastery over transport, medicine and the means of production has led to the expansion of geographically based communities and the expansion of breeding populations; but nevertheless geographical location remains a flexible limit upon a population. Even where our cities are very large, they are commonly broken down into small neighbourhoods, which might seem to be of little consequence to outsiders, but which are very important to the social life of the residents. Sometimes, city neighbourhoods are even divided by ethnic background, impressing one of their individual

and discrete nature.² This being so, the conditions necessary for the continuance of a genetically-based morality are broadly satisfied; proximity of members of a society, their mutual dependence and partial isolation are all features of modern industrial life, albeit to a much lesser extent than in the hunting and gathering peoples.

The pervasive nature of social bonding can be seen from the large amount of debt in modern societies. Not only does debt in the monetary sense maintain the mutual dependence of individuals, but the institution of gift-giving also establishes a labyrinthine network of rights and obligations between individuals, a network which is difficult to sever.³ The institution has its origin in animal societies; many animal species share food or use gifts of food to reduce aggression in a mating partner.⁴ In a larger sense, economic activity is dependent upon social cohesion and cooperation, and helps to reinforce the bonds between individuals. Modern economic life is a distant analogy of ancient agricultural or hunting life, and the relations necessary to sustain it have not disappeared.⁵

(2) Dominance orders in the modern world

Even in the most egalitarian countries, rank has not been extinguished; the hallmarks of status are always to be found, even in the Soviet Union and in the Peoples' Republic of China. The grand homes, the well-appointed offices and the expensive limousines are always with us.⁶ Between countries, the symbols might be different, just as in primitive societies, rank is settled by different abilities (tree-climbing in one band, hunting prowess in another) and represented by different marks of rank.

Control over social activities, which we have seen to be associated with dominance in animal and primitive societies, is retained in the modern world. Executive power is rarely wielded by a large group; the cabinets of most governments are less than thirty people strong, and legislative assemblies are rarely more than a few hundred. The concentration of power in the hands of rather few people is an almost universal characteristic; even the Chinese Revolutionary Committee had its prime ministers and presidents. Position on this

elite ladder is sought jealously, as political conflicts throughout the world testify. There are other marks of this dominance order which liken it to animal orders. For example, there is frequently only one head of state, commonly recognized as the dominant member of a country (although in some countries, the duties of the head of state are severed from the executive power, although the executive branch of most governments has its own dominant individual). Some constitutions ensure that the head of state is of a minimum age; and few presidents and prime ministers are very young.

Extended industrial societies, however, cut down the scope for an individual to become a part of the dominant establishment. There is still only one prime minister in the United Kingdom, still only one president in the United States, even though the populations of those countries have multiplied enormously in the last two hundred years or so. On the other hand, the number of smaller groupings in which an individual can rise to the top has increased. Modern society is, as Eibl-Eibesfeldt claims, full of subdivisions of government, bureaucratic departments with their own hierarchies, clubs and associations of many kinds, even sub-cultures with their own spiritual leaders.⁷ Each organization is closely analogous to a human hunting group in size, in the exclusiveness of its membership, shared goals or affections, recognized norms of behaviour and competition or rivalry with other similar organizations. Each too has its dominant members, its committees, its chairmen, its gurus or its captains. The urge to rise to the top, even on a limited scale, seems to be a very common feature within human societies. Because of the usefulness of stable dominance orders in all forms of social group, as outlined in chapter four above, this trait is hardly surprising.

(3) Sexual roles and the division of labour

We have noted that in early human evolution, a division of labour would have been advantageous. We have also noted the generality of male dominance over females in primate and primitive human societies. There are many rather obvious illustrations that these relations still affect our actions and relations, however much we may wish the opposite.

As regards dominance orders for example, Maurice Duverger paints an astonishing picture of the one-sidedness of politics.⁸ There is, he says, a "tendency to regard politics as a man's affair. The club, the forum, debates, Parliament and political life in general are still considered to be typically masculine activities." Later he notes "The percentage of women Members of Parliament, for instance, is hardly increasing. On the contrary, it tends to fall after the first elections in which women have had the suffrage, and to become stabilized at a very low level" in any world government assembly. Lionel Tiger cites general maxima of women members of these bodies, including France (3.6 percent), Norway (4 percent), Britain (3 percent), and the United States (2 percent).⁹ Duverger notes that even in the Netherlands, noted for its liberal ideals, five percent was 'seldom attained'.¹⁰

Furthermore, many senior female politicians have achieved that status partly through the political positions of their relatives; Mrs. Bandaranaike of Ceylon, Mrs. Ghandi, Mrs. Roosevelt, Lady Astor and Jenny Lee (both of Britain) are examples. Another point on this issue is that female suffrage (and voting is a rather minor step in the political process) has been won only very recently in industrial countries and is still not universal. In the public debates on the subject, men played perhaps the leading role.

Professional organizations have the same barriers. Even in the Soviet Union, where women are supposed to undertake the work of men, it is the more menial occupations which employ the highest proportions of women, while the professions are dominated by men.¹¹ In other countries, the professional exclusion of women is often much more advanced. The London stock market admitted its first female member only in the mid-1970s, and after much deliberation and fanfare. Mugdock wrote in 1937 that "while a number of occupations are universally masculine, none is everywhere feminine," and the same is still true.¹² Mead and Kaplan noted that only a tiny percentage of top judicial posts are occupied by women.¹³ In seafaring communities, perhaps closer analogies of primitive hunting bands, women are thought to be unlucky on boats (and even oilrigs), a tradition which may well

have descended directly from the exclusion of women from ancient hunting parties for purely functional reasons. While the functional importance of the exclusion might be less today than in ancient times, the attitudes that produced it still exist. Many times is it heard that women 'ought to be at home' or that some occupation is not 'women's work', even where women have demonstrated that they have the skill and the determination to perform well at these tasks. Our notions of appropriate sexual roles seem to be most persistent.

(4) Age differences

In all societies, modern or ancient, the young hold a special place. On the one hand, they are the future representatives of the social system or culture and must be inducted into that system through education and a long period of conditioning, moderated by praise and punishment. On the other hand, they must be protected and appraised at a higher value than those who are already functioning members of society but who have little more genetic contribution to make to the society.

Consequently we find that children are highly valued, as group fitness considerations would dictate. Adam Smith expressed things well, saying that "In the eye of nature, it would seem, a child is a more important object than an old man, and excites a much more lively, as well as a much more universal sympathy... In ordinary cases an old man dies without being much regretted by anybody. Scarce a child can die without rending asunder the heart of somebody."¹⁴ Although not equipped with Darwinian theory to guide him, Smith did recognize the importance of the young for survival: "Nature, for the wisest purposes, has rendered in most men, perhaps in all men, parental tenderness a much stronger affection than filial piety. The continuance and propagation of the species depends altogether upon the former..." Hume also subjugates other virtues to the need to raise children, saying for example, "The long and helpless infancy of man, requires the combination of the parents for the subsistence of their young: and that requires the virtue of chastity or fidelity to the marriage bed. Without such a utility, it will readily be owned, that such a virtue would never have been thought of."¹⁵

Children are not a part of the social dominance pattern; they have no political rights or executive privileges in any modern society. The transition from this state to the state of a participating member of the adult community is often marked with some formal ceremony. In Jewish cultures it is the ceremony of Bar Mitzvah; in others it might be examinations or arbitrary ages of majority. The tendency of societies to adopt these ceremonies is very ancient, and can be detected in the rituals of many primitive peoples - for example the initiation task of American Indians to bring back the talon of an eagle, or the dangerous leaping (restrained only by a vine rope) of some South American tribes. The form may differ, but the importance of the ceremony remains the same; it marks induction to manhood.¹⁶

The position of the child as the future representative of the social lifestyle of the population is of great concern to all. In the industrial world, this concern is manifested by the proportions of national budgets that go on education and child health and welfare. (In pre-industrial societies, the budget is no indication, for much teaching will be done within the family or local village community).

Education is, of course, of the utmost functional value, because it is through education that the young can be encouraged to accept the prevailing social morality. The lengthy period of maternal care in human beings makes this educational process more effective; the child grows to accept the values of his parents, relatives and friends and can even draw on the experience of generations long since dead, or at least that part of their experience they are able to put in their books.¹⁷ The claims of educational institutions that they release an individual's powers are rather weak when compared to the years of subtle inculcation of traditional attitudes, social skills and moral qualities of self-discipline. It is hardly any wonder that some Athenians found Socrates to be a threat, for he questioned the traditional customs and virtues, and he stressed that the intellect could free the soul.

Education is not a collection of discrete lessons, each learned in isolation. On the contrary, social learning is going on with many

overlapping generations, in an environment where people of different ages coexist side by side. In this environment, it is easy to perceive how the continuity of cultures and practices is maintained. Were a child to learn about laws, morals and facts from his grandfather, and he in turn learned them from his, and so on, then only some eighty lessons need be learned since the beginning of recorded history. This number leaves small enough room for change; but when one considers that these lessons would be going on just out of phase with the same practices between other children and adults, and that the children were learning from each other as well as from the adults, then the scope for change is perhaps even less. Variation might occur, and successful evolution demands its occurrence; but retention of social characteristics has a very strong force at its disposal. Furthermore, there is a tendency in all human beings to accept the decision of the majority, or at least the decision of a local group or group of respected peers, as the psychologist Asch has shown in a series of fascinating experiments.¹⁸ Children especially have a tendency to accept authority and to absorb orthodox opinion, and this trait is obviously connected with selective advantage.¹⁹ In fact, children do not merely accept such opinion, they crave for it. Lastly, it may be noted that the use of a basic language constrains the thinking of individuals. Most language has a built-in conservatism and fits most compatibly with traditional virtues. In English, for example, the word 'foreign' carries a distinct overtone of hostility. Or again, to describe a person as being 'of quality', we naturally mean of good quality; and in addition to these terms which are not necessarily normative but which do carry normative connexions, there is a host of strictly normative terms such as 'good', 'best' and so on, each of which encapsulates the traditional view of the normative. The contribution of such pressures toward conformity may be essential to an adaptive accumulation of social customs and to the 'retention' arm of the evolutionary balance.

Nature has established mechanisms to ensure that the educational process does not go wildly wrong. Education is carried out in a social environment, and if that environment is lacking, it may be impossible for a young individual to mature normally or even survive phys-

ically. There is dramatic evidence cited by Spitz in which nearly a third of the children committed to a foundling hospital died before the age of two and a half years. The problem was not a lack of physical care, but their starvation of normal family affection.²⁰ Further observations by John Bowlby suggest that in orphaned children, even those which do survive suffer severe disruptions to their ethical and social repertoire. Viewing cases where children were separated for a very long time from their natural parents, Bowlby says that the child will behave as if no human contact is of meaning to him; he will be unable to establish emotional bonds with other people; he becomes self-centred: "He will appear cheerful... and unafraid of anyone. But this sociability is superficial: he appears no longer to care for anyone."²¹

This state of affairs will, of course, reduce the possibility of survival and procreation in those individuals who are not properly socialized, and will therefore prevent the possibility of anti-social tendencies spreading in the population. It is also interesting to note the consequences of this for the developmentalist school of psychology. As has been mentioned already, the fact that human and animal behaviour can be altered after birth has led some thinkers to suppose that the range of possible behaviour is infinite, and that much variation in fact occurs. This ignores the heavy importance of social circumstances in child education; the child cannot be isolated from the traditional social forces which impress him constantly. Even though parts of his behaviour are malleable and can be changed by education, in practice there is remarkable continuity in what is learned.

Maintenance of the social system

(1) Cooperation in defence

In modern industrial societies it is comparatively rare for all of the members of the society to cooperate in defence, although military service is expected of everyone in some states such as Switzerland. Our ingenuity and the large scale of our societies allows us to employ others to form our armies. Nevertheless, it is a rare country indeed which does not possess a standing military force.

Armies are always organized upon lines of strict rank, the form of organization which seems to work so well in the defence of other primate societies. At the same time, war is a man's sport, involving the young males in the main. It is very rare for women in any country to be active in the armed forces on a large scale, and even then they are never used in front-line battle.²² The First World War is often cited for the participation of women in the forces, but as Hirschfeldt notes, this participation was confined predominantly to technical services.²³ In the Women's Royal Air Force of today, women are still allotted the clerical and educational duties rather than combat posts; there are few women pilots. These differences are not the result of a female lack of ability in any of the physical skills; they occur because we think that there are 'proper' roles for men and women even today. This attitude is of undoubted advantage to the society whose members possess it, as it would be in a nonhuman primate band and a band of primitive hunter-gatherers. Women and children, the future prospects of a society, are usually the object of defence, while the relatively dispensible males are its practitioners.

Organized warfare has always been a male preserve, as even our recorded history makes plain. At the same time, it has changed in other ways. For example, it must be observed that violence resulting in the death of a conspecific is very rare in the animal kingdom; it may happen under conditions of severe overcrowding, but for the most part it is absent, even in territorial disputes. The early history of human warfare seems to be much the same. In primitive peoples today, conflict between societies is mostly limited to skirmishes and raids. The institution of the king's champion by which disputes were settled in Biblical times and before, existed well into the Middle Ages. In Greek literature we find that skirmishes with adjacent townships were deemed successful when one or two casualties had been suffered by the opponents, which was sufficient to satisfy honour. The rise of the conquering armies did not begin until agriculture, and the other material possessions which go along with it, was well established.

Modern warfare is different from ancient warfare and from the raids and skirmishes of hunting societies in that territory is not the sole object of the conflict. There is a limit to the amount of space which any society can control and exploit. But modern societies are rich in other ways; rich in potential slave labour and rich in material possessions or singular technological skills. The attractiveness of complete conquest is therefore increased. It is also made possible by the invention of weapons which kill at long range. One of the reasons that the killing of a conspecific is rare in animals is that animals either lack the natural weaponry to do it, or specific inhibitory behaviour has evolved to prevent it.²⁴ Men also share a certain inhibitory mechanism; it is difficult for most people to consider killing another with their bare hands, or even with a weapon at close quarters. Advanced weapons which kill at great distances have solved this problem for us, and have changed the face of war.²⁵ It is indeed tragic that when we need our natural morality the most, our technological ability has outstripped it.²⁶

(2) Dispersion

In primitive societies, each group of about fifty or so individuals defends its own territory, the size of which depends on many factors including the available food supply. The functional nature of this arrangement for the continuation of the society is obvious.

Industrial societies, of course, are much more complicated; as the number of people living in a small geographical area has increased by virtue of increasing agricultural and technological ability, our relations with other members of our own community or country have become more difficult. It is quite plausible to argue that human nature has not evolved with a sound mechanism for dealing with large community life; that our intergroup responses are still more appropriate for pre-industrial, possibly pre-agricultural lifestyles which they evolved to facilitate. Being clever creatures, however, we find ourselves members of extraterritorial groups and make a certain allegiance toward them. These may be professional groups, small local communities or neighbourhoods, religious sects or political clubs, special interest societies, or any other.

This phenomenon is what Garrett Harding calls 'tribalism' in the modern sense.²⁷ The term should not be reserved for small groups, clubs and societies, however, for the same phenomenon appears to apply to racial and even geographical divisions between the residents of any single country. The 'tribal' attitude is typified by sentiments similar to those in ancient tribalism. The 'tribe' is perceived as a special group, distinct from others, to which each member has a personal obligation. Other groups are viewed as competitors, with fear and hostility manifested toward them to some degree. One morality is recognized for insiders, another for outsiders. When the 'tribes' are religious or racial units, it is not uncommon to find a country torn apart by civil violence between them. The xenophobia which typifies the tribal attitude becomes increasingly important, and hatred toward other tribes is taken as a mark of membership in one's own. Nonconformists are driven out or punished when this modern tribalism reaches its most advanced stages.

For the most part, competition between modern 'tribes' is easily controlled, but civil war between two or more factions has afflicted nearly every geographical country at one time or another. Xenophobic tendencies in these circumstances can hardly be praised, but their extensiveness can be judged from the underlying evolutionary functions which they do serve, or did serve in small human groups. The group-uniting function is still present; hatred of outgroup individuals reinforces ingroup ties. For primitive bands, this might be a useful function, even though in modern industrial communities, it may lead to great strife. The isolation of a group through xenophobia is another function in the same category, this time the evolutionary advantage being that it preserves the concentration of genetically-determined or culturally-determined practices in the group, avoiding an influx of possibly disruptive individuals. The difficulty for moralists is that to some limited extent, these two advantages of xenophobia are still present. We like to feel as though we belong to some special group of similar individuals, be it professional, racial or other; and the indiscriminate marriage of completely different cultures really could cause problems in moral and social behaviour where the two sets of

social attitudes come into conflict. Even if we were able to abolish our fear and hostility to other 'tribes', then, there could still be difficulties because of the possible disruption in social systems which (in isolation) function well at the moment.

So far we have been talking about the opposition of groups that do not necessarily have a territorial base. In modern man, large areas of land are defended by countries or kingdoms as a complete unit. Defence of smaller areas by a group of fifty individuals or so is much rarer; but this does not mean that the primitive territorial imperatives of our hunting past have been extinguished. Modern social life has destroyed such territorial units, but we find that individuals are still highly territorial, and family units share the tendency. Our homes are separate; our gardens are often marked by enclosures, walls and hedges. Very precise surveying and mapmaking leave no doubt as to the limits of ownership units. Trespass is grounds for court action, even though the act of trespass may cause no physical damage to property.

Our complicated societies allow there to be many forms of territory; not only homes, but offices, even cars, can be included. All of them tend to be marked with the owner's name or some distinctive decoration which establishes ownership. Rooms are not entered before the door is knocked, a ritual which acknowledges the jurisdiction of the occupant.

The concentration of human life in industrial cities has forced a dramatic curtailment in the amount of space which an individual can enjoy, although it is true that individuals can learn to live under such conditions. Nevertheless, strict laws of property ownership and transfer are applied, which shows the psychological importance of property and personal territories in the mind of modern men. Were our nature different, like the galapagos lizard, we might well be able to live on top of one another, with several families crowded in the same room and sharing the same ground. The fact that few human beings are able to accept such conditions testifies to the strength of natural mechanisms of human dispersion.²⁸

(3) The regulation of sexual conduct

Laws about sexual behaviour can be found in every human society, and they are supplemented by as large a body of moral doctrine on the subject, at least in the more advanced primitive societies and in the industrial societies.²⁹ The widespread nature of these regulations and concerns suggests the key importance which is placed upon sexual behaviour. Clearly, the breeding practices of any group is of instrumental consequence to the survival of that group; but it is rare for sexual rules or morality to be couched in terms of social welfare; an appeal to inherited or accepted values is all that can be raised in justification. As we see from Hebrew law for example, the proscriptions on indiscriminate sexual behaviour are sometimes written in language of 'cleanliness' or 'fitness' or other quality which is valued in itself.

A successful breeding population will display several rather uniform, predictable traits. In the first place, there is partial isolation from other populations, and more or less complete isolation from widely different groups, the latter trait tending to diminish the frequency of wide crossbreeds and maintain the distinctiveness of races. Secondly, population bonds are strengthened by endogamous mating within the population. Of course, a breeding population may include several local communities or distinct groups, sometimes groups which are generally hostile or on poor relations. Mating will also be exogamous to the extent that it occurs outside a family unit. Through the balance of these forces, population character and uniqueness is retained, while the possibility of genetic variation is allowed.

The rules which embody this breeding system are still to be found in modern industrial countries. As breeding populations have expanded, and as cultural factors have increased the number of individuals with whom intracultural marriage would be possible, the traditional norm that mating should be inside a certain population has become less necessary. Even so, there are enduring prejudices against marriage with different national or cultural groups in many cases, a relic of the previously functional sexual morality of the primitive band and tribe.

The regulation of incest, however, is still with us in an obvious and undiluted form. Darlington, on this subject says: "The rule of exogamy in one form or another applies to all known human societies. Kinship by descent is always recognized and mating with one's own kin is always held to be wrong, one's own kin being those who are classified as kindred under one's own social system. This rule we can ascribe with certainty to our common ancestors as the beginning of modern man."³⁰ The case is, however, perhaps not so clear cut. In the first place, there seems to be a universal rule against marriage within the family, but not necessarily a universal rejection of sexual relations within the family. Some anthropologists, such as Murdock, claim that the ban on sexual relations is universal, while some, such as Fox, claim that there are clear exceptions within primitive cultures of today.³¹ We can, however, take it that the proscription of incest is very general, especially within the nuclear family, although cultures may vary in the rules regarding incest with related kin; in some cases the proscription can cover very distant relatives who happen to be recognized as kin or called such because of the particulars of the language.³²

A discussion of this (or any similar) aspect of social life must address three questions: firstly, what is the selective advantage of the regulation; secondly, what is the source of our motivation to commit some act that is contrary to our advantage; and lastly, why do societies come to forbid such behaviour at all? These questions have been raised in a critical manner by Robin Fox in his book Kinship and Marriage, and they do indeed show the problems that may arise when we tackle such speculative subjects.

In the first place, why should incest be a disadvantage to societies practising it? We can dismiss the popular folklore that mutation rates would be unduly high, which is quite unfounded. We must also doubt the arguments that individuals who marry or have offspring by their own relations will, like Oedipus, be their own fathers or suffer some other confusion. Unless this led to a complete subversion of familial authority, there should be little problem of evolutionary fitness. Nor can we really take seriously the view that incestual relations

prompt the formation of unbreakable bonds between the partners and a reduced desire to form kinship links with other families; again, it has not been proved that this argument is sound. Casual incestual relations within a family would be quite compatible with marriage outside the family. But it is certainly true that persistent incestual relations, or marriage within the family, would have some of these problematic effects. In particular, it would reduce the dependence of the family unit on other families for the purposes of finding mates; and this would reduce the network of bonds between the members of a society in which several nuclear families coexisted. In the selection stakes, it is altogether likely that the close-bonded societies would perform better than those made up of discrete families with little reliance upon each other. Consequently, the successful societies would tend to be the exogamous ones; and from there is it a simple step that our ancestors might have taken to assume that sexual relations, and not marriage, was the deciding factor.

The question of our motivation for incest is also revealing. There are, of course, two schools of thought: one is that we have a high motivation to commit incest and that this must be regulated for biological advantage; the other is that we have little such motivation and that lack is the basis of the 'rationalized' proscriptions. The latter school backs up its claims with 'demographic' evidence that early man would really have had little opportunity due to a short life-span, relatively few offspring surviving to maturity, the wide spacing of childbirths and a random sex ratio; each factor would have increased the likelihood of extrafamilial mating. When these factors changed, it is argued, our ways were already set.³³ No doubt our rationalizing minds would have developed some arbitrary rule or rationale to explain that behaviour. Proponents of the former position may argue that close inbreeding does in fact have some advantages, and so could have been useful at some stage in our evolutionary past. One advantage is that it concentrates deleterious genetic characteristics, rather than spreading them through a population; if a high rate of sacrifice could be borne, then the genetically recessive char-

acteristics would be eliminated over the generations. In arboreal life, this may have been of advantage; but when our hominid ancestors moved to the savannahs, such sacrifice would probably have been maladaptive. Consequently, a proscription on inbreeding would be of advantage.

Yet another possibility is that marriages within a family would be less fertile than others because of a reduced sexual desire in the partners. There is some evidence to show that children who have been living in the same family circle for some time, while not related by kinship, have lower reproductive rates upon marriage to each other.³⁴ Similarly, members of Israeli kibbutzim tend to avoid marriage and sexual relations with other members of the same collective. This would seem to favour the Westermarck view, that familiarity in childhood breeds mutual indifference, although it is possible that deliberate training by the parents might have the same effect (the view of Freud, for example).³⁵

This brings us to the third question: if individuals want to commit incest (according to Freud) or do not want to commit incest (as in Westermarck) then why are there any conscious rules at all? The question can probably be resolved by considering the costs and the benefits of outbreeding and exogamy. On the benefit side, marriage with other families forms social bonds tending to consolidate the society. Sexual competition within families may be avoided, and outside marriage would give a family a greater opportunity of sending its representatives to other parts of the environment, thus increasing the chances of their genetic characteristics surviving through the generations (instead of being completely obliterated by some local environmental change). On the cost side of the equation, distance between adjacent families might pose a problem, although much less so if there are plenty of distant and non-relatives near at hand. In early hominids, as in the hunting communities of today, it would be unlikely that many individuals in the social group would be non-relatives (although some peoples, such as certain Australian Aborigenes, have solved this by constructing two or more moieties within the whole tribe, inside which no marriages may take place but between which marriage is allowed).

One could well imagine that it would be only with the development of successful cooperative hunting techniques, or more likely, with the development of agriculture, that human social groups became large enough for non-relatives to be immediately available. At that time, the rule, or norm, which encouraged individuals to make a search for mates outside their immediate family (even in the light of the costs of that search) and which was a feature of the more successful societies because of their avoidance of the costs of inbreeding, would have been firmly established. As societies grew, all that was required was its quantification; human beings seem to have a tendency to crave the quantification of rather vague biological imperatives into definite rules of behaviour, a tendency which probably helps avoid disputes and conflicts. In most societies, the accepted degree of relatedness seems to be about where the number of genes shared by the partners is about one eighth - that is, first cousins. When the costs of search for more distant relatives is lower, in nomadic tribes for example, one would expect the degree of relatedness allowed to be less; whereas, in more permanent families (royal families or remote village communities) one would expect the incest rules to be more lenient. The precise rule in each society may be rather arbitrary, for a society will have no means of checking the contribution to its evolutionary fitness made by the rule, and may in fact be unaware of the correlation.

So we see how it is possible for behaviour such as incest, the evolutionary disadvantage of which is probably quite slender, to become entrenched in social rules and regulations on a wide scale. The disadvantage, over the many generations of human evolution, can make a large difference in the fitness of otherwise identical groups. Also, we see how some regulation of behaviour founded in biological advantage can be very different between two societies, particularly when the evolution of those societies has been different in some crucial respect.

Other sexual behaviour carries similar or stronger restrictions, although once again the precise rules and the types of behaviour restricted varies much between societies. In general it can be said

that behaviour tending to reduce the fertility of the society is discouraged. It is difficult to see how such rules would emerge under kinship selection unless the social group was prominently endowed with related kin, but they would be the natural outcome of interdemetic selection processes. Depending on circumstances, some societies have favoured polygamous behaviour (which would be adaptive under difficult conditions where male mortality rates are high), but few practice polyandry. The norms may vary, but deviation from them is usually a reason for indignation in other members of the society. Again, this suggests that group selection processes have been important and that 'self-interested' behaviour has been subjected to discouragement by others.

Modern moralists question the right of a society to legislate on matters of personal morality. This is the debate between Hart, Devlin and others on 'legal moralism' which is mentioned in a later chapter at more length.³⁶ The simple point which can be made here is that the justification for such questions - that individual sexual behaviour does no harm to others - is itself doubtful; if societies allowed their members completely free rein, and if they were disposed to take it, then there would be a great deal more strife than there is, and far fewer coherent and functioning societies.

Of course, this biological morality might be quite inapplicable for the modern world. In contemporary societies, overpopulation is often regarded as a major problem, and in very few countries (France is an exception) is there a conscious effort to increase population, unless there is a threat of occupation from neighbouring countries or unless there has been a major catastrophe. Hence many of the western powers attempted to increase their populations shortly after the second world war. Unfortunately the incentives which were awarded to the larger families have been confused with child welfare aid, and have proven remarkably difficult to remove, despite their outlived usefulness. The threat of overpopulation is so vivid because we have evolved as very efficient breeding machines; our social groupings and our technology have increased the lifespan of ourselves and our offspring, and

our morality has not yet adjusted to the fact. Nobody suggests that the threat of overpopulation should be met by complete abstinence - our sexual urges are simply too strong for such appeals to work. But there is still opposition from some people to contraception, from more to abortion, and from almost all to infanticide, each of which are potential solutions. Our evolutionary morality still pulls us in directions which would have been useful in the past, but which cause new difficulties in the industrial world. This is a subject which will be taken up again in chapter eleven.

Altruism and other moral behaviour

It can be taken as datum that human beings in modern societies are altruistic and cooperative - at least at times. The prevalence of human altruism makes possible and necessary the study of moral philosophy; were there no tendency at all to act or desire to act in moral ways, the subject would not exist. In psychology also these phenomena have evoked much research, for example in Macaulay and Berkowitz's Altruism and Helping Behaviour, or Wright's Psychology of Moral Behaviour. More popularly, human morality has been discussed in the works of Ardrey, Lorenz and Morris, but the need to explain human morality has also struck more academic biologists and geneticists, such as Trivers, Maynard Smith, Hamilton, Wynne-Edwards and Wilson in his recent book Sociobiology. Clearly there are similarities between men and the social animals in the cooperation and altruism exists in both.

Psychologists and philosophers might differ in their explanations of how these traits are maintained. Some, like Smith, would say that morality is motivated directly through sympathy; others would insist (like Hobbes) that self-interest was the chief motive. For our purposes here, such questions are less important than the problem of how similar human moral behaviour is to animal moral behaviour. To assess this, we have to look at some exemplars of human morality and determine whether it is represented in animal societies and whether it is likely to be maintained through the workings of evolution by natural selection.

We may consider human moral traits conveniently by listing them under the following broad categories:

(1) Sharing and cooperation

The sharing of food is common in pack animals, where it is selected for reasons of biological efficiency; if prey animals are too large for the hunters to consume alone, then the whole group benefits from being able to share. The same phenomenon of group sharing of prey is universal in primitive human societies under all but the most harsh conditions. Similarly in modern societies, food is an object of sharing. Although it happens rarely in civilized societies, the lack of food by an individual or family causes distress to others, a concern manifested by the institutions of soup kitchens, wartime food parcels and government programmes designed to assist the nutrition of poor families and children, often at great cost to the taxpayer.

Other resources are also shared. Despite the tendency of industrial countries to meet a shortage by increased production, rationing of commodities is taken to be a very reasonable solution to a forced shortage. Wartime rationing of food, clothes, petroleum and many other products is an example; the rationing of oil and cooperation in energy conservation were the immediate reaction of many countries to the OPEC oil cutbacks and price-rises of the 1970s.

The modern world has invented the ultimate device for social cooperation - the economy. The economy is a system which encourages each individual to contribute the services or commodities he possesses in exchange for other benefits in terms of commodities available from the rest of the individuals in the economy. The advantages of the division of labour, common to insects and other social creatures, are shared by modern man (although in man it is learning which determines the skills contributed to the economy, and not hereditary characteristics).

Examples of noneconomic cooperation are so numerous and such an everyday occurrence that we could easily forget them. Consider, however, the multitude of such small acts of sharing. The housewife borrowing a cup of sugar; the couple asking a friend to babysit; the office worker sharing a ride to work with a colleague; people who organize Sunday-school outings, dances, fêtes and parties; members of interest groups who share books and magazines on their subject; the list

is apparently endless. The moral psychology associated with these and similar acts is largely what we would expect it to be under the model of the evolutionary emergence of morality suggested by Trivers. We simply do feel guilty if there is some small sacrifice we could have made for others but did not. If someone is in urgent need, we do feel more disposed to make sacrifices for him. As far as the social group is concerned, evolutionary fitness will be improved by such a psychology, and (to the extent that gratitude is rewarding to the person making the sacrifice) gratitude also will be selected in evolution, its intensity proportionate to the size of the sacrifice. These are psychological traits which are functional in evolutionary terms and which prompt the performance of acts that are put under the heading of morality.

Acts of generosity or altruism toward other members of one's population, even though they may be strangers, is quite compatible with the evolutionary selection of the population, and can be of selective advantage. Contacts so established may further the performance of future altruistic acts between the various partners, and so be of double importance. There is every indication from the available evidence in psychology that human beings do set up cooperative systems with strangers. The 'prisoner's dilemma' game, for instance, yields the highest reward to both players over the long run only if one allows his opponent to win half the games and if his opponent allows him to win the other half. Attempts by both to win as many as possible yield far lower profits. When playing this game over many trials, human beings have a tendency to cooperate, chiefly by alternating their winning and losing.³⁷ Many other studies on the performance of altruistic acts for strangers have been made.³⁸ Generosity does seem to have the effect of establishing new friendships (and new cooperative opportunities) or repairing broken ones.³⁹

(2) Parental behaviour and education

Most cooperative or altruistic behaviour is to be seen in the context of family groups, of course, and it is easy to see how such behaviour will very easily spread through a population if it confers a

selective advantage on those families who practise it. Whether the transmission process is through learning or through genetic endowment is unimportant, as long as the transmission is effective. More detailed considerations about the link between family relationship and morality will be made in chapter eleven.

One of the clearest forms of self-sacrifice is in parenthood. The period of parental attachment in human beings is longer than in any animal (although some large creatures like elephants are challengers) and a bond between parent and offspring often lasts until death. Some of the consequences of this early and deep socialization have already been mentioned in this chapter. Within the context of home or school there are important lessons to be learned about other things, however, including morality. Natural selection should favour the dissemination of information about the altruistic and moral tendencies of other members of society: for example, 'X is a good man' or 'Y cannot be trusted' or 'Z always keeps his word' will all be useful information to an individual and an individual's acting in accordance with that information will contribute to the prosperity of himself and of the social group. Similarly, an individual's own morality may be changed or settled in the formative years. This was a function which Hume attributed to praise and blame, that an individual learns about his moral excellences and shortcomings, and feels disposed to do something about them in the light of the criticism of his fellows.

Along with this form of criticism, formal punishment must be placed. In animal societies there are ways of dealing with behavioural deviations from the norm - a parent will bite her straying offspring, or an individual will be driven from the group if he acts in an unusual manner. In human societies, the institution of punishment is so obvious that further comment is almost redundant. Suffice it to say that one of the oldest forms of punishment is probably exile, which we share with some animal societies. Inflicting pain (akin to biting in other mammals, perhaps) is probably another ancient form. Imprisonment is rather recent, depending upon the wealth of communities to establish prisons, but even this punishment is very like animal punishment, being

a kind of temporary exile.

(3) Aggression and inhibition

It is almost trite to mention that in human societies, aggressive conflicts between men are common, while violence between men and women - at least, in a physical sense - is much less so. We read newspaper accounts of street brawls and gang fights with dismay, perhaps, but with little surprise. Accounts of men beating women, however, we take to be very serious and somewhat surprising. Certainly there are many occasions in which men feel aggressive towards women; but there seems to be a strong inhibition against doing physical harm to a member of that sex. There may be modern rationalizations for the different view we take of violence towards men and towards women; for example, we point to the comparative weakness of women and conclude that they are more likely to come to harm from a degree of violence which would not hurt a man. We talk of it being wrong to hit a 'defenceless' woman. Whatever the rationale, it remains true that we normally have, and expect, greater self-restraint towards one sex than towards the other. The selective advantage of such an arrangement, which we share with other social animals, is apparent. Popular authors such as Desmond Morris have made so much of the inhibition (and the ways by which modern women behave to evoke it) that further discussion would be superfluous here.⁴⁰

A similar inhibition seems to modify our aggression towards infants and juveniles. Once again, it is commonly thought to be a very improper act to injure or beat a child. This view is so established that in some modern societies even normal physical punishment is shunned. It is certainly true that the child is more vulnerable to attacks than the adult, and that from a genetic point of view, the loss of a child would be a loss to the whole society; but the inhibition on aggression towards children seems to prevent (or reprove) any form of severe violence, whether potentially fatal or not. There is also plenty of psychological evidence that a child's appearance 'softens' the emotions of possible adult aggressors.⁴¹

Social animals often have 'ritualized' movements whereby aggres-

sive encounters can be stopped when one individual has accepted defeat. This is a very necessary mechanism when the natural weaponry of the species is sufficient to do severe physical harm to either of the contestants. In modern human societies, the same behaviour remains in its vestigial form. The institution of the 'submission' is honoured even in the lowest of brawls, and is universally recognized in sporting fights. If human behaviour were truly 'selfish' in the way outlined by Richard Dawkins or Robert Trivers, and the survival of one's self and one's relatives was the driving power of any so-called 'altruistic' behaviour, then such an institution would be pointless, for it would give one's enemy a chance to live and fight again. There can be little doubt that the recognition of submissive gestures (or in the modern world, words and writings) as the end of aggressive conflicts is mediated through group selection processes. The enemy, although he may be a threat, is nevertheless a part of the population and a potential contributor to its succession.

(4) Care of the wounded and infirm

We have seen that in a number of social species there is a disposition to come to the assistance of wounded or infirm individuals. As well as this, the extensive grooming practices of primate groups help to keep each individual healthy. In human societies also, there exist methods to care for infirm individuals and maintain the health of the others.

Modern societies have extended this care to a very great extent. Hospitals and doctors specialize in it, increasing the possibility of its effectiveness through their singular knowledge. The shamans of primitive cultures may have enjoyed less success, but their actions arose from group concern about the sick; before them, medicine was an unspecialized subject in which all members of the group would play a part. Tiger and Fox quote some interesting cases, including Negrito and Cochiti Indian communities, where the illness of one individual is the signal for rituals which involve the whole society.⁴²

Many industrial societies share their health resources with extensive welfare plans. This is true not only in the formally social-

ized health services of the United Kingdom, Canada, Australia and Sweden, for example, but also in countries such as the United States, where health services are heavily subsidized for those of more modest means. Like food and possibly education, health is one of the things which civilized societies seem to believe is a 'right' of each of their citizens. Hence the widespread programmes to educate doctors and to make medical care 'free' or 'equally available' to those in need of it.

Summary

It can be seen, then, that there are many similarities between some animal social behaviour and human behaviour in even the most advanced industrial nations. The basic structure of human communities, although much complicated by the vastness of modern communities and by the erosion of territorial considerations in the formation of social bonds and alliances, shares features of similarity with other primate groups. The mechanisms to maintain group cohesion and to protect the group as a functioning whole are retained in modern man. Altruistic tendencies, also supporting the evolutionary fitness of their practitioners, are retained on an expanded scale in our complex societies; indeed, they might be even more necessary in such conditions than they would be in the very simple world of a small, mutually dependent local community.

There is no problem in the assertion that these traits are built upon older foundations that were laid down, principally, during the early evolution of the human species. At every stage in our development, the traits of social organization and of altruistic or cooperative action would benefit the groups, societies, populations or species that shared in them. If by chance these tendencies were to be extinguished, then selective fitness would have been reduced at the same time. Some adjustment of the mechanisms would of course have been necessary under the changing conditions that have confronted our species; but the general advantages of social cohesion and cooperation would have ruled out any major change away from those characteristics.

FOOTNOTES TO CHAPTER EIGHT

1. The Imperial Animal, page 240.
2. For a detailed study of the residents' perception of city neighbourhoods, see Kevin Lynch, The Image of the City.
3. On this point, see the treatment in Tiger & Fox, The Imperial Animal, chapter 5.
4. For example, the flightless cormorant cited by Eibl-Eibesfeldt in Ethology. For other examples of gift-giving in modern societies, see Eibl-Eibesfeldt, Ethology, chapter 20; for gift-giving with respect to mating in human societies, see Eibl-Eibesfeldt, Love and Hate. For other examples of gift-giving in animals with respect to mating, see Tinbergen, The Herring Gull's World.
5. Further explanation of this point is contained in Morris The Naked Ape; Ardrey, The Social Contract and Tiger & Fox, The Imperial Animal.
6. For a devastating review of inequalities in modern China, see Robert Schuettinger's (1976) article in Feulner, China - The Turning Point.
7. Eibl-Eibesfeldt, Love and Hate; for a similar theme, see Lionel Tiger, Men in Groups.
8. Duverger, The Political Role of Women.
9. Quoted in Tiger, Men in Groups.
10. It is also interesting to note that as of the time of writing there has never been a female member of the Soviet Politburo, a woman President of the United States, or female Prime Minister of the United Kingdom.
11. On this subject, see N.T. Dodge, Women in the Soviet Economy.
12. Mugdock (1937).
13. Margaret Mead and Francis Kaplan, Report of the President's Commission on the Status of Women.
14. Adam Smith, The Theory of Moral Sentiments, quoted by Coase (1976).
15. Hume, Enquiry Concerning the Principles of Morals, section 4.
16. 'Manhood' is correct. Initiation ceremonies are much more frequent as marks of male commencement of adulthood, or of male membership in clubs and societies.
17. A certain part of human knowledge, like the skills which Oakeshott calls 'irrational knowledge' in his Rationalism in Politics, cannot be transmitted from one person to the next. See also chapter 12.
18. For example, in Asche (1956). For a more detailed review of this work, see Brown, Social Psychology. Also interesting in this connection is the work of Milgram (1967) showing the remarkable tendency of human beings to follow authority.

19. Waddington argues forcefully that evolutionary selection has left children as eager orthodoxy-accepters in The Ethical Animal.
20. See Spitz (1968).
21. John Bowlby, Attachment and Loss: Attachment, page 28.
22. One exception is the armed forces of Israel; in this case, however, certain of the enemy have religious proscriptions against killing females. It is interesting how the natural tendency not to harm females, which is of functional value to a group, becomes dysfunctional under these circumstances.
23. Hirschfeldt, The Sexual History of the World War. At the time of writing, women have only just qualified as pilots in the U.S. Air Force. Even so, they are forbidden from active combat duty.
24. One notable exception is that of animals in zoos or enclosures where retreat is impossible.
25. One can imagine that the pilot of a bomber plane would probably find himself unable to kill the same number killed by his cargo if he had to do it with his bare hands or at close range. The natural inhibitions upon such actions are, as Hume says, "so rooted in our constitution and temper, that without entirely confounding the human mind by disease or madness, 'tis impossible to extirpate and destroy them." (Treatise, Book III Part I, Section II).
26. For an excellent account of the limitations of the human mind in military matters (which, it is argued, results from this rift between our technology and our natural inhibitions), see Dixon, On The Psychology of Military Incompetence.
27. See Harding (1972).
28. Where territory belongs to the group in a primitive society, communal dwelling may indeed be the case. The crowded conditions of eskimo houses, however, are forced on them because of the cold conditions, where close living helps to conserve body heat. Where communal dwelling is found under other conditions, it is usually discovered that each family has its own particular 'space' within the dwelling-hut and that the boundaries between them are respected. (See, for example, Levi-Strauss, 1944).
29. See, for example, Hobhouse's description of a number of different peoples (1966).
30. C.D. Darlington, The Evolution of Man and Society, chapter 3.
31. See Murdock, Social Structure, and Fox, Kinship and Marriage, chapter 2.
32. On the importance of kinship terminology on incest-avoidance, see Condominas (1973).
33. For this view see Slater (1959), Sussman (1972).
34. Persuasive evidence on this is contained in Wolf (1966, 1970).
35. The classical exposition of the Westermarck hypothesis is stated in

- Westermarck, The History of Human Marriage. Freud's view is contained in Totem and Taboo.
36. See below, chapter 11.
 37. Cf. Rapoport & Chammah, Prisoner's Dilemma.
 38. For example, the many studies in Macaulay & Berkowitz, Altruism and Helping Behaviour. Cf. also references cited in Wright, The Psychology of Moral Behaviour.
 39. See discussion in Trivers (1971).
 40. Morris, The Naked Ape.
 41. Eibl-Eibesfeldt reviews such inhibition mechanisms in chapter 20 of his book Ethology. The 'lovable' characteristics of small children are also shared by other small mammals, which may explain their attractiveness to us.
 42. Tiger & Fox, The Imperial Animal, page 185.

Chapter 9

ETHOLOGY, EVOLUTION AND ETHICS

"For T.H. Huxley, fifty years ago, there was a fundamental contradiction between the ethical process and the cosmic process... To-day, that contradiction can, I believe, be resolved..."

Sir Julian Huxley¹

There is a great deal of confusion and doubt about the place of evolutionary theory in philosophical enquiry. Above all, philosophers and biologists have fancied that they perceive a 'trend' in the direction of evolutionary development, and that the promotion of this trend is the proper object of a moral system. This chapter argues that the 'trend' view of evolution is a misguided one, and that any historical tendencies in evolutionary development do not imply a moral duty to maintain or promote the trend (as Waddington suggests) or to resign ourselves to it (as Needham supposes).²

We will also examine what are the facts of the evolutionary development of human morality, and extract the broad implications of that development. In the following chapters, some of these implications will be discussed in much more detail: for the moment, we will be concerned with uncovering what the ethological view (as a type of evolutionary theory of ethics) does and does not imply.

The evolution of morality

The ethological view of morality reminds us that our moral capacit-

ies and ideas (the 'moral sense') have evolved through the natural selection of these and other characteristics borne by our species. According to Daiches Raphael in his classic essay on this subject,³ the explanatory power of a theory of the evolution of ethics lies in its ability to demonstrate the source of those moral ideas and capacities, specifically, our capacity to make moral judgements, the authority of the sense of duty, and the feelings of remorse which follow a transgression. Without a theory of the logic of group selection, as already outlined,⁴ it is impossible to explain the origin of morality in evolutionary terms. Some attempts to perform this impossible task are reviewed later in this chapter, as are other out-of-hand rejections of any connexion between evolutionary theory and the development of morality which collapse once the explanatory power of the group selection concept is unveiled.

Right away it can be seen how group selection would account for the emergence of the three characteristics to which Raphael refers. In the first place, our notions of right and wrong, good and bad, our attraction to some modes of conduct and aversion to others; are not without their implications for survival. In that sense, as Muller (1958) clearly grasped, moral judgements are no different from desires and likes, being selected for and transmitted when they promote the life of the group. Similarly, Raphael's sense of duty or obligation can be explained from the point of view of the group. It is important that actions promoting the welfare of the group should be performed by individuals, even though their desires for self-preservation (also a product of the evolutionary process) might pull them in the opposite direction. The 'sense' of duty is no more than the triumph of one tendency over the other, and as such it may be selected by evolution; the stronger the individual feels the obligation to act against his own 'self-interests' (as commonly defined), then the more is the survival of the whole group promoted. For the same reason, Raphael's third characteristic, the remorse felt by an individual when he does not act to promote the interests of the group, can be considered as the fruit of natural selection, because it will lead him to associate the discomfort of remorse with actions contrary to the welfare of the group. The effici-

ency of this evolutionary mechanism is not reduced by the fact that the individual might not have been able to act in any other way on this particular occasion; hence we often do feel remorse even though we were powerless to prevent a certain outcome. It is the same with another moral characteristic, our condemnation of actions which reduce the community's welfare; even today we often imprison or otherwise punish people for manslaughter although they were unable to prevent what they did, or did not realize the consequences of their actions. Similarly in primitive societies, it is common for an individual to be punished for breaking an established principle, even though he may have had no notion that he was doing so, or though he may not have been able to do otherwise. The functional nature of the general rule causes it to be selected by evolution, despite occasions where the general rule might seem inappropriate to us upon rational reflection. The theory that morality derives from the natural selection of groups of individuals seems to explain not only Raphael's elements of morality, but other parts of our moral psychology as well - such as remorse when we could not help our actions - that other evolutionary views (and rationalist-constructivist theories) are powerless to deal with.

The theory of social instincts

The idea of a morality based on social instincts originated with David Hume and Adam Smith in the eighteenth century. To Smith, it was a universal 'sympathy' which formed the basis for morality. Quite how these social instincts came to be implanted in human beings remained a mystery until Darwin's observations on the subject.⁵ Those observations made two main contributions to the debate. The first is Darwin's suggestion that the initial social impulses forming the basis of morality are to be found in animals. He was perhaps mistaken in supposing that these impulses were motivated by sympathy (the concept being borrowed directly from Smith), but at least he gave us an understanding that animal communities do work co-operatively. The second observation is that natural selection would favour co-operating groups, although again, Darwin supposed that it would be force of example (as Hume said, certain actions would be praised by one's fellows, and the praise would cause others to emulate one's actions) which generated the sociable

actions in the first place. The concept of group selection in this rudimentary form is one of Darwin's most useful insights into the workings of evolution, although the concept lay fallow for many decades after its introduction.

Nevertheless, both Darwin's points have their drawbacks. Smith's view that 'sympathy' (a policy of 'do as you would be done by') is the main driving-force behind morality is a rather simplistic notion, and when taken to the extreme, leads to situations which advocates of the view would not like to accept. Smith, of course, explained this social instinct of sympathy by saying that individuals can imagine themselves in the position of others, and can therefore say how they would hope to be treated under the same circumstances. We really do 'feel for' people; according to Smith, and some part of their emotions is engendered sympathetically within us, and our notion of the right way to treat others is strongly affected by this sympathy. But against Smith it must be observed, as Huxley observed,⁶ that this sympathy could not be the only thing determining our feelings of right and wrong, since: "If I put myself in the place of the man who has robbed me, I find that I am possessed by an exceeding desire not to be fined or imprisoned; if in that of the man who has smitten me on the cheek, I contemplate with satisfaction the absence of any worse result than the turning of the other cheek for like treatment. Strictly observed, the 'golden rule' involves the negation of law by the refusal to put it in motion against law-breakers..." That refusal would be dysfunctional, and any society not taking revenge against its law-breakers, or excluding its disruptive members, would be soon extinguished. The simple rule is insufficient to explain the actual moral feelings men possess, and why they happen to promote the general welfare. The ethological view, in tracing the evolution of moral values and behaviour, and linking this with a theory of the logic of group selection that explains the emergence of moral relations under it, enables us to outline the several facets of human character which make up morality. The one-dimensional view of Adam Smith and of Darwin does not.

Hume's theory of the emergence of moral action through the praise or blame of one's colleagues detracts from Darwin's second point, the

outline of the mechanism of group selection. Hume remarks that praise follows actions which benefit the general welfare, and since people like to receive the approbation of their fellows, these actions are the more likely to be repeated. Darwin adds to this that the groups in which this is so will stand a better chance of survival than others.

Although this scenario is substantially correct, Hume's analysis could be misleading. It suggests that moral action is praised because of its utility to the group, a utility which has to be perceived and measured before praise is due; but this is not how we measure out praise or blame. We praise some actions automatically, without any reflection upon their contribution to the general welfare (although this subsequent reflection might change our opinion). We also praise a number of activities although it would be impossible to estimate their net effect on the general welfare without an evolutionary social psychology to explain it. Actions are praised because we have a disposition to praise certain actions, not solely because of a rational calculation of the utility of those actions. In applying the ethological method to our morality, we can discover why we praise and blame things as we do, and what are the utilitarian roots of our morality, however disguised they might be.

Theories of evolutionary ethics

Darwin does not even mention the thesis that the study of evolution can tell us what we should think of as being good, and this is certainly not an implication of the present work. The course of evolution is blind; it summarises adaptations to past events, but cannot be said to have a 'trend' which ought to be encouraged. Some examples of this kind of thinking will illustrate the point.

(a) Needham's Historicism

The most notorious misconception about evolution, that it follows a 'trend' and that the right course of action is to discern and follow this trend, finds expression in several Marxist writers, of whom one of the most eminent is Joseph Needham. In his book History is on Our Side, he declares that "whatever force hinders the coming of the world co-operative commonwealth... that force is ultimately doomed. Against the

world-process no force can in the end succeed."

At the time, Needham might have been right in discerning a short-term trend towards the coming of the 'world co-operative commonwealth'; but as Anthony Flew notes, "a trend is a very different thing from a law of tendency. There is a trend if there has been a direction in the development so far, whether or not there is any reason to think that things will continue to develop along this line. But to assert a law of tendency is to say that something always has occurred and always will occur, except in so far as this tendency was or will be inhibited by some overriding force. . Furthermore, a law of tendency is a very different thing from an absolute law of development... an absolute law of development would state that some particular line of evolution is absolutely inevitable, that it neither will nor could be prevented by any counteracting forces." ⁷ This law of development is clearly what the views of Needham amount to, and Engels's eulogy agrees: "Just as Darwin discovered the law of development of organic nature, so Marx discovered the law of development of human history." But in objection, it must be asked: Whence arises the certainly about this inevitable development? Is it not possible that there are counterveiling forces which have not yet been perceived? How can anyone be convinced that this is a law of development and not a temporary trend that we see?

The only defence which Needham would have (and it was not a defence which he offered in any convincing way) is that natural selection promotes species which are successively more able to live in their environment and expand their numbers. If the most successful conceivable organisation of our species (or any other species) is that of the 'world co-operative commonwealth', then it might be supposed that evolution will inevitably take us to that point. Yet even this defence rests on two challengeable points: the first is the premise that the 'world co-operative commonwealth' is the most successful conceivable organization, and the second is that we will ever reach it. The dawn of the atomic age has left some people with grave doubts about the latter.

(b) De Chardin's 'increasing complexity'

The philosopher, priest and paleontologist Teilhard De Chardin sees the march of evolution in a different way. According to one commentator,⁸ De Chardin says that "Throughout evolutionary time... the matter of stuff of the universe organizes itself into an ever-increasing complex of inter-related component parts. He goes on to say that this observed process makes manifest a property of matter which is more fundamental and more meaningful than anything observed before in science. With increase in complexity, not only of individual organisms but also of the group to which they belong... there has been a corresponding rise in the psychic quality of life until, with man, we see not only some degree of conscious control of the material world, but also the possibility at least of the psychic becoming increasingly spiritualized, and so of the spiritual finally taking precedence: its failure to do so represents the state of 'original sin'."

Increasing complexity is one of the most commonly-held 'laws' of evolution. Simpson, noting sources for various hypotheses about the direction of evolution, says of this one merely "See almost any text on evolution."⁹ Once more, there is insufficient evidence that De Chardin's alleged law is enduring. Our 'psychic' faculties do not seem to have developed at all since history was first recorded (probably since our brain reached its present size). There is no reason to suppose that any further development will occur.

Secondly, De Chardin insists that our psychic development is reaching a 'christosphere', that the ultimate triumph of the spiritual is the duty of every Christian to promote. But why should this be so? The scriptures, of course, might recommend it; but there is nothing in the actual process of psychic development, if it exists at all, which forces us to see the goodness in the process and to develop it fully. Some extra argument must be introduced before one can move from the is of a law of tendency (and since De Chardin seems to think that the process requires promotion from the Christian Church, it is clear that he sees the process as a law of tendency and not an absolute law of development, unlike the Marxist writers¹⁰) to the ought of our alleged obligation to promote the

tendency. De Chardin might have excellent reasons why we ought to follow his advice; but they are not a part of the evolutionary process themselves.

(c) Higher and lower forms of life

We see that 'trend' theories of evolution (as represented by laws of development and weaker laws of tendency) do not offer a basis, in themselves, for recommending any one action against any other. There is another belief which should be dealt with here, that of the superiority of more evolved forms of life. 'Superiority' implies a position on a scale of values: but are evolutionary values the same as ethical ones?

In evolutionary terms, when we say that a species is 'the fittest' or that it is 'superior', we mean that it is the best able to survive. With respect to a certain target (surviving) this species is more successful or more efficient than any other. It is rather like our saying that the 'best' knife is the one which cuts most efficiently. Fitness in any activity of this sort is not a guarantee of superior ethical value. A species which can survive well (such as a new strain of rodent or a particularly virulent strain of 'flu) is not the one which we necessarily feel should survive, or would give any approbation at all. Even Herbert Spencer, who coined the phrase 'the survival of the fittest' and had views to match, could not bring himself to argue that mere survival was 'good'; he had to introduce notions of the breadth of life (concerning complexity of organization) and surplus happiness before he could fabricate a standard of goodness. Length of life in itself cannot be equated with goodness except by a definition which few people would wish to make. The distinction between the course of evolution and the actual ethical values which we have is taken to its most extreme by Thomas Huxley¹¹ who supposed a complete opposition between the cosmic and ethical processes.

The distinction is, however, a false one: although the present or future trend of evolution cannot supply us with a reason for action (excepting if we have some objection to the trend and believe that it can be changed), the past history of our own evolution has shaped our bodies and personalities. What we regard as moral has been shaped by this historical process. Past events have determined what we think of as moral

and what we think of as immoral, since our morality itself, and any other characteristic which has a bearing on survival and population numbers, has been selected through evolution. The fact that there might be a discernible trend in evolution does not mean to say that our values are such that we consider the encouragement of that trend to be ethically good. Human values are those which have helped our species survive in the past, not those which are in line with any present evolutionary trend.

(d) Waddington's identity

C.H.Waddington has gone further than most in asserting that the course of evolution is good in itself. He says:¹² "we must accept the direction of evolution as good simply because it is good according to any realist definition of that concept." His reason for believing this is that "the nature of society is such that, in general, it develops in a certain direction... the ethical principles which mediate the motion in that direction are in fact those adopted by that society."

To speak in terms of a 'direction' of development of society is most unhelpful, since it is difficult to define. Waddington's formulation also suggests that the ethical principles of a society are always adjusted to evolutionary necessity, whereas in fact it is possible that some new evolutionary trend may develop which we might think is very bad but which our surviving descendents, being selected in terms of this new trend, might take to be very good. Human values might change with natural selection, but there can still be a lag before they catch up.

Furthermore, it is evident that we can and do question institutions and actions. Waddington is right that evolutionary theory can tell us why it is that we regard some things as being good - because that is the way evolution has made us - but whether we should regard those things as good is another question. For example, we might recognize that we value honesty because groups of honest individuals are selected by evolution and therefore become more numerous than groups of liars. Yet we can ask if it is right to be honest. The answer must be

given in terms of our other values: that it is right to be honest because honesty promotes social cohesion, makes social life possible, reduces fear and suspicion, enables each of us to further our own interests more easily than a solitary life, or some other appeal to our values. The ethological approach, with its notion of the functional nature of ethics, can make that answer more precise.

The real problem with Waddington's philosophy is that he not only defines the 'direction of evolution' as good, but believes that the direction itself provides us with a tool for choosing between ethical systems. The 'direction of evolution' seems to have been elevated to a meta-ethical concept.

There is, of course, no reason why we should take Waddington's word on the appropriateness of this way of choosing between ethical systems. However, questions about the survival-value of one ethical system as opposed to another do colour our judgement when we choose between them. We want to know whether the institutions advocated by one philosopher could ever work, if they could endure, if they would promote social cohesion, or if they would interfere with natural inhibitory mechanisms and thus have unforeseen consequences. These are types of questions about moral systems which we need to know when making a choice. It is not true that the 'direction of evolution' is an indisputable way of choosing between ethics: but it is true that an understanding of the evolutionary nature of our social and moral psychology makes the person doing the choosing far better informed about the probable consequences of the adoption of any particular moral code. This, again, is why the ethological view is necessary in ethics.

(e) Flew's 'law of self-preservation'

A confusion about evolution and its role in ethics which has been set down by Anthony Flew in his book Evolutionary Ethics¹³ can be mentioned briefly in passing, because it illustrates the individualist conception which most philosophers have concerning natural selection, although a group selection concept would be more accurate. He says that if there is some "law of self-preservation, under which all our actions could be subsumed, there could be no point in appealing to this law as

a reason for acting in one way but not another..." If all our actions are the result of evolutionary forces, how can evolution say anything at all about ethics?¹⁴

This argument looks convincing, until we realize that evolution selects groups. The values of a group might be such that the group is preserved, and under natural selection this is likely to be the case. Yet the individual members of the group might know nothing of the survival value of their morality. It is too strong a use of language to say that their actions are subsumed under the 'law of self-preservation'. They are not; they are included under human ethics. Also, a society may be 'preserved' even though not all its members act in furtherance of the general welfare: is their action 'subsumed under the law of self-preservation'? Of course it is not. When we tell someone that self-preservation suggests a certain course of action, we do so to make them aware that actions have different implications about self-preservation. This might be a point over which they were confused or misinformed, but if our observations concerning self-preservation actually impinge on their own desires and values, then we have provided a reason for action.

Summarizing this section: the evolutionary views of Needham and Marx, De Chardin and Waddington are confusing and open to misinterpretation because of their various degrees of reliance on concepts of a 'trend' or 'law' of evolution. Evolution works blindly, and is of use to ethics only in so far as it can help us understand what the events have been which have shaped our values. Furthermore, the view that later or more evolved strains of life are somehow 'better' in an ethical sense is mistaken. Sadly, however, this is the view which most philosophers seem to think is implied by any evolutionary ethical system. Longevity or virulence does not encapsulate ethical value; but our own ethical values have been shaped by the implications of longevity and genetic transmission.

Conclusion

These are the main points which the ethological point of view does and does not imply. It is altogether too easy to suppose that the 'direction' of evolution is inevitable,¹⁶ that we should be entirely

unconcerned about the future of our species (as Russell thought was implied by evolutionary ethics) or that the future of our evolutionary development is good in itself (as Waddington maintained). None of these conclusions is justified because the theory of evolution, as it applies to humankind, is a statement about past events, not future trends. Past events have moulded our values, and it is from that point of view that we judge the goodness or badness of actions and future developments.

The main implications of the ethological view are concerned with the clarification of evolutionary psychology; ruling what can and can not be covered by ethical systems and notions of responsibility, explaining how our values come to be as they are, and showing how certain courses of action or inaction will precipitate outcomes which we might or might not think are 'good'. The details of these broad implications will be covered in the succeeding chapters.

FOOTNOTES TO CHAPTER NINE

1. T.H.Huxley and J.Huxley (1947) p. 105.
2. See below for discussion of these two views.
3. In Barnett, A Century of Darwin.
4. See chapter 2 for an explanation of this logic.
5. Darwin, The Descent of Man, chapter 4.
6. Thomas Huxley, in T.H.Huxley and J.Huxley, (1947) p. 32.
7. Anthony Flew, Evolutionary Ethics, chapter III (iv).
8. Bernard Towers, introduction to Delfgauw, Evolution: The Theory of Teilhard De Chardin.
9. George Gaylord Simpson, 'Naturalistic Ethics and the Social Sciences', American Psychologist, v. 21, 1966; reprinted in Munson, Man and Nature; footnote 14.
10. Bernard Delfgaauw in his book on Evolution: The Theory of Teilhard De Chardin confuses the distinction between laws of tendency and laws of inevitability when making the comparison between Teilhard and Marx.
11. In his Romanes Lecture, Evolution and Ethics.
12. Waddington, et. al., Science and Ethics (London: George Allen & Unwin, 1942) p. 18.
13. Flew, Evolutionary Ethics, chapter IV.
14. This problem is analogous to that often posed to utilitarians; if all our actions are done through pleasure (as Bentham clearly maintained at one stage) then how can pleasure be something which can recommend action?

Chapter 10

PUTTING THE THEORY TO WORK: CRITICISM OF THE SOCIAL CONTRACT

"If the reason be asked of that obedience which we are bound to pay to government, I readily answer, because society could not otherwise subsist."

David Hume¹

There are many problems associated with social contract theories, and these theories, like many other philosophical systems, can be criticised in an effective and new way from the ethological point of view. The comments contained in this chapter will serve as an illustration of the usefulness of the theory in such philosophical criticism, and will provide the foundation for some prescriptions for social policy that are contained in the following chapter.

Certainly, the social contract view neglects the possibility of what Hayek calls 'order without commands',² since it assumes that social institutions are the product of conscious choice, and rejects the possibility that just institutions, although a product of human action, are not necessarily the results of human design.³ Yet from a historical survey it becomes evident that human institutions are not always the result of rational choice; and where social contract theories suggest otherwise, they are clearly open to attack.

Another problem with the social contract notion is that it implies the existence of some presocial state in which there was no contract. Some contractarians (like Hobbes) say that the presocial state need never have existed, but is merely the fate which would beset us were we unable to agree on social institutions: and Rawls, in his modern version of the social contract, suggests that the 'original position' is merely a device through which we can determine the principles of justice. Nevertheless, each concept of the presocial state is, in a very real sense, contrary to what we understand human nature to be. Human beings are not solitary animals, but are, as Aristotle noted, social or political creatures. None of our primate relatives, except the early prosimians, have been solitary. So to take the non-social 'state of nature' as the exemplar of human nature is highly suspect.

Furthermore, some 'social' characteristics must exist even in the presocial state; for without them (such as the tendency to make and keep promises or the restraint against ruthlessly attacking fellow humans) no contract could ever be entered into.

One more difficulty is that the social contract implies a willing agreement, at least the contract as expressed by Hobbes and Rousseau. This is, as Hume observed in his scathing essay Of the Original Contract, less than likely; in fact people often do disagree with the ruling government and thus their consent - even their 'tacit' consent, given the difficulty of extricating oneself from the control of any government and culture - is hard to substantiate.⁴ Governments are often maintained by force; is the obedience of the citizenry tacit consent? Is this a basis for justice? How should disagreement be dealt with in a state?

These and other problems demonstrate the need for a new line of criticism with respect to the social contract. The ethological view offers a base for such an approach. Not only does it demonstrate that the social contract is very far removed from a natural foundation, but (perhaps more damning) that it can be dismissed as an unnecessary and misleading rationalization of social institutions that can be explained in a more parsimonious manner.

The early history of the contract

As an historical account of the origins of social man, the contract

has itself enjoyed a long history. Perhaps the first written accounts of it appear in Plato's Protagoras and in books 2,3 and 4 of the Republic, where something like it is criticised. Later, Cicero suggests that the theory was widely accepted in his day, when he asks in Pro Sextio "who of you, O judges, is ignorant that the nature of things has been such that at one time men, before there was any natural of civil law fully laid down, wandered in a straggling and disorderly manner over the country... Those men, therefore, who showed themselves to be the most eminent for virtue and wisdom... collected into one place those who were previously scattered abroad, and brought them over from their former savage way of life to justice and mildness of manners. Then came those constitutions, devised for the utility of man, which we call commonwealths..."⁵

The contract endured long in theory subsequently to Cicero; the feudal system which prevailed in Europe could be understood as an unwritten, but nevertheless formal and accepted contract between lord and vassal from which both sides derived benefit,⁶ and even a contract between King and God in which adoration was balanced by power. The contract theory of government is explicitly outlined by the first political scientist, Machiavelli, to whom groups of families represented the 'presocial' state, their proximity and desire for mutual protection requiring their association and the conscious formulation of law. The precise form of those laws would be determined by historical accident, but their content would always be to prevent friction between the parties to them.

Hobbes

Among the classical contractarians (most prominently represented by Hobbes, Rousseau and Locke) Hobbes is the most reticent on the subject of the 'presocial' state. He does not say that it is an historical fact, although he remarks that natives endure something akin to it, and that it is the natural state between nations.⁷ It is certainly the state into which men would fall, were there no government to protect their rights and interests, and no allegiance to that government. His speculation about that state of nature is therefore simply an attempt to discover what needs and desires are most fundamental to man, so that the theory of justice can be adjusted to fulfill those desires and needs. For Hobbes,

the method leads him to suppose that men are naturally egoistic and selfish; like Cicero's natural men, they would acquire "just that property which they could either seize or keep by their own personal strength and vigour, by means of wounds and bloodshed."⁸ This is how men, given their nature, would be were the restraints of government removed. As one commentator says,⁹ "By pointing out the disastrous consequences of a non-political condition, Hobbes aims to indicate the fundamental reason why government is needed, and the precedence which this end - the security of mens' lives - must take over any other conception of the good. Before one can conceive of any 'principles of justice' being adopted among men, Hobbes believes, one must first presuppose the establishment of a government with the power necessary to enforce such principles." Hence, in Hobbes's view, the submission of an individual to a sovereign government is subsequent to his rational reflection upon the alternative.

This was, in Hobbes's day, a revolutionary psychology, and it is still hard to accept. The essential point, however, is that Hobbes saw the state of nature as somehow more natural - that is, more closely reflecting real human nature than the political state. Since it is from this natural state and this allegedly real human nature that the principles of justice are to be derived, it is vital to Hobbes's political system that he should have correctly portrayed human nature. Yet the most cursory view of the ethological evidence would tell us that he was much mistaken. The mechanisms of selection operate such that those individuals who happened to co-operate with one another would flourish, while those who cut each others' throats would not; rational reflection upon whether or not to co-operate is not necessary to group selection (although it may indeed prove functional). This irrational co-operation we see in animal communities, from the social insects upwards; therefore there is no need to suppose it is otherwise in humans. The ethologist will agree with Hume in Of the Original Contract that "the state of society without government is one of the most natural..." As that state of compliance in the forebearances which we call justice and morality preceded rational reflection, so is morality not necessarily founded in the rational agreement that Hobbes supposes.

Rousseau

Rousseau's state of nature was quite different from that of Hobbes. In the Second Discourse he says that primal man could have been found "wandering through the forests, without industry, without speech, without domicile, without war and liaisons, with no need of his fellow men, likewise with no desire to harm them, perhaps never even recognizing anyone individually." Therefore to Rousseau, men "in a state of nature, having no moral relations or determinable obligations one with another, could not be either good or bad, virtuous or vicious; unless we take these terms in a physical sense, and call in an individual, those qualities vices which may be injurious to his preservation, and those qualities virtues which contribute to it; in which case, he would have to be accounted more virtuous, who put least check on the pure impulses of nature."¹⁰

The possibility of man's benefitting his own self-preservation by being an unwitting member of a functioning group (such as a bee-hive) is omitted in Rousseau as it is in Hobbes. And once again, the author's conception of what the world would be like were human nature to run its course is little more than a guess; but unfortunately for Rousseau (and the history of political philosophy) it was a disastrously mistaken guess.

Nowhere in the animal nature closely related to our own species can be found the anonymity of which Rousseau speaks and upon which he bases a doctrine that human beings have no natural obligations or allegiances. The prosimian mouse lemur is our closest relative with a solitary lifestyle. Even Darwin's cattle, and ordinary farmyard animals recognize other members of the group; this recognition, and the system of domination and submission (which has been described already in chapter 4) in domestic hens is the source of our term 'pecking order'. As has already been mentioned, even bees protect their hives against strangers, and animal xenophobia, either within or between species, is common.¹¹ If animal nature is remotely like human nature, then Rousseau's analysis is wrong. His account does not even correspond with the nature of the most primitive human societies that have no established government but an obvious social order and regulativity. The 'natural man' is not

free from all moral relations, as Rousseau supposed; on the contrary, no sooner do two human beings come together, than one assumes a domination over the other,¹² and questions of 'rights' arise.

According to Rousseau, "The first man who, having enclosed a piece of ground, bethought himself of saying 'This is mine' and found people simple enough to believe him, was the real founder of civil society,"¹³ and it is from this much evil springs. Men (in Rousseau's opinion) were not evil before the foundation of society; now there is evil; therefore society is probably to blame. Consequently, society should be adjusted such that its evils can be reduced or eliminated. Property, for one thing, must be abolished. But even in this view, Rousseau was wildly mistaken. As we have seen, the territorial urge is older than mankind; it is widespread throughout animal societies; it exists with considerable force even today in 'civilized' man. Such is its functional importance to animal social groups that it is unlikely that it was ever temporarily absent from our evolution, emerging subsequently when governments arose. Human groups could not have controlled their population and ensured food supplies had they not been territorial throughout their early history. On the second point, of the natural goodness of man, this too is something that Rousseau would have been less convinced about had he been aware of the ethological evidence; if the hunting hypothesis¹⁴ of human evolution is correct, men were originally predators who killed to live; and the large numbers of protohominid species which arose and then perished suddenly seems to suggest that our early ancestors, unable to restrain themselves in the use of their new-found weaponry, took a heavy toll on members of their own species.¹⁵

Although Rousseau recognized that the abolition of society was impossible (partly because of the good bound up with the evil in it), his prescriptions for it are astonishing; to abolish property and to submit all individuals to the 'general will', even forbidding private associations that might interfere with this allegiance.

The greatest tragedy of Rousseau's thought is that he greatly overestimated the simplicity with which social ills can be righted by employing our rational faculties. What we want to do, we can; by understanding our presocial 'nature', Rousseau thought, society could be adjusted as we

choose (and for the better). Today, that heritage is encapsulated in the writings of a limitless array of political utopians, all of whom believe that it is 'society' which is the curse of man, and all of whom maintain that social institutions are perfectly malleable. Sadly, this is a philosophy of the impossible; there are human institutions, like the institution of property rights, which are founded in human nature and are remarkably resistant to change, principally because of their selective advantage to the species which has them.¹⁶ Or again, obligations to individuals and groups other than the sovereign authority exist everywhere, and there are clear advantages that they should. On this point, Eibl-Eibesfeldt says: "In the art and literature of all peoples there are many recurring themes, situational clichés: loyalty of friends, manly courage, love of homeland, love of wife or husband, love of children and parents - all are the basic noble motives of human actions that we follow from an inner disposition. They are the basic themes of literature and the theatre from the ancient world to this day..."¹⁷ Are these motives and associations to be obliterated in the 'just' society? The utopian social engineers (as Popper calls them¹⁸) seem to believe that they can, or that when we 'understand' our own natures, then they will be recognized to be transient and unimportant: but the long history of these 'recurring themes', their existence in other species, and their clear advantage to groups that display them, suggest that they are so fundamental to our social psychology that they cannot be lightly dismissed.

To blame 'society' for particular ills is not to blame something which is subsequent to human nature; it is to criticise a part of human nature, a phenomenon which has evolved with us and which was not devised by conscious minds. If history is indeed a chronicle of crimes, follies and misfortunes, then human beings are to blame, not the concept of 'society'.¹⁹ When we understand human nature (and not the partial sketch of human nature offered by Hobbes, Locke or Rousseau) then we will understand that human beings are not fallen angels, and that social institutions (although many are consciously engineered and therefore malleable) are based in that nature and are remarkably resistant to change.

John Rawls

Rawls's Theory of Justice exemplifies a modern form of social con-

tract. Because of its comprehensive scope, rarely attempted since the Leviathan, Civil Government or The Social Contract, it deserves extensive treatment here.

For Rawls, the 'original' position (or presocial state) is merely a theoretical device, intended to provide us with a 'value-free' state of justice. Individuals in the original position are stripped of their personal values, and of any knowledge of their personal characteristics (age, sex and so on) which could bias their conception of what is just and what is not. Rawls finds that he can include without controversy a few values, however, the 'primary goods' which "are things which it is supposed a rational man wants whatever else he wants," these being "rights and liberties, opportunities and powers, income and wealth." Also allowed are certain "general facts about human society" including an understanding of "political affairs and the principles of economic theory" and the "basis of social organization and the laws of human psychology," for Rawls realizes that we have to know whether our rules of justice that were devised in the original position can in fact be followed by the human beings they are laid down for. Other facts must likewise be known to the parties in the original position, that the earth is finite and that resources are scarce for example, since without these factors, justice might not be needed at all.

Rawls's position is contradictory: all of the classical contract theories suffer from the same problem, although none are as obvious in the contradiction. On the one hand, Rawls wants to exclude all personal knowledge which could bias the judgement of the parties to the original position, and to keep them behind the 'veil of ignorance' about their age, sex, abilities, period, loyalties, and so on. In constructing this situation, Rawls has succeeded in devising a theory of justice which is 'value-free' by making it 'fact-free'; for the veil of ignorance is a figment of fantasy, without any possibility of a counterpart in the real world. Were any number of men to come together in the real world and choose principles of justice, they would choose according to their conceptions of what is good; on some things they would have to choose the majority view, although on others there might be unanimous agreement; personal interests would be lost to majority interest; but they would always be thinking of the kind of society they would like to see, and the

kind of society they judged to be good. When Rawls asks them to choose principles of justice that are indifferent between different views of the good, he is asking men to do something which is foreign to their natures. Such a choice is hardly possible at all, but is necessary if Rawls is to insist on his 'value-free' formulation of the principles of justice. The veil of ignorance is something which the classical contractarians, like Hobbes did not need to hypothesize; Hobbes's state of nature was something which men would fall into, given their natures, under conditions of political anarchy. From an appeal to that nature itself, Hobbes could proceed to justify his system as a rational way to serve basic human motives. Rawls, by denying those values, cannot offer a foundation for his system.

On the other hand, Rawls finds it necessary to allow some information about human nature through the veil- what rules it is possible for human beings to follow, traditional values that the new justice must alter, and facts about human beings and the world which make justice necessary. Yet, like the classical contractarians, he chooses to include only some aspects of human nature, and leaves out other important things. As Warnock²⁰ rightly objects: "if, as Rawls insists, I am not to know my age, sex, nationality, abilities, date, and so forth, why would it be relevant that I should know my zoological species and galactic location?" As a result of this selectivity, Rawls is able to develop a system that accords with what he considers important, not what others consider important. This point is worth further scrutiny.

Rawls's principles; and the empirical content of ethics

Rawls alleges that two principles of justice emerge from the choice of parties to his original position. The first is the principles of the priority of 'equal liberty'. The second is what he calls the 'difference principle' and concerns the allocation of resources between individuals. Each principle is troublesome because of the question of how much empirical information Rawls is prepared to allow - in Warnock's words, how thick is the veil of ignorance?

Although Rawls does not define liberty, thus avoiding objections about its alleged 'priority',²¹ to some extent, his insistence upon that

priority raises the question of why individuals enjoying anything that is normally referred to as perfect 'liberty' should submit themselves to the rule of law at all, given its primary place. Perhaps the liberties (or at least the powers) individuals enjoy under the rule of law are greater than otherwise, although this is doubtful: but is it really impossible to assert that human beings simply may not value the new legal system and the new liberties included under it?²² And certainly, some information about human desires, needs and values is required when we choose between competing systems of 'liberties'; or else we could not determine how far different liberties should be protected or curbed for the end of promoting others, a determination which is the backbone of political philosophy. Rawls, insisting on the priority of 'liberty' gives us no means to choose between liberties or systems.

The information which must be allowed is what Kant would dismiss as 'social anthropology' and therefore not part of ethics; to him it was our reason, and not our humanity, which made us capable of moral action and of making moral judgements. The view is still common in philosophy (although not usually as dogmatically held as Kant's) and therefore, some arguments against it are needed here, arguments which will also suffice as a criticism of the 'value-free' part of Rawls's theory.

Kant's notion can be attacked with arguments of various strength. A weak criticism, advanced by Warnock, is that there are certain minimum conditions which make obligations and justice necessary. The question of what principles rational beings would adopt, given only that they are rational, is one "too totally unspecific to admit of anything by way of an answer. Why, one might for instance ask, would such beings adopt any principles at all?"²³ The answer must be because they have occasion to do things; so immediately we have accepted the provision that our moral beings are not merely rational, but are rational agents. And then, why does it matter what a rational agent does? The answer can only be that the action of one agent interferes with those of another; so now we have conceded that our agents are in some way vulnerable. This kind of information, while it does not necessarily apply only to humans, is at least empirical; Kant, perhaps unwittingly, takes this kind of empirical information as given.

A somewhat stronger criticism would be to note, further to the foregoing, that in limiting the empirical content of morality to such utterly general levels, only the most general principles could be derived. A negative version of the golden rule might follow from the information conceded so far, but even this is doubtful; why should the individual be interested in preventing harm to others? If he has unlimited might and power at his disposal, then the harm of others could be of no concern to him; it is only when we concede (as Hart does²⁴) approximate equality of strength between the agents that specific principles of morality start to emerge. So we are even nearer to the human situation. Contrary to Rawls, and contrary to the rational constructivists, the more we allow human nature into our thinking, the nearer we get to something which can be called ethics. Humanity, and the desires, values and limits to actions which are a part of humanity, are indeed a part of morality: as Urmson puts it,²⁵ "Morality... is something that should serve human needs, not something that incidentally sweeps man up with itself." To say that there are some things which it is right to do, but to maintain that no human being is capable of doing them is a rather pointless view; such a position carries nothing by way of prescription, advice or goad to our activity, nor any concern with those things which we as human beings hold to be important.

In justifying the place of a clear picture of human nature in ethics (that is, in justifying the allowance of a great deal of empirical information about ourselves in ethics) it should be pointed out that 'a bill of rights is not a suicide pact'. For contractarians who allow a certain empirical content into their systems, Hobbes and Rousseau for example, it is in fact quite the opposite; to them, the contract is meant to reduce friction and hostility. Yet by allowing only part of the human psychology to enter the picture, it is easily possible for us to advocate systems and rules which would actually threaten social life, because we had overlooked the existence of some piece of behaviour, or value, or trait. To take an example: suppose that we observe that human beings like and strive toward equality, and that they believe in the compensation of one individual with natural disadvantages by another with natural advantages. Suppose then that we ruled that in the 'good' society, infants

would be taken from their parents very early in life (much earlier than the Spartan tradition, say) so that nobody received the advantages of special upbringing. Would the resulting situation turn out as we had expected? Probably not; as we have seen from Bowlby's observations on institutionalized children, the social lives (and ethical beliefs) of those infants could be seriously changed, with the chance of pronounced (but unpredictable) changes in future social organization. When we speculate about a moral prescription such as this one, we cannot say if it is a 'good' prescription until its consequences have been examined; and those consequences can only be known when we have a complete picture of human nature.

Lastly, it can be said that there is no definite place to draw the line between the empirical content which is the proper concern of philosophy and the empirical content which is not. The more information that is allowed, the more precise can be our prescriptions, and the more useful can they be as a guide to our actions. There does not seem to be any definite point at which we can divide the empirical content necessary for the 'foundation' of morality from that which is useful to develop a 'superstructure' upon it - as Warnock supposes in Kant and Anthropology. When, with Warnock, we allow one piece of information into our analysis, we remove any justification for not including more.

The result of these considerations is that the social contract theory must be viewed as somewhat weak. The contract is only a good explanation of human conduct when we hypothesize that there is no natural inclination for form societies, and that these are a rational construction from which certain (rationally-derived) rights and obligations can be said to follow. When we include the ethological evidence about animal and human nature, however, we see that social organization is, or can be, prior to human reason; and when we check the logic of the evolution of groups of individuals, we can see the functional nature of such non-rational sociality, and why it should have occurred outwith human reason.

The Difference Principle

Returning now to the second principle which Rawls claims is bound to

emerge through agreement in the original position; this is that "social and economic inequalities are to be arranged... to the greatest benefit of the least advantaged," provided that there is "fair equality of opportunity." This principle, although not strictly essential to the discussion of the relevance of human nature to social philosophy, does show how confused our thinking can be when we take only part of human nature to be the base for our discussions.

The part of human psychology which Rawls starts from in engineering this principle is that which includes the notion of 'desert', apparently borrowed from Kant but as Rawls describes it, totally opposed to Kant's thinking. His claim is that "undeserved inequalities call for redress," and that inequalities of birth must therefore be compensated for.

Unfortunately, from the Kantian principle that no man 'deserves' his natural abilities, it does not follow that other men 'deserve' any particular asset more than the holder, and therefore that any redistribution should occur. To do so would in fact be a violation of Kantian doctrines of individuals being 'ends in themselves'. Moreover, the difference principle violates many other features in human psychology; for example, rights of ownership. The principle does, however, follow from Rawls's assertion that abilities and talents are "a collective asset to which he (the individual) has no moral claim," but this assertion is itself false. As Nozick has pointed out²⁶ some people are blessed with healthy bodies; should they compensate others because of that? Are arms and legs to be redistributed, as the 'perfect' enactment of the difference principle would seem to suggest? The question is ridiculous; there are some abilities and talents which we generally believe it is a right for the individual to possess. Accidents have very little to do with justice, and accidents of birth are compatible with most notions of a 'just' society, particularly where the value of a particular talent or ability cannot be measured (or would be different to different people) and therefore where compensation cannot be judged.

Another point demonstrates the logical absurdity of the difference principle. Were it to be rigidly applied, one might ask why it would

not be right to include other species. We have talents which canaries and hedgehogs do not: are we then to compensate other species because of this? The fact that Rawls makes no mention of this application of the principle is revealing, because it shows that even in his 'value-free' treatment of justice, he has to accept some fundamental human values, and has to include in his analysis empirical information, arbitrarily chosen, to substantiate his own political view. It is a patchwork philosophy which is remarkably weak at the seams.

Civil disobedience

Thus far we have examined certain examples of social contract theory, and have seen that they incorporate marked methodological deficiencies. The most serious is that they consider only a part of human nature, and by no means a representative part. Now, a short consideration may be given to a subject which is widely accepted by the classical contractarians, but to which Rawls is directly opposed, namely the necessary obligation of the individual in the state to the powers of authority. Some comments on Rawls's notion of 'civil disobedience' will make the point.

In his chapter on 'Duty and Obligation', Rawls supposes that there are certain 'basic liberties', and that the infringement of these liberties would be quite contrary to the intention of the agreement in the original position. These basic liberties are never defined, so it is impossible to be clear about what Rawls has in mind, and from whence these liberties are thought to arise; but from his assumption, he concludes that an individual is justified in civil disobedience whenever the law of the majority is 'sufficiently' injurious to his basic liberties. An individual will know this, he goes on, when it is obvious that a truly impartial assembly of men, in the original position, would never have allowed or thought of the law. To Rawls's 'democrat', democratic institutions are not sacrosanct, but there to 'yield just and effective legislation', which failing to do, they may be ignored and rejected by any individual who disputes them.

On the theme of the importance of empirical information to any judge-

ment of justice, we may note that things which are likely targets of civil disobedience would be excluded from consideration in the original position by the 'veil of ignorance'. Are nuclear power plants to be built despite their alleged risk; is smoking to be allowed in the light of its disputed correlation with cancer; are women to be compensated through loss of earnings while pregnant? These are questions which our courts, with all the facts about human nature at their disposal, cannot be sure about, no matter how impartial they try to be. From behind a veil of ignorance, where some aspects of human nature are allowed, but others are prohibited, a just decision must be even more difficult.

And indeed it can be objected that Rawls's allowance of civil disobedience whenever the individual finds 'sufficient' cause is a recipe for anarchy. So diverse are human opinions that some interest or group, claiming 'injustice', has deeply-held convictions about almost every part of public policy. To legitimise disobedience as a result of those claims would be to allow civil disruption on a continuing basis. No social system could operate under such conditions. Civil disobedience is, almost by definition, disruptive, and causes inconvenience or hardship to some people; can it really be sanctioned when it can be so easily seized upon as an excuse for any anti-social actions?

One instance in which this refusal to comply with the commands of authority could be of crucial importance to a state is in time of war. Rawls says that, given the predatory nature of modern political powers, refusal to serve one's country is all the more necessary. In practice, however, countries do expect a great deal from their citizenry; and, against Rawls, people do feel, at those times, more inclined than at other times to come to the assistance of their political leaders. As Lord Cecil points out in an interesting speech,²⁷ the vast operations of modern wars, the huge numbers who voluntarily chose to sign up in the armies of the world, and the heightened feeling of obligation to the country's cause could not be explained by anything other than human psychology or 'natural instinct', as he calls it. Were we, like Rawls, to devise a system in which this 'natural instinct' was lacking, we would be devising a system only partly related to human nature, and we

would be eliminating a source of many strong de facto obligations.

Other writers have attempted to make out that the source of obligation rests in rationality; Hobbes supposed that obligation arose because the consequences of ignoring it would be harmful to the individual; Hume also says that without obligation to authority, society could not exist, and suggests that it is our rational desire to be members of societies which forces us into compliance with our rulers. Rawls, however, seems to abandon the prospect of obedience entirely; or at least he leaves the stable door so wide open that any amount of disobedience could bolt through it.

A further illustration of the the shortcomings of Rawls is his failure to consider the functional aspect of a stable social order in which obedience to authority has its place (although is not necessary the basis for infeasible rights). Is that stability not something which the individual might value; might it not be that stability which guarantees him his 'basic liberties' in a less than just world? If this is so, the individual might still feel an obligation to authority, even though he believes that some laws are unjust. Provided that there is a political system through which his views can be expressed and heard, and in which reform is possible, he has no justification to move immediately to civil disobedience, with all the harm to others and risk to his own liberties which that involves.

Summary

Social contract theories suffer from a misplaced confidence in the ability of human reason to solve any problem. This is not always the case, and 'rational' laws can bring about unforeseen effects when human psychology is miscalculated.

Therefore, we have to develop a system in which human psychology is properly calculated, a system in which moral rules are subjected to the test of practicability and fidelity of consequence.

Another reason for the problems associated with social contract systems is that they suggest a presocial state which could never have existed, and attempt to draw lessons about human nature from a consideration of that nonexistent condition. Rawls and the other contractar-

ians are fond of saying that in the original state there must have been an 'equality' between individuals, because nobody had to accept the social contract in the first place; but as we have seen, this state of equality is a fiction, and obligations are as old as man (indeed, a good deal older).

Yet by insisting that the 'natural man' is the moral equal of the next, devoid of obligations to others or powers over them, social contract philosophers have built a system devoid of foundation in human nature, although in fairness it can be said that some of them take parts of human nature into their systems. Nevertheless, no account of a social contract has included a systematic survey of what Kant would call 'anthropology', empirical information vital to any formulation of rules of morality and justice. In fact, the contract would be seen to be of little value if such things were considered, because there is a natural 'social contract' in human nature which is far stronger and older than the speculations of philosophy.

FOOTNOTES TO CHAPTER TEN

1. David Hume, Of the Original Contract.
2. F.A.Hayek, The Constitution of Liberty. See chapter X, 'Order without Commands'.
3. The language is Ferguson's. See chapter 2 for a fuller consideration of this principle of social organization.
4. Hume says on this: "When a new government is established, by whatever means, the people are commonly dissatisfied with it, and pay obedience more from fear and necessity, than from any idea of allegiance or moral obligation." (Of the Original Contract).
5. Cicero, Pro Sextius, section 42.
6. A sympathetic treatment of feudal society which suggests the contractual nature of the rights and obligations allowed under it is found in Marc Bloch, Feudal Society.
7. Hobbes is, in a way, accurate here. The 'state of nature' is the natural state between nations because our moral codes govern our actions with respect to our own nation and group, since it is in that context (and not in the context of a global commonwealth) that they have evolved and have been selected. This, however, tells us more about the mechanism of natural selection than it suggests that the state of nature has ever existed.
8. Cicero, Pro Sextius, section 42.
9. David L. Schaeffer, 'The Sense and Non-sense of Justice', 1973.
10. Of the Origin of Inequality, section 1.
11. For examples see chapters 4 and 5.
12. As Adam Smith understood and explicitly referred to in The Theory of Moral Sentiments.
13. Rousseau: Of the Origin of Inequality.
14. See Ardrey, The Hunting Hypothesis for a treatment of how our hunting ancestry may have affected our social constitution.
15. See Tiger, Men in Groups, chapters 2 and 3 for an explanation of this effect.
16. See Eibl-Eibesfeldt on the social effect of Christian morality in primitive tribes (Eibl-Eibesfeldt, Ethology, chapter 20): see also Ardrey on imposition of Christian ethics on Mao-Mao cultural practices and subsequent hostilities in The Social Contract. (Note that

both these examples show how severely destabilizing can be the intrusion of foreign ethical systems into an existing and rather permanent moral system). For a long treatment of the unchangeable nature of human psychology, see Lorenz, On Aggression.

17. Ethology, chapter 20.
18. The Open Society and Its Enemies, volume I passim.
19. See Schaeffer especially on this point, in Pol. Sci.Reviewer, v 3 .
20. G.J.Warnock, 'Kant and Anthropology', in R.S. Peters, ed., Nature and Conduct.
21. This comment is made explicitly by Schaeffer, op.cit.
22. Rawls, of course, ignores this point in his development of the theme. Nevertheless, political scientists normally take the balancing of one liberty with others as the main content of their subject, and it seems strange that it should be so ignored.
23. Warnock, in R.S.Peters (op.cit).
24. H.L.A.Hart in The Concept of Law lays down the 'minimum content of natural law' in chapter IX.
25. Urmson, 'Saints and Heroes'.
26. Nozick, Anarchy, State and Utopia. The objection is particularly graphic as he expresses it (as are all his objections to things).
27. Lord Hugh Cecil, Natural Instinct the Basis of Social Institutions. Although highly careless in his use of normative language (particularly in the derivation of 'rights' from statements of plain fact) Lord Cecil nevertheless perceived that our morality bears a striking overlap with the natural social instincts.

Chapter 11

FURTHER PHILOSOPHICAL IMPLICATIONS OF THE APPROACH

"Politics ought to be adjusted, not to human reason, but to human nature, of which the reason is but a part, and by no means the greatest part."

Edmund Burke¹

As we have seen, the social contract theory is an inadequate basis for the derivation of principles of justice, of duties, obligations and rights. When these are 'derived' from an allegedly presocial state, they are derived from a state contrary to human nature. When the pre-social state is hypothesized merely as a device to study human nature, it is necessarily misleading; and the very diversity of those political systems which contractarians have thought themselves able to derive shows the emptiness of the approach and the dependency of the conclusions upon the information about human nature which the contractarian is disposed to admit on the ground of his own preferences.

The social contract theory is misleading also in its implication that there is agreement, even tacit agreement, to social institutions. In primitive cultures it is quite possible for individuals to follow established norms of behaviour without realizing that they do. This might be conformity, but it is not consent, and therefore cannot furnish us with the basis of obligation which the contractarians thought

they had derived. Hume's argument on this point is well known. In his essay Of the Original Contract, he notes that many individuals who are covered by the law have no say in its formulation, and that the 'consent' of such individuals is neither here nor there. Furthermore, it cannot even be said that some individuals 'tacitly consent' to be bound by a regime if escape for them is impossible, as it has been in certain countries where capital punishment was meted out for any attempt to travel abroad, or where individuals were physically prevented from travelling (as they would be because of the modern Berlin Wall, for example).

The third major objection to the contractarians is over their assumption that all social institutions, since they are apparently regular and orderly, must be constructed deliberately by an individual or many individuals. Ferguson, Smith, Montesquieu and Mandeville have, however, demonstrated that this is not so. Human deliberation has indeed built many towering institutions; but there are some institutions which are the products of human action, though without human design.

Hence, some new basis of social organization and obligation is required to replace the contract theory. It must be one which accommodates the principles of human nature that are sketchily covered, twisted or ignored by the contractarian. Our best guess of what these principles of human nature are comes through our observation of men and how they behave, and through our knowledge of their past or 'background', gained through the ethological method and through what we can infer about the requirements of human nature given the criterion of evolutionary survival in the historical past.

Regularity and obligation

The immediate question for discussion, then, is what is the source of moral obligation? If we take the obligation of a promise as a specimen of obligation, why should a promise be kept, and are there any circumstances under which the obligation dissolves? These questions go back to Plato, but are still prime targets of debate.²

One interesting answer is given by Warnock in his book The Object

of Morality, and provides a useful starting-point. He says that the crucial thing about a promise is that it enables others to depend upon or count upon our actions. This can be very important to the person extracting the promise; he can then be confident that the promiser will take care of his beloved cat during the vacation, or will give him a ride to the important conference in the morning. Under this analysis, a promise is a kind of prediction: "Yes, this is going to happen. I am going to act in this way, and not in any other way. I will feed the cat." As a prediction, it can be a true or a false prediction, and to keep a promise is to have made a true prediction, while to break one is to have uttered a falsehood. "It is my submission," concludes Warnock, "that our words may 'bind' us for the future; they make it the case that only by acting in a certain way can we ensure that we did not, earlier, speak or act falsely." Therefore the obligation of a promise is similar to the obligation of truth-telling.

Warnock's remarks end at this point, having left the question only partly answered, but having allowed us to answer it more fully. It is all very well to show that the obligation of a promise is identical to the obligation of truth-telling; but whence arises the latter obligation? The answer seems to be in terms of the functionality of truth-telling. Creatures which tell the truth enjoy a higher evolutionary fitness than the others. In any one situation, it might be to the advantage of an individual to tell a lie or to 'cheat'; but in a social species will evolve mechanisms to deal with the liar and the cheater, since if lying went on very widely, nobody would know what to believe or what they could rely on. In a fickle social environment, the outcomes of an action could not be predicted, and social life would not be possible.

An analogy is language: were our use of sounds completely random in their use to designate objects - if a man who pointed to a typewriter called it a 'book' on one occasion and a 'porcupine' on another - then we would not have a language at all, just a capricious and unpredictable set of sounds. We would be unable to communicate through those sounds, and the many benefits of communication through language would be denied us. Similarly, were we to tell the truth on few occasions, or not at

all, then our social relations would be capricious and unpredictable. If it is very unlikely that someone who has made a promise (say, to feed the cat) will in fact do so, then the rational action would be not to solicit the promise at all, but to take care of the task ourselves. If it is very unlikely that a person who makes some statement (e.g., 'those animals are not dangerous') is telling the truth, then it is prudent to ignore him. When human actions become unpredictable to a certain degree, in other words, social life itself becomes impossible and dysfunctional. (Of course it is possible that a group whose actions were unpredictable might, by chance, survive better than another whose ways were thoroughly predictable. The probabilities must, however, be weighted against it, particularly in the long run of evolutionary selection). In social animals which are capable of truth and falsehood, like human beings, selection would have favoured the positive valuation of truthfulness and its encouragement through many mechanisms including the notion of moral obligation.

The other mechanisms that help to establish the predictability of human action have been mentioned already. Education and early socialization are clear examples, and they are highly adaptive mechanisms in an intelligent species, because they leave some flexibility of action such that particular, unforeseen circumstances can be dealt with. Indeed, were we like bees, completely predictable and moving under the determinate pressure of instinct, no promises would be needed; each individual would know precisely how the others were going to act without any question. Our notion of 'obligation' is a functional device which allows us some degree of predictability in human affairs without the rigid instinctive determination of our actions.

Another mechanism is simple conformity. It is well known by psychologists that human beings show a remarkable tendency to fall in line with the judgements of those around them. Experiments show that even our judgements of physical qualities, like the relative length of two nails, can be swayed by the ruling opinion of a group.³ Moral practices also appear to be influenced strongly by social norms according to the experiments of Hornstein and others,⁴ according to which people tended

to act more altruistically when presented with a 'model' of altruism some time earlier. We conform also to authority, as was shown in the remarkable experiments of Milgram, in which experimental subjects would perform actions which appeared to be highly vicious (although the situation was designed to deceive them) upon instructions from the authoritative experimenter.⁵ Furthermore, when social pressure is put upon deviant individuals, it seems to be stronger, the more deviant the individuals concerned.⁶

Conformity to social pressure and to the rulings of authority is often regarded as a sign of personal weakness. Here, however, there is some problem for the first-order moralist, since the psychological evidence suggests that we are nearly all conformists to some degree, and that most people conform to social norms to a much greater extent than they think. Are we all to be characterised as weak-willed? Clearly not. Secondly, the moralist has to face up to the fact that our conformity to the opinions of others, and our gullibility in accepting ways of behaving from others, may be essential to an adaptive cumulation of cultural experiences in which successful methods persist through emulation.

Some moralists, amongst whom a number of psychologists feature prominently, raise another question: whether it is right for adults to pressure their children to conform to norms that have little or nothing to do with the maintenance of the social system and the survival of the beings living under it. Hair length and clothing style are familiar examples. If any answer is to be given, it must take into account the fact that the workings of evolution are blind. The mechanism of conformity is of selective advantage when it retains useful and functional characteristics, but there is no reason why conformity in matters that are neither functional nor dysfunctional should be purged from the system, since there would be no selective pressure in either direction. Accordingly, some non-functional characteristics are retained with the functional ones. This may make our behaviour with respect to such characteristics in the young more easily understandable.⁷

Let us return to consider further mechanisms underlying the predictability of the social environment. A feeling of guilt when we have defaulted on some obligation or have acted out of accordance with established norms is another such mechanism. Hayek likens guilt-feelings to the feeling of fear in a machine operator who inadvertently throws the wrong lever and sets the machine out of control. Until the cause of the loss of control is established, the machine continues on its own way, quite unpredictably. The operator experiences fear because he does not know, from moment to moment, what the machine will do next. Similarly with the social establishment; when we act against the established norms, we have no way of predicting what the outcome of our actions will be. Hence guilt is a factor tending to keep us within customary limits of behaviour, consolidating our notions of obligation.⁸

There is one further mechanism to consider, and that is the institution of legal and moral rules. The fruits of natural selection are not always the most functional arrangements, of course. For example, the cells which are built by bees in a natural hive are much less than perfectly hexagonal, although they are roughly so. Likewise, there may be considerable variation in human tendencies to conform or to behave irregularly, to be altruistic or selfish. For rough prediction of the outcomes of an action, this variation might make little difference, but it is clear that we can increase predictability by setting, and adhering to, arbitrary moral and legal rules of behaviour. The conditions necessary to make these rules effective at increasing the predictability of outcome of actions are only that the rules should be followed (the greater the following, the more predictable the outcomes). In practical terms this means that such rules must be well-known and accepted by the individuals covered by them.

The effectiveness of the rules is not dependent upon their treating everyone equally. Hume seems to have recognized this when he says that the rules of property should not change and should be well-known, but that the precise content of the rules is 'pretty indifferent'.⁹ To his mind, it would be quite possible to have a society where, say, women or children could not own or transfer property, provided that the

rule was known and generally accepted. This is a point which Plamenatz refuses to accept.¹⁰ In fact, however, we do formulate our rules of property and succession in just such a manner: the male heir inherits the estate and the peerage, not the female. If he is under a certain age, the property may be put in trust for him, but is unlikely to be handed over outright. In other words, our rules of property do not treat people equally; they discriminate on the grounds of age and sex. Provided that they are well-known and rather permanent, they will nevertheless contribute to the formulation of a smoothly-functioning and predictable social order, within which we can make decisions and take actions with a high degree of certainty in the outcome. This will be a positive contribution to evolutionary fitness.

Political differences

That in order to function efficiently, our rules do not have to treat people equally is a point which will be of importance when we treat the 'universalizability' doctrine of ethics in the following chapter. For the moment, it might be helpful to look at one such mechanism of inequality which seems to be highly adaptive for a society, namely the mechanism of political differences or differences in dominance. We have seen that it is an established social order in primate groups that makes social life possible. Were individuals to be of equal rank, there would be continual disputation about who is to lead, when the group is to do one thing, when another, and so on. These disputes could never be resolved because of the equality of the individuals concerned, none of which is able to force his opinions on others. Thus it is that rank orders evolved in our ancestral species long before human foresight and calculation emerged.

Even the contractarians, priding themselves on the rationality of our social actions, are unconvincing on this point. Rawls is the prime example, because his 'democrat' considers his own judgement of an issue to be of equal weight to the judgement of everyone else, no matter how many other people there are. Rule by the majority would become impossible under such conditions. The earlier contractarians noted that there was a need for individual subservience to a government or 'sovereign' as a way of avoiding such problems, but they too are unconvincing.

In a contract between equals, why should any one member accept a junior role? Could such a contract come into existence when any one of its signers could hold out for the position of sovereign?

Such questions did not arise in the course of our evolution, for we were equipped with a dominance structure that would make them unnecessary. As Knipe and Maclay observe in their amusing book,¹¹ dominance relationships are an everyday part of human society, however subtle the difference might be. (Even the eighteenth-century Scottish philosophers recognized that no two men could talk for more than five minutes without one developing a mastery of sorts over the other). Minor differences in the extent to which we will submit to the suggestions, assertions, will and ideas of others make an important contribution to the predictability and stability of human affairs.

Political inequalities, then, must be judged only with reference to their overall effects. Moreover, small differences in rank are not something to which everyone has a strong aversion (as Rawls supposes in his treatment of 'primary goods'), but on the contrary, are common and are unthinkingly accepted. Our conformity with the demands of authority has been mentioned already: for the (minor) political privilege of voting, we entrust executive powers to a small body of men, and are bound by all the laws they impose upon us, and even fight in wars and emergencies upon their word. This does not seem much of a 'social contract' in the accepted sense, but it is an institution which we call 'democracy' and actually admire. Political inequality is not something that we naturally and strongly detest, but something which seems to excite our feelings of obligation.

It is noteworthy that these obligations are themselves unequal. "In proportion to the station which a man possesses," wrote Hume, "According to the relations in which he is placed; we always expect from him a greater or less degree of good..."¹² The obligations of nobility are indeed different from the obligations falling upon other men. The Greek notion of *agathos* was expected in the noble-born; rulers have always given the appearance of being paragons of virtue (although as Machiavelli's handbook of state, *The Prince*, reveals, the reality might

be quite different). Today, we expect certain standards of behaviour from policemen, government officers, judges and any others in authority that is different from our standards in other men.¹³

The elaborate mechanisms to ensure and enforce our subservience to a sovereign that have been devised by some contractarians seem unnecessary, even brutal, in the light of our natural acceptance of inequality. Rousseau's prescription for conformity is to outlaw all voluntary associations that may compete for the allegiance of individuals. From the ethological point of view, three major objections can be raised against this strange recommendation. First, as Tiger hypothesized in Men in Groups, the small social group is the fundamental and most ancient building-block of human society. Even in the modern industrial cities, we form ourselves into clubs, societies, unions and religious sects, seeming not only to enjoy, but also to seek out such association. Destroy that association, and a vital part of human life will have been cut out - with unpredictable consequences. Secondly, as Pirie notes in his Trial and Error, the existence of a variety of small groups and social systems is necessary for the 'variation' arm of the evolutionary balance, so that one group can learn from another, and so that there is a greater chance of at least one system surviving the rigours of long-run evolutionary selection. Thirdly, as Lorenz argues in On Aggression, the competition between political groups, sports teams and other associations may relieve natural aggression, and so promote social harmony in general.

Moral equality

The avoidance of such systems of inequality when devising moral codes has been a target of moralists throughout the course of philosophy. The same attitude was reinforced through the insistence of the contractarians that men must be considered as equal partners in a social contract. Hence, Bentham's maxim of justice, "everyone to count for one, nobody for more than one," and Mill's rule that "One person's happiness... is counted for exactly as much as another's," have been given the status of "a fundamental, self-evident truth... For this assumption no warrant is given, or can be given, other than alleged in-

tuitive perception. It is an a priori cognition."¹⁴

When we examine what our conceptions of justice and moral equality actually, are, however, we find that we generally and naturally discriminate between people, treating them differently, and counting some people for more than one and some for less than one. Indeed any other world would be altogether repugnant to us, not to mention its evolutionary shortcomings. In a time of crisis, for example, we normally make attempts to protect women and children; they are the first to be rescued from the burning hotel or the sinking ship. We have other rules which forbid us from striking a woman or a child, but allow us more discretion in our actions toward men. Had we a choice of life or death to make, it is the Prime Minister we would feel obliged to save rather than the madman, whatever our views of the political abilities of either. The individuality of the patients in our moral decisions is important to us in these and many other circumstances, and it would be difficult to make a choice between one option and another under a Rawlsian system of 'equal' justice. When we enter the burning hotel, we do not want to have to draw straws to find out who should be saved; fortunately, our deeply-held but unequal valuations of different human beings enables us to make much quicker decisions.

There have been ingenious explanations of why anything other than moral equality is impossible as a foundation of social life. As we have seen with respect to primate societies, these explanations do not fit the observed facts. Hazlitt, for example, notes that people of equal strength and ability, or approximately so, will squabble unless their shares in the product of their joint effort are also approximately equal. This is the only possible modus vivendi, he concludes.¹⁵ Yet one glance at any society reveals that things rarely work this way. Products are allocated unequally. Furthermore, people are very different in strength, ability, and their willingness to conform to the prevailing norms and accept their given shares. Strict equality is not the only possible form of social organization, and so it is possible to speculate about the merits of one organization against another. The maxims of Bentham or Mill cannot be so easily assumed.

Age and sex differences

As instances of our differential treatment of individuals, consider our reactions to the characteristics of age and sex. Few people would suggest that it is right to treat children exactly equal to adults. No social contract, including the Constitution of the United States, grants children equal rights in voting, representation, property, and many other things. Similarly, no constitution expects children to be punished identically to adults if they commit some transgression. Every civilized society has special lawcourts to deal with juvenile offenders, and it would be thought quite wrong that such offenders should be made to suffer adult justice. Similarly, we do not allow children to have many rights enjoyed by adults: their judgement, we believe, is not sufficiently mature or reliable for their actions to be fully predictable, and were they allowed complete responsibility in all areas of adult social life, then the regularity and predictability of that social pattern would be reduced. In addition, the child might be 'spoiled' by his enjoyment of a large measure of self-determination at an early age: so once again, social life would become more fickle and more difficult. Evolutionary considerations suggest that our species would come to reject, by and large, attitudes and principles of the equal treatment of minors, as indeed it has.

Our social life would be under strain if we treated some individuals as children for part of the time and the same individuals as adults on other occasions. This would make some people uncertain about what their rights and responsibilities really were, and would make it more difficult for others to know exactly how far they could rely on the actions of those individuals. Accordingly, one of the functions of initiation ceremonies like the Jewish Bar Mitzvah, or of arbitrary ages of majority, is to help us to be consistent in our treatment of young people, and to make them aware of their precise responsibilities at any particular time in life. It may seem strange to the philosopher that on one day we treat a person in one manner, and on the next in another, and that such different treatment can be justified; but in fact there are sound evolutionary reasons why this arrangement is followed, and

if the philosopher or the moralist is at all concerned with social welfare or human survival (which few claim not to be) then he cannot evaluate such differences in treatment without reference to the evolutionary functions they serve.

There are many occasions, in addition, to problems of the beginning of adulthood and adult responsibilities where age considerations are relevant in deciding the morality of some action. Take the familiar problems of whether it is right to prolong the lives of children born with some serious genetic deformity, or to allow aged individuals to end their own lives with our assistance. Ardrey has concisely (if unfairly) caricatured such positions: "Life must be prolonged, whatever agony it presents to the dying. A child defective physically or mentally must somehow be saved sufficiently to join the breeding population. To restrict the reproductive rights of the genetically affected would be an act of discrimination."¹⁶ Such principles may well be derivable from the axioms of Rawlsian justice, from an original position of moral equality where individuals were ends in themselves such that no other individuals could claim jurisdiction over them in matters of life and death. But can such principles explain the problematic uneasiness we feel about these problems or help us to resolve them? It would seem not: on the contrary, these principles are the source of many of our problems in the matter.

The difficulties arise because values that are biologically expedient in one situation are not so in another, and that the typically human desire for consistency in thought and deed often leads us to apply certain principles indiscriminately between such different situations. There is clear functionality about the moral principle that each individual is an 'end in himself' and that another has no justification in robbing him of his life, impeding his freedom of movement and so on - at least, not without a good argument based on some other moral principle of wide acceptance. Similarly, there is clear functionality in the principle that we should try to help others who are wounded or infirm and try to bring them back to normal life. So is it that these values are selected in evolution, and that we speak

of the 'right' to life, or liberty, or the pursuit of happiness. There are, of course, occasions where such unrestricted rights would be dysfunctional, and so every society has its methods of restraining or punishing some individuals. Our awarding or curtailment of these rights is, of course, dependent on age and other factors.

What, then, of a child born with a serious, incapacitating genetic defect? Does morality require us to award him (or acknowledge) precisely the same rights as normal adults? In animal societies, blind evolution has answered the question, and abnormal individuals are rejected or killed by the parents at birth: there would certainly be a small chance that the mutation was a functional one, but the probabilities are very much against it. When an individual is fully grown, however, members of the animal societies we have examined will assist him when necessary, and will help to prolong his life. Their behaviour is a function of his age. The same is largely true in human preindustrial societies, particularly those such as eskimo communities where the resources necessary for life are scarce.

In advanced societies, however, spoken commitment to moral equality (however far from the facts it may be) is given as a reason why such actions would be wrong. It is certainly true that we have the resources to spare in caring for incapacitated children. The law of the 'survival of the fittest' does not exclude them because in a world of advanced medicine and intensive care facilities, they are as fit as anyone else. On the other side of the balance sheet are two deficits, however; firstly, the society which advocates full rights for these newborn (or prenatal) infants will have to divert more resources to their care than other societies. With each case, the survival prospects of everyone else will be reduced very slightly. Secondly, the family of the infant will probably bear the greatest burden. They will have to nurse, tend, feed, and spend time and money on their unfortunate offspring. This must reduce their ability to raise other, normal, infants. To the extent that kinship selection is a part of human life, such a family is being denied a chance to have its genetic constitution represented in future generations (except, perhaps, through an acci-

dentally deformed and unrepresentative individual). The moral question is thus rather more subtle than it is usually portrayed; the life of the infant must be weighed against the parents' contribution to future generations. Should we punish the parent who takes the life of her deformed infant immediately after its birth? The question cannot be answered with respect to the 'a priori cognition' of moral equality alone; the mechanisms of kinship and group selection (which are, after all, responsible for highly moral values and actions in men) must be taken into consideration.

Raising these points about the differential treatment of individuals on the basis of age shows how principles of evolutionary selection are a necessary part of certain moral questions. In a prerational animal society, these judgements are taken automatically without the need for lengthy calculation. If we are to use our powers of calculation to help us decide between courses of action, however, it seems necessary that we should take all available information about human nature into consideration, and not rely on limited principles of supposed human nature, oversimply applied.

Turning to a consideration of different treatment of individuals on the basis of sex, the same harvest of problems springs up, but a few prescriptive points can be made as well.

Men have always been treated differently from women: in all species in which there is any sexual dimorphism, the same differences of treatment and difference of social role is apparent. Although the precise tasks that each sex takes on, and the precise obligations or rights that it has cannot be generalized from one species or population to another, some complementarity between the sexes is far from inexplicable in an evolutionary context. In the social life of most hunting and gathering peoples, for example, it is the men who hunt while the women gather crops and vegetables. The men usually exercise complete political control, while women control the household. The exclusiveness of the roles has little to do with characteristics contingently related to sex, for instance, strength: the strongest woman in a community may be far stronger than the weakest man, and still she would

be excluded from a hunting expedition. Similarly, in modern industrial societies it is the men who go out to work while, for the most part, women tend to the household, despite little or no difference in the technical abilities of each sex.

The exclusive nature of many professions has, of course, led to complaint from many women and women's organizations. While the ethological analysis does not pass comment upon whether these movements are moral or immoral, it does point to two things. Firstly, the roles of the sexes depend on obligations as well as rights. Were the rights of either sex expanded, then in order to maintain the balance, obligations would have to be adjusted likewise. This is perhaps one reason why some men argue that if women wish to be treated just like men as regards employment or admission to clubs and societies, then they cannot expect to receive the many, if minor, privileges awarded them under etiquette. This is certainly not to say that any change is impossible or undesirable. On the contrary, the second point which the ethological analysis suggests is that any change of this sort is likely to meet with some resistance. In human and other societies, changes in social roles do not come lightly. The industrial world discovered that after years of suffragette campaigning for the vote, which was associated with severe political upheaval, and even suicides. If sexual roles are to be changed in any major way, that it seems impossible for us to rely on the mere 'enlightenment' of our minds by logical evidence. Our ways are sufficiently firmly set that only force and positive legislation could achieve any such change.

Maintenance of social institutions

Previously we have seen that primate social groups depend for their continuation on certain 'homeostatic' mechanisms of population control, individual dispersion, and norms of sexual behaviour and marriage. Let us consider these with respect to the morality of modern societies, beginning with the last.

Little needs to be said because marriage and kinship were treated extensively in chapter eight. However, the question often arises of whether a social group has the right to set its moral opinions into

law, or to punish people for certain sexual and other practices. To decide between the alternative points of view, it is vital that the philosopher (or the moralist) be equipped with at least some understanding of the evolutionary issues involved.

The regulation of sexual activities through law is anathema to liberals such as H.L.A.Hart in his classic monograph Law, Liberty and Morality. This 'legal moralism', says Hart, is "the view that the enforcement of sexual morality is a proper part of the law's business."¹⁷ He sketches a somewhat unfair caricature of the judiciary, in which the courts are supposed to regard themselves as the custos morum or "the general censor and guardian of the public manners," feeling justified and obliged to punish all deviations from some standard of behaviour which Hart does not fully specify (for perhaps it can never be fully specified at all). He is right, however, that our legal institutions do indeed leave scope for the legal punishment of very vaguely defined sexual behaviours. Such punishment is difficult for the liberal to allow in his conception of a 'just' society.

However, our treatment of problems of endogamy and incest in chapter eight shows that an individual's sexual practices do in fact affect other members of society. Incestual relationships could cause conflicts within a family and could lead to an erosion of social bonds in larger societies and populations. The effects might seem small, but over many generations, they grow to importance. Indeed, the long-term importance of such behaviours is probably one explanation of the readiness of humans to criticise or outlaw it, both of which may increase the selective advantage of the population. Sexual behaviour is something which other members of a society do have an interest in. The larger a society, the less would any individual's own welfare depend on the habits of others; but the fitness of an individual and his descendants over the generations might well remain dependent upon others, however large the society should grow.

The most extreme example of the offences which Hart claims are "not the law's business" would be those referred to as a 'conspiracy to corrupt public morals'. English legal institutions in the early

1970s witnessed a number of prosecutions where there seemed to be a genuine and exerted attempt by some individuals to change the moral values of society, particularly among children.¹⁸ When morality is viewed as a functional part of social life, and not merely a contingent property of social life, the public concern over such incidents is explicable; and furthermore, the right of society to restrain individuals from certain actions, whether within the sphere of sexual morality or outside, becomes much more clear.

Population numbers are another subject which have caused concern to modern societies. Sir Alexander Carr-Saunders struck up a lively debate on the matter in 1922 when he noted that primitive human groups control their populations by custom and ritual, rather than strive for larger and larger group numbers. When one group becomes large, it usually splits into two.¹⁹ Other practices which will serve to regulate group numbers are also condoned, including abortion, infanticide and restrictions on sexual behaviour. In modern societies, the population 'problem', if it exists, is dissimilar, for many millions of individuals can and do live in rather small areas, sustained by increasingly productive agricultural techniques and sophisticated food delivery systems. Nevertheless, an ethological approach might explain why there is discontent and violence within cities.

The ethological method would also have something to say on the debate over whether contraception should be outlawed or admitted as a means of population control. The arguments on both sides are complex, often turning on the definition of 'human life' and on the propriety of introducing laws upon which there is a major division of opinion. A few remarks of interest can be offered, however. Two methods of limiting family size are commonly recognized. One is periodic abstinence, supported by recent Catholic doctrines against the other, artificial contraception. The Church's argument starts from the foundation that sexual activity has only one function, namely the conception of children, and that this function is God-given and therefore it would be morally wrong to thwart it.

The Catholic doctrine may of course be challenged by arguments

about the economic or social hardships of families with unwanted children and so forth; but the ethological argument on the matter is far more basic. If the Vatican employed biologists it would be aware that sexual behaviour has many more functions than the obvious one. It is clearly instrumental in forming long-lasting bonds between the partners concerned, and thus in providing a stable environment for the raising of children. The strength of the bond, although imperfect, is also of advantage in human societies because sexual jealousies are diminished. Lastly, the intensity of the bonding between two individuals promotes social bonds between their families, thus increasing the interdependence of the whole society. The primary grounds of the Church's objection seem, therefore, to be the result of a misinterpretation of the function of sexual behaviour. Far from restraining men from evil, the orthodoxy seems to be forcing them to risk social welfare by a weakening of interpersonal bonds.

Population dispersion

The third mechanism for the maintenance of social life which we have elected to discuss is dispersion and the various bondings between relatives and strangers. A particular problem here is that of xenophobia and racial hatred.

According to Smith, the bonds between members of our species on a continuum. At one point in The Theory of Moral Sentiments, he says that "the force of benevolence becomes weaker the more remote and casual the connexion. And when we come to foreigners or members of other sects or groups with interests which are thought to be opposed to ours, we find not simply the absence of benevolence, but malevolence."²⁰ This statement is certainly valid descriptively, but it suggests that malevolence can be overcome by an injection of benevolence into our behaviour. In fact, the distrust or fear that people have of foreigners has its own evolutionary and psychological source, and must be considered by itself; moral discussions become confusing when xenophobic reactions are contrasted with family or friendship ties. In our evolutionary history, xenophobia was of undoubted selective advantage. It preserved breeding isolation, and made the emergence of social life, in-

cluding morality, possible. It increased the bonds of unity between the members of such a semi-isolated group, giving them a common cause. It helped to keep antagonistic groups at a distance, so preventing the over-exploitation of natural resources.

In modern societies, xenophobia and the hostility to outsiders that is associated with it causes severe problems, particularly within multiracial cities and countries with religious or racial divisions. Civil strife seems to be inevitable when two divergent groups are mixed together in roughly equal quantities. Nevertheless, we have been unable to devise any reliable method of dealing with such conflict, short of civil war. Appeals to the 'better nature' of the combatants are rarely effective; the view of moralists like Russell, that conflict can be ended for all time if only people can learn to triumph over it in their own minds, is surely one of the most pointless philosophies.²¹ So too is the assumption by Hinde and others that aggression (in this and other forms) is largely learned, and can therefore be unlearned or discouraged in future generations.²² Aggression, like language, is indeed learned, but it would be almost impossible to prevent children from picking up a language: they have, unquestionably, a genetic imperative to learn language, although the exact words and grammar varies between countries and continents.

The development of human cerebral qualities has made violence the more terrible, not only because of the development of artificial weapons, but also because of the ability of one group to paint others in shades of deepest black. Propaganda reduces our opinions of our enemies to a sub-human state.²³ Far from curing aggression, or countering it through education, the human brain is constructed, apparently, in such a way that aggression becomes much more bloody than would otherwise be the case.

What is the importance of this for morality? Two points seem to emerge. The first is that if the hostility of one group towards another had a function in evolution, it might have a similar function today. Before we pronounce on the evils of aggression, say, we would therefore have to consider what positive functions, if any, that it has. Below

will be listed some of the positive functions of so-called 'unsociable' tendencies. The second point is that if the same hostility is impossible to destroy, or can be changed only very slowly, then our attitudes to it and to related social policies are in need of revision. Instead of trying to end civil strife in the cities by larger and larger police battalions, it might be found more humane to redistrict racial or religious groups so that contact and conflict between different groups were minimized. Although this would cause great distress to many individuals in the short term, it might be the only long-term solution to the persistent fighting in many parts of the world. Similarly, and once again despite the loss of personal freedom by many people, the power of a country to determine its own standards of immigration, whether by racial, religious, political or any other criterion, certainly does bear scrutiny. In the long term, it might be the only way to avoid disruptive violence. Therefore it should not be excluded from consideration on the grounds of the 'a priori cognition' of moral equality.

Unseen functions of 'unsociable' tendencies

The problem with human aggression is that it has positive functions in addition to its disruptive effects. In multiracial societies, the positive functions of xenophobia have become sources of great discomfort, but other forms of aggression still have their ancient biological importance. As Anthony Storr reminds us, aggression "has evolved with the great Darwinian principle of natural selection, and is therefore aimed primarily at preservation rather than destruction."²⁴

One of the obvious functions of aggression is, paradoxically, to ensure peace and order within a community, since social dominance and rank are maintained by aggressive behaviour. When this remains at the level of threat, then open dispute and violence can be avoided - injurious fighting for political position would be clearly dysfunctional. Sharply-defined rank orders are the basis of military and other organizations where precision of individual and group performance is needed. Frederick II of Prussia is said to have insisted that his soldiers should fear their officers more than the enemy.

Competition between members of a society is also a trait that is apparently selfish, but which has a positive function in promoting social welfare. Hume called ambition "the source of all actions and enterprise which have ever been observed among mankind."²⁵ Adam Smith observed that it was ambition "which rouses and keeps in continual motion the industry of mankind. It is this which first prompted them to cultivate the ground, to build houses, to found cities and commonwealths, and to invent and improve all the sciences and arts, which ennobles and embellish human life."²⁶

Kant also perceived the social importance of certain characteristics, including those to advance oneself over the heads of other men and to rule them. To him, such 'unsociable' desires as self-assertion and competition are the only things which pull us out of our animal state. He says:

Without those not especially lovable characteristics of unsociability, unlovable in themselves, all talent would forever remain hidden in the bud as in the arcadian life of the shepherd, in complete harmony, satisfaction, and mutual love: people, as docile as the sheep they herd, would impart no greater value to their lives than their domesticated animals possess: they would not fill the position left to them by creation for their purpose as rational creatures. Therefore we owe our gratitude to nature for the quarrelsomeness, the envious, competitive vanity, and the never-satisfied desire to possess or to rule... They betray, it seems, the plan of a wise Creator and not the hand of an evil spirit who meddled in His majestic plan or spoiled it in envy."²⁷

Kant, Smith and Hume lacked the evolutionary models to back up their claims, which is one reason why this part of their doctrines (especially Smith's theory of the 'invisible hand' that is familiar to economists) were greeted with silence or doubt and ridicule. Today, however, we can indeed see the selective advantage of these and other characteristics through the ethological examination of simple but analogous animal societies. To the moralist of today, therefore, it is necessary to be aware of the unseen biological functions of certain human actions and institutions before passing judgement upon them. Otherwise, we may be led into quite erroneous beliefs and quite dysfunctional codes of moral conduct.

One item that might be mentioned under this heading is the owner-

ship of property. Some idealists, like Rousseau, see property as an impediment to the establishment of a liberal commonwealth, an idea which enjoys remarkable favour among academic radicals even today. Yet we must remember the evolutionary functions of property in terms of spacing out the species and ensuring that every family has solid lines of supply. Its usefulness, again, explains its strength; why even the infant proclaims 'this is mine' with irritating persistence;²⁸ why every lawcode since Hammurabi has made property a principal objective; why hedges, gates and precise boundary measurements are so important to us. It may well be possible to remove people from their property, as the Soviet experience with collective farms showed; but in that case the reform was possible only with the greatest bloodshed. To remove a part of human personality requires major surgery. A similar reform in any other country would undoubtedly run into the same obstacles and, like the highly inefficient Soviet collectives, do little to justify the 'idealism' of their founders.

Moral philosophy and the ethological approach

There are many lessons here for the moralist, mostly in terms of what is and is not possible because of human nature, and what is possible only if we are prepared to use a great measure of force or deal with unanticipated consequences of 'reform'. Some of these have been dealt with above. There are also lessons - and problems - for the second order moral philosopher, to which we may now turn.

(a) Morality and circumstances

It is clear that the consequences of any action depend upon the circumstances surrounding it. This may seem obvious; but when we can understand something about the social environment through the ethological method, then we possess a sounder basis for moral judgements. Hume and others constructed an ethics in which utility was an explanation of and a reason for moral actions; but this is a static analysis, and we need to be able to recognize that different actions may be biologically advantageous in different circumstances. The morality which would promote the interests of a society that had been newly started in a comparatively expansive environment (such as the American frontier in

the nineteenth century) would be altogether different from the morality that would be necessary in a crowded urban environment. The former would be selected for high fertility rates, cooperation on joint ventures and flexibility of behaviour to suit an unknown and changing environment. The latter would encourage the 'urban' values of self-restraint, limitations on fertility, inhibitions on interpersonal aggression, and so forth. If there are such things as national stereotypes, then these contrasting social characters can indeed be found in each kind of environment; certainly there is a popular belief in the distinctness of the personalities of Britons and Americans which seems to support the theory. Understanding the environmental circumstances, then, is necessary before we can understand morality. There is no one 'natural law' which guides our actions, except the natural evolutionary 'law' that our morality and social life must be adaptive if it is to survive.

(b) The quantification of duties

Human variation is a fact of life. In all measurements of human body or personality, there appears to be some degree of variation between individuals - some short, some tall, some withdrawn, some aggressive. In general these characteristics are distributed in a distribution which has most individuals at the centre and fewer at the extremes, so that the distribution, when represented graphically, becomes a bell-shaped or 'Gaussian' curve.

Clearly, for some behavioural characteristics, the individuals at the extremes of the curve would cause problems for the social pattern of actions unless they were curbed. To some extent, conformity itself will achieve this, but there are still people who are (say) overly selfish, and at the other extreme, people who are very highly generous or altruistic.

Each of these may be sub-optimal as far as social welfare is concerned. Selfishness, obviously, makes social life difficult. Overgenerosity, however, may have the same effect. As Herbert Spencer pointed out, in a society of pure altruists, social life would be impossible, because nobody would accept for himself the fruits of the altruism of others. Similarly, there must be at least sufficient ego-

ism for an individual to maintain his health and vigour. Without that, he could hardly make and contribution to the welfare of others. In other words, complete altruism is as dysfunctional as complete selfishness. At this point, the wisdom of Aristotle's golden mean becomes apparent.

Nevertheless, many moral codes enjoin a high level of altruism upon everyone, a level which, if attained, would be dysfunctional. The problem for the moralist, which we can see on this analysis, is that while a degree of altruism lower than one hundred percent would be functional, there is no way to incorporate this into a moral system. A rule such as 'do unto others as you would have them do unto you, about fifty percent of the time' would be outside our ability to encourage by praise or blame and outside our ability to enforce legally. The moralist has to make the choice of having no prescription at all or having one which claims to be applied universally. ²⁹

Despite moral preaching, we do in fact judge actions on the basis of functionality, accepting behaviour immediately around the functional mean and discouraging behaviour at either extreme. Thus, while we enjoin people to be altruistic, we consider them weak and undesirable if they easily give in to the wishes of others. While we praise courage, we pity foolhardiness. Virtues such as generosity, benevolence, self-restraint and others which philosophers sometimes call 'imperfect duties' come under this heading; they cannot be quantified easily, and their 'perfect' performance would in fact be harmful. In this way a distinction can be formed between these actions and others which require complete conformity if social life is to continue at all. Were we not to expect people to drive on the proper side of the road, or warn others when they were about to eat a poisonous fruit, or inform the police when they see an armed and dangerous criminal in the area, then mortality rates would be much higher and the fitness of the society would be diminished.

However, there are some occasions in which we can and do make rather fine judgements of moral actions on the 'altruistic-selfish' continuum. To take Urmson's example from his essay on 'Saints and

Heroes', we would indeed praise the actions of the soldier who fell on a live grenade in order to save his fellows from the blast. We would note that it was 'above and beyond the call of duty'. But if the benefits in terms of human lives saved could be easily calculated, and if it were found that these were clearly less than the cost borne by the soldier, then we might come to the opposite conclusion, that the action was foolhardy rather than courageous. If his fellows were sufficiently far away that they would have received only minor wounds or no wounds at all, then we would certainly ask why the soldier did not run to save himself instead of making such a pointless move. In fact, in situations like this we are making the trade-off between the costs and benefits of an altruistic act which Trivers claims we do automatically.³⁰ The survival prospects of a whole society can be improved if we act in accordance with these costs and benefit balances on a reciprocal basis, and if the hypothesis of individual selection is accurate, the reciprocal altruist may increase the fitness of his own genetic representation. We do not require to be able to calculate the costs and benefits precisely, but if we are able to do so, then we have a sound basis for calculating the moral worth (or foolhardiness) of an action. Because of the functionality of our acting in accordance with the costs and benefits of an action, it is perhaps not surprising that we do employ this kind of calculation in everyday situations.

(c) Are we moral or selfish?

A problem which emerges from the ethological approach is that of how 'altruistic' an act of self-sacrifice really is. Most aspects of animal sociality and morality are advantageous to the cooperating individual; in the human case, the individual also benefits from his cooperation in a culturally-determined system of rules and norms, as Bishop Butler, Hutcheson, Tucker and other eighteenth-century writers were at pains to point out. It can therefore be argued that an act of self-sacrifice is, in fact, a selfish act. If everyone in a Hobbesian contract restrains his impulses to injure others, for example, then everyone benefits.

Other cases are less clear, and it can be argued that the individual is the loser from an altruistic act, or that he also gains. Warn-

ing calls in birds furnish us with an exemplification. Some avian species-members will issue a distinctive warning call when a predator comes into view. This call will be the signal for other members of the species within range to take flight or to take cover. Yet the issuance of the call must, occasionally at least, result in the death of the caller, either from the predator or from a second predator who was previously unaware of the caller's position. Williams in his book on Adaptation and Natural Selection cites three possible explanations for how this behaviour is nevertheless selected. First, he says, it is selected by the mechanism of group selection, in which the group and not the individual is the target of selection; the loss of life of one individual is of advantage to the other group members and therefore the warning call disposition arises randomly within the group in every generation. The second possibility is that warning calls are functional during the breeding season because they help protect the individual's mate and offspring, and therefore serve to improve the survival chances of the individual's genetic endowment. Warning calls continue in other seasons for genetic simplicity. Thirdly, warning calls operate all the time because there is a good chance that close kin (who carry some genes in common with the individual caller) will be near by and will benefit. A fourth explanation, favoured by Trivers, is that warning calls actually aid the bird giving the call. It is dangerous, he says, to have a predator eat a nearby conspecific because the predator may (i) be sustained by the meal, (ii) be more likely to form a specific search image of the prey species, (iii) be more likely to learn the habits of the species and perfect his preying methods, (iv) be more likely to visit the area again, or (v) be more likely to learn useful information about the birds' habitat. Even if all this were true, then the caller, although helping others more than himself, would still be helping himself. Therefore, it is argued, even this apparently altruistic act is really selfish. The problem here is that it is impossible to collect evidence which would test between the views of Williams and those of Trivers. The average cost to birds issuing warning calls, and the average benefit to their neighbours, is very difficult to establish. One could think of analogous cases in human

morality where the individual altruist might, on closer scrutiny, gain in some measure from an apparently 'selfless' act.

There are other cases of animal behaviour where the individual is undoubtedly at risk by his altruism and where it is impossible to see any gain to him. Of course, it is possible that in many circumstances (for instance the avian parent distracting a predator) that the genetic constitution of the individual may be better preserved through the act. When philosophers talk about 'selfish' acts, however, they invariably mean those which benefit the individual himself, and not his relations or offspring, even though they share genes with him. So behaviour such as avian distraction displays, or the characteristic 'stotting' of the Thompson's Gazelle, can be said to be undeniably selfless as far as the philosopher is concerned. The individual is at great risk for the benefit of other individuals.

Accordingly, it is possible for the philosopher to say without doubt that animals do on occasion act selflessly. His definition will be slightly different from that of the biologist, who will include as 'selfish' some actions where an individual's relations also benefit, because of common genetic endowments. Nevertheless, the philosopher may take comfort from the fact that even though some 'altruistic' behaviour may be selected in evolution (through genetic capacities or through cultural determinants) it can still be properly recognized as selfless. Acts which benefit a society may also benefit the agent, so that selfishness and selflessness are conjoined. On the other hand, some acts which benefit a society put the agent at risk without personal gain, despite their evolutionary origins. The eighteenth-century analysis of Butler, Hutcheson and others in which 'benevolence' was reconciled with 'self-love' can, on this analysis, be brought into sharper focus. The reconciliation is indeed possible, but it is one-sided, for there are some 'benevolent' acts which are quite contrary to 'self-love' in the philosophical sense. In cases where we are able to calculate the costs to the individual of an action and the benefits gained by others by it, we can even put the eighteenth-century reconciliation on a quantitative basis and come to definite conclusions about the particular courses of

action that would be necessary if the reconciliation is to be allowed as being genuine (that is, if certain apparently selfish actions are indeed instruments of the selective fitness of the whole society).

(d) Nepotism

If an individual's benevolent actions make it more likely that his relatives, and the part of the agent's genetic constitution which is shared with them, will survive and have more offspring, as the theory of kinship selection suggests, then we can make several predictions about the sort of benevolent actions that would be expected.³¹ In the first place, it seems probable that natural selection would favour those who make their relatives the object of altruistic acts more readily than they do others. Evolution would be unlikely, however, to select those who favoured their family to the exclusion of others, since in that case the social bonds linking families would disintegrate. In the second place, near relatives would tend to be favoured more than distant relatives as the objects of benevolence, since nearer relatives offer a greater chance of the agent's genetic representation in future generations (assuming that near and far relatives enjoy equal reproductive capacities in this particular case). Thirdly, between two relatives of equal nearness, it is the one which is more likely to generate successful offspring who will tend to be awarded the agent's favours. It will probably be those who are younger and fitter who will be preferred.

Do human beings act in this way? There is every indication that they do, and that people are more willing to make a personal sacrifice for a relative (even cousins and nephews) than for most others.³² As Adam Smith noted, our most powerful feelings of obligation are towards our immediate family. Outside that, other relatives elicit the same feelings, but of reduced intensity, and more distant relatives still evoke feelings of greater obligation than we would experience with respect to a non-relative.³³ Even when we meet distant relatives whom we have never met before, it may be noted, we often experience some emotion to treat them rather more kindly than we would treat perfect strangers. Also, it may be no coincidence that when religious groups

or secular societies wish to stress or encourage mutual cooperation and obligation, they sometimes call each other 'brother' or 'sister'.

We may call the phenomenon of an agent's acting altruistically on behalf of his relatives in preference to acting altruistically for the benefit of a non-relative 'nepotism'. Indeed, 'nepotism' can be said to occur even where the agent suffers no personal sacrifice, such as the familiar case of choosing a relative to fill a vacant executive post in one's company. Nepotism has a clear evolutionary advantage: traits possessed by the individual are more likely to survive in the long term, including the disposition to help others (one's relatives). These traits may have a genetic foundation or may be learned, provided that they are retained with little change over the generations. This kinship selection mechanism therefore can and does promote the emergence of benevolent or altruistic tendencies that favour related individuals and hence (since societies comprise individuals) whole societies or populations.

Yet there may be some objection that this analysis is not so easy. Nepotism, far from being regarded as a virtue, is commonly disliked. Does the evolutionary process then select traits that are contrary to most notions of morality? The answer is that in this case it does not; even if it is one's relatives which are being preferentially selected, they are members of society and therefore society benefits. Also, the strength of the nepotistic tendencies are important when we judge the situation. Mild nepotism may do negligible harm to other people. But when nepotism becomes flagrant (say, the boss's son is promoted over the heads of ten better-qualified people, each anxious to get the job) then people are likely to take strong objection to it. A certain degree of nepotism will be excused as 'only natural' or insignificant; above that, it will be criticised by others. One can well imagine that this criticism will tend to limit the actual performance of nepotism. In evolutionary terms this is of advantage. Over-extensive nepotism would promote the interests of families in opposition to others, and the bonds of social cooperation between families would be eroded. On the other hand, a certain degree of nepotism, if it causes negligible harm to others, is of advantage in the selection of altruistic traits.

When the philosopher or the moralist consider the morality of nepotism, therefore, the relationship between its usefulness and its strength must affect their final judgement.

(e) Punishment

An important subject of moral debate which deserves mention under this chapter is that of punishment. Does the ethological method suggest any contribution to our theories of punishment, its justification and proper object?

As with other parts of human morality and social life, punishment has evolutionary origins which are essential to any discussion of it. By 'punishment' is meant something which is unpleasant, which is inflicted on an individual because of some transgression, and is deliberately imposed by some individual in authority. Thus in animal societies, punishment can be seen in the form of (for instance) a dominant male baboon biting a female who strays from his presence. Punishment of offspring by animal parents is also common. The phenomenon can be traced throughout the course of human evolution. In the primitive human societies which we take to be similar to our ancestral social groups, simple rules of punishment are recognized: an offender can be punished by the individual he has harmed, or by the family of that individual. As societies grow more complex, a chieftain assumed the role of arbiter and punisher; in yet more complex societies, he is replaced by councils of elders or hereditary officials. Modern societies elect or employ judges, policemen, sheriffs and juries.

It may be noted that each step in the development of these institutions of justice is an advance over the previous one in a single respect: that the decision as to the level of punishment becomes further removed from the offender and his family. The individuals making the decision have become less partisan in the matter. When punishment is meted out by the family of the offended party, its severity may be difficult to predict, but when it is administered by an impartial body of legal officers, it is likely to be more predictable. Naturally a small and primitive society cannot support such a judiciary system, but it is of selective advantage to have some form of punishment, however

unpredictable are its methods. Were it impossible to restrain those individuals who threaten the stability of the social pattern of actions, then social life would become much more difficult. Hence in animal and human groups, punishment of sorts occurs continually. The more predictable the punishment following some transgression, however, the more efficient does its use become.

In order to see why this is so, one has to consider the evolutionary functions of punishment with respect to the fitness of a population or a society. The first function that it may have is to remove from the group some disruptive behaviour pattern. A pathological murderer of conspecifics would be a threat to the fitness of any group, for instance. Were such a creature to be found, the survival prospects of the others would be reduced unless they removed it - either by killing or by exile. The second function is to adjust the behaviour of individuals who are and who will remain members of the group so that their new behaviour conforms with the rules or norms accepted by the group as a whole. Inflicting some personal discomfort or harm has been found to be an effective way to achieve this end. But each member of an animal social group is useful to it, particularly at the outset of colonization, and it would be dysfunctional to administer a large punishment for a minor deviation from the norms. If an individual is incapacitated by a heavy punishment, he cannot be of much use to the community in some emergency. A major deviation may require a major punishment to correct; but a minor deviation, if it can be corrected with a minor punishment, is best so corrected.

The philosopher's task is not to decide what particular punishment, if any, is appropriate to any particular transgression. Comparative jurisprudence shows that different societies have different ideas of 'appropriate' punishments, and this is not a cause of much concern. His task, however, is to decide on what grounds punishment can be justified at all, in the light of a generally-accepted rule that it is wrong to cause suffering, and to suggest what evidence is permissible in such a debate.

Four main arguments have been produced on this matter. The first

is the utilitarian argument, that punishment is justified if it produces more happiness than otherwise or if it suppresses more pain. According to Bentham, "all punishment is a mischief... If it ought at all to be admitted, it ought only to be admitted in as far as it promises to exclude some greater evil." This argument has been met with criticism from those who claim that if people could be persuaded that an innocent man was in fact guilty, the utilitarian would feel justified in punishing him. To meet this challenge, the crude utilitarian argument requires a further ad hoc principle that each human being has certain minimum rights (to remain unpunished if innocent) or should be punished only if he committed a transgression voluntarily. This is a somewhat serious adjustment for utilitarianism, since notions of justice and desert that are prior to the pleasure principle are explicitly recognized. The admission of the principle that a man has an undeniable right to remain unpunished if innocent also suggests that in our judicial procedures, any doubt of guilt at all would be necessary grounds for acquittal.

Such an admission is not only a complicated addition to the utilitarian argument, it also contradicts another justification of punishment, that of the deterrence of other would-be offenders. Naturally, deterrence would require efficient prosecution and trial. But of itself it would admit very brutal punishment for minor offences. If we cut the hands off anyone found shoplifting, it would very likely deter other people from the same crime. That punishment would also fulfill the conditions of another argument for the justification of punishment, that is, reform of the criminal himself, for such a person is unlikely to repeat the crime after such punishment and so could be considered to be completely 'reformed'.

These arguments are commonly rejected, however, because we have a strong notion that the extreme punishments they admit simply do not 'fit the crime'. Certainly, some measure of deterrence may come into our judgement on the matter, but human beings seem to decide the appropriateness of punishment largely on basic and non-rational notions of desert. The man whose daughter has been murdered does not say of the

criminal: "I hope that man hangs - it will discourage other people from the same offence." He does say: "I hope he hangs - he deserves it." This retributivist argument is the principle upon which punishment was founded: an individual who is wronged by another and who takes revenge against him helps promote the deterrence of future crimes and the reform of the transgressor. He is also raising the welfare of the society, which benefits from both effects. Unrestrained, of course, his desire for revenge may be wholly disproportionate to the scale of the offence, and so may become dysfunctional for the society, which is why criminal proceedings are (in civilized communities) taken out of the hands of the injured party. If the community is unable to administer punishment for the offence, however, then the injured party would be justified in taking his own revenge.³⁴

It is the task of the first-order moralist to decide which punishments are appropriate for any offence. The simple rule of Lex Talionis, favoured by Kant, is often inapplicable today because of the complexity of possible offences; what is the appropriate punishment for drug abuse or sexual offences? Each society will come to its own conclusions, and the severity of their punishments may vary over time. The philosopher can do little more than to remind others of what arguments are admissible in the debate on this matter: a prominent argument will of course be the selective significance of the punishments chosen. Of equal interest will be the evolutionary implications of how different characteristics (such as age or sex) are treated under any system of punishment. From this point of view, it seems that the philosopher armed with a knowledge of the ethological approach does indeed have a major contribution to make in questions of social ethics - that is, setting out the implications of a principle and exploring the limits of its application.

(f) The role of reason in ethics

'Reason' is a particularly elusive concept, since it seems to take on many meanings. If we assume the term to refer to the ability to calculate the implications of our actions and to measure the adequacy of those implications against our various desires, then it would appear

that human reason has a positive evolutionary function with respect to ethics. There are many ways in which this function may be valuable, but three are of note.

Firstly, the use of reason allows us to reduce problems of possible action so that we can see whether certain actions will in fact satisfy our desires. Human beings may have a natural tendency to cooperate with others, say, and there may be many other different desires which are of stronger or lesser force. If we are to make efficient choices, it is important that we can calculate which of our desires are likely to be satisfied by any action.

Secondly, we might find that it would be rational for us to take some risks in our behaviour, but that there are strong biological inhibitions against such risk-taking. Although the inhibitions may be of positive survival function in most cases, it might be that on this particular occasion, the risk is well justified under cost-benefit analysis. Reason will thus help us to review the biological inhibitions or imperatives that we normally rely on to guide our action. In all fields of action, including morality, this review would be functional.

Thirdly, when we contemplate the different implications of several hypothetical courses of actions, with respect to their evolutionary implications, we will be more able to discern which behavioural strategies are optimal and which are not. (In ethics, one might take the example of epicureanism; in its original form, this is a suboptimal behavioural strategy). The most successful morality from the evolutionary standard will be one such as Trivers describes, where individual acts of altruism are traded against help from others. In the absence of cheating, the fitness of all individuals in the system is increased. Any philosophy which urges a withdrawal from risk and a rejection of potentially cooperative contacts with other individuals is therefore less than optimal. Clearly this same method can be used to evaluate any aspect of human morality.

Summary

It may be seen that the ethological approach has many implications

for moral philosophy and moral discourse. Specifically, the method may encourage us to review more carefully some practices such as those Kant calls the 'unsociable' desires which may have an evolutionary advantage. Other questions where the approach may give us guidance include the problem of equal treatment of individuals, the correctness of a moral principle under different environmental or social situations, the purposes and justification of punishment, and the relationship between an individual and his social group with respect to moral practices, rights and obligations. A complete volume would be needed to cover these questions in the detail which the approach would allow. Some have been treated in moderate depth here, and the question of conscience, and of the status of moral rules will be examined more fully in the following chapter. This should nevertheless be considered as a demonstration of the power of the approach to give us new insights on a number of moral issues, rather than an exhaustive demonstration of its conclusions.

FOOTNOTES TO CHAPTER ELEVEN

1. Burke, Reflections on the Revolution in France.
2. See Plato, The Republic, Book 1. His example is the question of whether one should return a borrowed weapon to a friend who has since gone mad.
3. Asche (1956).
4. Hornstein (1970). Similar experiments are found in Macaulay & Berkowitz, Altruism and Helping Behaviour.
5. These findings are recorded in Milgram, Obedience to Authority, and in Milgram (1967).
6. Such would seem to be the finding of Festinger (1950).
7. For a psychologist's view on this point, see Campbell (1975), pp 1107-8.
8. See on this point Hayek, 'Notes on the Evolution of Systems of Rules of Conduct' in his Studies in Philosophy, Politics and Economics.
9. Hume, Enquiry, Appendix III.
10. See Plamenatz, Man and Society, vol 1, p.309.
11. Knipe & Maclay, The Dominant Man.
12. Hume, Enquiry, Section V, note 6.
13. Perhaps there is another functional implication here: since the welfare of a society will depend on the actions of its leader more than upon the action of any other individual, the regularity and reliability of the leader's action is especially necessary. Hence individuals in authority are expected to act impartially and fairly, and without the biases and vacillations to which most men are subject.
14. Herbert Spencer, The Principles of Ethics, chapter 2.
15. Henry Hazlitt, The Foundations of Morality, chapter 24.
16. Robert Ardrey, The Social Contract, chapter 6.
17. Hart, Law, Liberty and Morality, section 1.
18. This was exemplified by the prosecution of the underground magazine Oz, a case of widespread public concern at the time.
19. He acknowledges that he was foreshadowed by Francis Bacon in an essay, Of the Vicissitude of Things. Galton and Kropotkin also made mention of the same phenomena, but Carr-Saunders is the first to use the notion of population-control practices in a theory of genetic selection.
20. This and similar viewpoints from Smith is given useful discussion in Coase (1976).

21. Bertrand Russell, Has Man a Future? is characteristic of the thinking of Russell and other optimists on this point.
22. See Hinde, The Biological Bases of Human Social Behaviour, especially section E.
23. This point is developed in Tinbergen (1968).
24. Storr, Human Aggression, chapter 3.
25. Hume, Enquiry Concerning Human Understanding, II.
26. Smith, The Theory of Moral Sentiments, pp.263-4. The Wealth of Nations affords us many illustrations of this principle.
27. Immanuel Kant; see above, Ch.1, n.16. The same 'functionality of 'unsociable' desires is discussed with respect to aggression by Anthony Storr in Human Aggression (introduction) and with critical objections by Hinde in The Biological Bases of Human Social Behaviour, p.272 ff.
28. Cecil, Natural Instinct: The Basis of Social Institutions, notes this point.
29. See the following chapter for further discussion of the universalization problem. Human beings can be relied on (usually) to look after their own interests without prompting, so most moral principles are 'one-sided'. See Campbell (1975) p.1118 on this.
30. See Trivers (1971).
31. This discussion draws on Richard Alexander, 'Natural Selection and the Analysis of Human Sociality', in Goulden, C.E. (ed) Changing Scenes in Natural Sciences. (Philadelphia Academy of Natural Sciences: in press).
32. Ibid.
33. Smith's view on this is detailed and discussed in Coase (1976).
34. Some Social Contract theories would consider this to be a right stemming from the breakdown of the contract. If we recognize the strength of the retributive motive in men, it becomes plain that this is a rather basic motive which any contract would have to honour. Natural law theories would similarly recognize the importance of this characteristic. Functional considerations would support strongly the same view.

Chapter 12

CONSCIENCE, RULES AND ENDS.

"To account for the existence of an instinctive behaviour pattern in a species, we must say what survival value it has for the species."

Leslie Stevenson¹

This chapter concerns the natural supremacy of what we call conscience, or the 'moral sense'. Thinkers like Justin Gosling² have noted that there are two common uses for 'conscience,' one rational and reflective, the other basic and immediate. If the sort of 'conscience' which pricks us immediately that we have committed a transgression is indeed likely to point us in a different direction from a more detailed reflection on some matter, is it then useful at all? Is it not the case that our conscience can be quite misleading, and can urge us to do things which turn out to be immoral by almost any criterion when we think about the circumstances of the situation? To some extent, the answer to such questions must be yes; but when we understand conscience, and begin to appreciate how and why it arose in our species, then its direction and influence becomes easier to understand; some sketchy knowledge can be gained of where the conscience can be right and where it can be wrong.

Part of the analysis hinges on a discussion of rules. At the moment there is a school of thought which takes an act-consequentialist view of morality, saying that it is the act which is important, and

a person must be blamed if he follows a rule thereby commits some act which everyone (including himself, perhaps) subsequently decides was morally wrong. Against this, I will argue that human beings are necessarily rule-guided creatures, and that we do far better to think of human moral judgement and behaviour in terms of rules.

Another thing which is also relevant under this subject is a discussion of ends and means, which can be taken as a continuation of the discussion begun in chapter three, and is linked with the ethological view of the emergence and function of conscience.

The emergence of the 'moral sense'

Let us first distinguish the two uses of the term 'conscience'. To take Gosling's example, suppose that a man decides to take a holiday in Spain, and that a social scientist friend convinces him beforehand that begging, which is common in Spain, is a social evil and will only be eliminated when people steadfastly refuse to give money to beggars. This new philosophy was totally against the man's former inclinations. Before long on his holiday, a beggar asks him for money and he refuses to give it on account of his newly-acquired conviction. Now when he returns home, he could describe the incident in two ways. First he might say "I could not in conscience give him the money, but I felt awful about it," or he might say "I couldn't give him the money, after my talk with you, but my conscience bothered me for weeks afterwards." It is the second of these uses with concerns us here, the use attached to the moral feelings of the person concerned.

This sort of conscience (at least) has arisen through natural selection, along with other parts of human moral psychology. In particular, one would expect conscience to be selected through interdemic and kinship selection processes, since it often seems to pull an individual in the direction of an altruistic act, although his personal interests appear to lie in another. Conscience, if it has the power to change the direction of our action, would therefore seem to be a useful feature of social life. Nevertheless, conscience could be selected through

individual selection mechanisms in a race of individuals who are disposed to reciprocal altruism; conscience may enhance the performance of reciprocal altruism and thus benefit individuals in the system of reciprocation.

It is, of course, impossible to establish how ancient is conscience in evolutionary terms. We are unable to ask animals whether they feel the pull of conscience or not, and human prehistory gives us no clues about the feelings of conscience in our own early ancestors. All that we have to rely on is the apparent constancy of some behavioural traits in early human and animal societies, and the everyday attribution of 'guilt' to animals which have committed some transgression. These, however, do not prove that the feelings of conscience which men now profess to feel would have been professed by their prehistoric ancestors, or (if they could speak) in animal species prior to them. Even so, it is not unreasonable to suggest that conscience is a functioning part of human morality and probably emerged along with it in the earliest stages of social life.

This is not to say that conscience does not depend on a certain degree of learning. Darwin himself, who was probably the first to propose a genuinely evolutionary root for conscience (although the enlightenment philosophers came very near) recognized the importance of many developmental influences upon it, including the approbation or disapprobation of other individuals, habit, custom, religious beliefs and precepts, reason and a measure of self-interest.³ To function in the moral system, conscience does not have to have a purely genetic origin; indeed, like many parts of human nature, one of its strengths is its adaptability to suit prevailing circumstances.

Conscience as a guide to action

If conscience is indeed the product of evolutionary forces, then to what extent is it useful? Can evolutionary or ethological theory actually help us to recognize the merits of conscience, and explain its occasional lack of applicability? Some attempt to meet these questions is clearly required. Being the product of natural selection, one might expect that conscience would be a strong guide to action: follow con-

science and our duty will be done, deny it and we do wrong. This, of course, is not always the case, and words of explanation are needed.

The first objection to conscience as a reliable guide to action is this: the conscience appears to allow different people, and different societies, to engage in different activities. While western men find it difficult to suggest that any major punishment should be exacted for shoplifting, for instance, some ancient cultures and perhaps existing ones in other parts of the world would not blanch at cutting the hand off a thief. Or again, we all know of individuals who have acted in ways that we could not bring ourselves to emulate because of the cry of our conscience, but who do not seem to suffer a twinge of remorse over their actions.

This objection can be dispensed with easily under the evolutionary approach. In order for a society to function and to enjoy a selective advantage over others, complete equality is not required. There would be no necessary advantage to a society if everyone's conscience placed identical inhibitions upon their actions. On the contrary, it can be argued that social groups need two kinds of individual - one a law-abiding sort, making up most of the members of the society, and the other an individual who is prepared to take risks and to attempt innovations, sometimes contrary to prevailing moral norms or rules. Therefore if everyone in a society with such divergences of conscience followed their conscience, it may well be that the society itself is benefitted, despite the inequality between individuals. Inequality between persons does not prevent conscience being a reliable guide to personal action.

Similarly, it is certainly true that there is a major inequality about the application of conscience between societies. But it must be remembered that evolution has produced a multiplicity of forms, including a multiplicity of possible social organizations. It is quite possible for two social systems to enjoy roughly similar selective fitness, even though one might be vastly different from the other. One aspect of the difference may well be conscience, which permits actions in one social system that it guards against in the

other. Within either of the societies, however, it will still be a reliable and (in selective terms) advantageous guide to action.

The second objection to the supremacy of conscience as a guide is that it appears to admit exceptions at nearly every stage. Even the conscientious unwillingness of individuals to take a human life does, we admit, have exceptions, and we can imagine circumstances in which we will be faced with such a gruesome choice and in which we will feel obliged to override our conscience, just as Gosling's tourist in Spain feels obliged to override his conscience and not give money to the beggar. Closely associated to this objection is a third objection, that conscience is frequently not exact enough to guide us on just those questions that are of major importance - say, the complicated questions of economic planning in which the interests of some individuals have to be sacrificed to the longer-term interests of others or of all. That is, conscience is not detailed enough to advise us on particular cases.

In answer to the first of these two objections, it must be remembered that anything that is embodied in the human constitution as strongly as we find conscience is, and which is transmitted genetically or by childhood leaning and social reinforcement, necessarily has to be rather general. A general rule, or disposition, or physical feature, can be transmitted from one generation to the next. What cannot be transmitted genetically is a knowledge of how to act in a particular circumstance. The situation is rather similar to the one cited by Oakeshott in Rationalism and Politics: the wheelwright keeps making wheels deep into old age, because he can never pass on the particular knowledge needed to carve every wheel out of every wood; that, one can only learn from experience. Some general outlines of the wheelwright's craft he could write down and transmit; but each situation is different, and the knowledge that he gains from handling each situation dies with him.⁴ Translating back to the moral situation, a parent can tell a child how to act in certain general situations - don't steal, cheat, lie, or hurt - but certain complicated cases in which one moral value must be weighed against a number of disvalues can never be predicted; how is the child to act under these circumstances? And again, were the

transmission genetic, it would be impossible for the genetic repertoire of the species to include transmitted 'knowledge' or tendencies to act in some ways but not others, appropriate to every conceivable situation. Where that knowledge does exist, it must be general. Sometimes, it might let us down, and cause much hardship and suffering; usually, however, it promotes group survival and stability.

Returning to the begging example, it can be seen that a general disposition, inherited through the interplay of learning and genetic forces, to assist others in distress is actually of potential benefit to a group-dwelling species. That is why altruistic tendencies exist in group-living animals as well as in ourselves. Conscience tends to support that rather fundamental and primary valuation. Were we to delve deeper into our psychology, we might find that there are other values, not so immediate, but which, after discussion with others perhaps, we might convince ourselves are of greater functional value than the altruistic tendency. Consequently, in this particular case, where we make the rational calculation that begging is a social evil, we feel able to override our natural inclinations, even though our conscience still supports altruism and causes us distress.

This is also part of the answer to the third objection to the appropriateness of conscience as a guide to action, that it cannot advise us in complicated cases. Of course, all that this objection makes plain is that conscience cannot guide us in certain circumstances; in most others, however, conscience may be a very useful guide, particularly in those where some instant decision is required. Certainly, upon later reflection we may reproach ourselves; but in general, our conscience prompts us in the direction which benefits our social group or population. It is true that there might well be complicated instances in which our conscience would guide us in a direction that is, as it may turn out, far from beneficial to the population. But it would be unlikely to have survived for long within any species had it not been broadly useful to that species. Even the vaguest conscience is more useful as a guide to action than none at all. Social problems would

arise if we had to decide each case individually, without any guidance from past events. But this guidance is already ingrained in us: as Tiger and Fox say⁵, we have the basic 'grammar' of social life within us. The particular 'words and phrases' must be learned, as must the different applications of conscience in different cultures. Like grammar and language, however, our natural morality is formidably resistant to change. Those moral schemes in which conscience is ignored (and this might be said of some of the social contract philosophies discussed in chapter ten), not only risk trying to suppress something which is widespread and so deeply held as to defy sudden change, but ignore something which is, for the most part (and certainly in situations where there is no time for detailed reflection on the alternatives) a good guide to action.

So important a guide is conscience in actual fact, and so much stead comes from it, that it is found in even the most rationalistic philosophies. Bentham's four sanctions of the utility principle - nature, law, public opinion and religion - were widened by Mill to include conscience, for example (although in this case it might be possible to argue that Bentham had conscience covered already under 'nature' or even 'public opinion').⁶ From what we know of the relative permanence of the conscience in most of us, it would appear to be a great risk for a moralist to devise a moral system in which the most common dictates of conscience were not recognized.

In sum, then: we have in conscience a functional part of social life which is common to nearly all human beings, although which is not necessarily uniform in each of them. Despite the vagueness of the pull of conscience, and the chance of it leading two people to disagree on what is right and what is wrong, it is nevertheless a prime motive for action, and is a general guide to morality. Its importance and its power to guide should not therefore be overlooked in our rationalistic or idealistic moral systems.

The biological selection of rules

Conscience is a biological foundation upon which we build our concepts of moral rules. Hence the general nature of moral rules them-

selves. If a general rule leads to a situation where on balance, everyone gains, then to follow that rule might well be a good way of acting, even though on occasion, harm might be done to one or two individuals. It is as Hume says of justice: the laws of property and justice are very general, and "must be fix'd by general rules. Tho' in one instance the public may be a sufferer, this momentary ill is amply compensated by the steady prosecution of the rule, and by the peace and order, which it establishes in society. And even every individual person must find himself a gainer, on balancing the account..."⁷ For this reason, it is unwise to dispense with rules as readily as some modern philosophers such as Smart.⁸ Rules are the basis of an inherited morality which is the foundation of rational morality, not its antithesis.

In Hayek's words, "only a society of omniscient individuals could give each person complete liberty to weigh every particular action on general utilitarian grounds,"⁹ and the point would be true whatever grounds were advocated. If, for example, I have a copy of my late brother's will, which leaves his entire estate to one of the meanest misers in town, am I to tear it up and leave only an earlier will in which the money was left to several charitable groups that are known for their good work and their help to the unfortunate? Under an act-consequentialist view advocated by Smart, I would be; but in real life few people would take that step. It would be to transgress a deeply-held rule about the honoring of a person's will and testament. Also, were it known that people felt able to break these rules upon their own valuation of the situation, there would be little point in setting down one's wishes anyway, because it would be obvious that they would not withstand against another's conscience. As Hume says, in general, everyone gains by the observation of the rules, though in the particular case, the 'public' might not benefit. There would, for example, be no limit to the excuses of 'I only did it because I thought it was the right thing' were criminal activities to be justified in an act-consequentialist system. Only by adopting, and sticking to, the general rule, can our society be stable and predictable.

Let us take one more example, cited by Smart. Suppose that there is a severe drought and that a rule has been drawn up to prohibit people from watering their gardens. Now, he says, if one person were to break the rule, it would not matter very much; in fact, no-one would notice. And if one person broke the rule, a great deal of public benefit could follow. The person might secretly raise begonias in his back garden, out of the view of others, and donate them anonymously to the local old folks' home, where they bring a great deal of pleasure. How, asks Smart, can such action ever be held wrong on the utilitarian grounds which many people support?

Smart overlooks the possibility that the person watering his back garden might not be the only one doing so. Other people might have the same idea; and if they indulged themselves, the result for local water supplies could be disastrous. We are not omniscient beings, and we do not know what other people are doing. Therefore, when a rule is instituted, we have to be consistent in its enforcement. Were the man to be caught, it is right that he should be punished, despite the pleasure that he has brought into the lives of many people; for were we not to enforce the rule, we would not have a rule at all. Our obedience to rules is ensured to some extent by conscience. Not even the man watering his garden is likely to escape a twinge of guilt; but we have other sanctions which we do (and should) deploy in similar cases. Were we not to, then we stand the risk of our social environment being made completely unpredictable by the large number of individual choices of individuals in different circumstances. That, as I have already said, would be detrimental to human welfare.

The act-utilitarian (and Smart can be taken as an example again) believes that as a rule of thumb, certain general proscriptions are necessary - for instance the rule not to water one's garden, or rules against killing or breaking promises. But were one to do the 'long-hand calculation' and find that, in some particular case, a greater degree of good, however defined, was done by breaking the rule then it would, he says, be right to break the rule. Rules, if you like, 'collapse into acts' when we consider each case on its own merits.

But this argument is implausible: how, for one thing, do we know when to make the 'longhand calculation'? How do we suspect that a rule might, on this particular occasion, be inadequate unless we have already made the calculation? And once more, how do I know what other people are going to do in this same situation, given that I am not omniscient; the consequences of my action will depend upon the actions of others, and unless I can rely on them not to make the longhand calculation and not to deviate from the general rule, then I cannot predict the consequences of my own deviation and measure my action with respect to the utility criterion. Or furthermore, it is possible to argue that any calculation of whether or not to water one's garden in a drought, say, or any moral choice at all really boils down to a calculation between rules, not acts. On the one hand, it is accepted that one should increase the happiness of others: that is one rule. On the other, it is accepted that the water shortage requires us all to make sacrifices: that is another, perhaps conflicting. Other general rules will impinge upon our decision at various points. In making our decision, we must weigh the consequences of all the general rules which are relevant to such cases. Acts, therefore, dissolve into rules, and not the other way around.

This is far from being a distinction not justified by a genuine difference. On the contrary, the 'rule' doctrine gives us a much better description of human moral psychology than the 'act' point of view. Not only is it possible to inherit behaviour genetically only if it is rather general in its application, but learning of any behaviour, including the appropriate moral behaviour for some general circumstance, also proceeds through rules. A child learns a general rule of behaviour first and then the qualifications afterwards. The prevalence of moral regularities in human and in animal societies strongly suggests the transmission of moral traits from one generation to the next, in which case it must proceed by means of general principles of broad application. It is possible that on any particular occasion, harm will result, but in devising a code of conduct we are interested in the results of its steady prosecution over a series of many cases.

Men are rule-guided creatures; not only do we have a considerable tendency to comply with rules and with social norms, and even with authority, but more complex moral principles could not be transmitted from one generation to the next. Men would never be able to live in social groups if we did not have these rules and norms; the adherence to certain rules is morally right and biologically prudent, even where in some particular case, more harm than good seems to be done.

Ends and means

From what has been said, it is apparent that a number of pieces of behaviour can, under the pressure of conscience and through our adherence to rules of action, become ends valued in themselves, even though they might help to promote the social regularity of the species, and can therefore be valued as means to another goal. The example of the good Samaritan would be an instance of this; his action of caring for and aiding a less fortunate member of society is undoubtedly an action which promotes the survival prospects of a group. Hence, similar traits and co-operative tendencies are found in animals, and primitive human societies are no different. Yet it is not because of our rational reflection of the evolutionary consequences of such action that it comes to be valued; rather, it is valued in itself, without reference to the social benefits, particularly the long-run social benefits, which emerge from it. Helpfulness, compassion, and any other social virtue are recognized as good and valuable in themselves; as far as evolutionary survival is concerned, it is not necessary that we should understand the selective advantage of such traits before we can value them.

Even those philosophers with the clearest view of human nature often overlook this natural valuation of what happens to promote human survival, and assume that the valuation of any action must derive from conscious reflection upon its function.¹⁰ It is, however, quite possible for us to value something in itself, because the tendency to value a certain action is selected in us as part of a functioning system of which we might be unaware.

Summary

Human beings are guided by rules. As far as morality is transmitted between the generations, whether by instinctive or by learned means, it has to be transmitted in a general form. Specific cases must be learnt subsequently by an individual. For the most part, the pull of conscience does promote the welfare of our species, because it is a part of such general functional moral systems, although in certain instances, harm can be done by following conscience. When we realise that conscience has use as a general guide, we can incorporate it more successfully in our moral codes, instead of trying to suppress it and change its pull upon us, as some rationalistic theories attempt to do. This is inefficient, and could be harmful.

Where general rules guide our action, and are valued because of the good they do on balance, we should not be inconsistent about the enforcement of those rules. Although harm might occur in some situations, it does not make a rule harmful that on occasions it causes harm, provided that on balance, men and society gain. As far as rules of property and other fundamental values are concerned, rules must be quite general, so that they can be widely known and therefore more readily accepted.

Finally, it can be said the rules of conscience and of reflective morality attach themselves more to specific pieces of behaviour than to the functional content of any behaviour. We have rules to punish criminals because we think that punishment is right, not because we are concerned about the social implications of punishment. Our conscience prompts us to altruism, and our valuation of altruism derives from the fact that conscience does prescribe it to us, not that it is of some further use to our species. Therefore, the distinction between ends and means in philosophy is still a useful one.

FOOTNOTES TO CHAPTER TWELVE

1. Leslie Stevenson, Seven Theories of Human Nature (Lorenz).
2. Gosling, 'The Natural Supremacy of Conscience', in R.S.Peters (ed.) Nature and Conduct.
3. Darwin, Descent of Man, I., p.159ff.
4. Of the wise sages, Oakeshott's wheelwright says "What was worth handing down died with them; the rest, they put in their books."
5. Tiger & Fox, The Imperial Animal, chapter 1 and passim.
6. The addition came to the applause of others, like Sidgwick, who thought that there would be many instances in which no guidance could be obtained from Bentham's four sanctions.
7. Hume, Treatise, Book III, Part II, Section II.
8. See Smart, in Smart & Williams, Utilitarianism: For and Against. All other references are to the same work.
9. Hayek, The Constitution of Liberty, chapter 10.
10. For an instance of such a case, see Hume's discussion of the prudential value of chastity in the Treatise, Book III, Part II, Section XII.

Chapter 13

THE THEORY AND MODERN MORAL PHILOSOPHY

"A thing might look specious in theory, and yet be ruinous in practice."

Edmund Burke¹

Armed with these principles of the ethological roots of morality, and with the subtle but important implications they have for the origin of moral determinants such as conscience and our obedience to rules, let us now make our way through modern moral philosophy, so often criticised for its abstract nature and so far divorced from first-order moral discourse. What contribution may we not make? For in our analysis rests a firm foundation of human morality, an explanation of why our values come to be the way they are, of what is the application of those values, and of how they guide our action in a way compatible with the welfare and survival of our species. Let us begin with a consideration of intuitionism, particularly as it relates to other comments which have been made in chapter 12. concerning conscience, and then continue through this century's most important philosophical movements.

Intuitionism

Perhaps the most significant contribution to intuitionism was that of G.E. Moore in his Principia Ethica. The reason that it is proper to classify Moore as an intuitionist is because he conceived of goodness as

a non-natural quality, which could be directly apprehended by individuals, like the colour of 'yellow'. A detailed outline of Moore's thought is unnecessary here, primarily because of its familiarity to most people, but two points might be mentioned. The first is that in Moore's scheme of things, questions of 'good' are put in the lap of the personal intuition of each separate individual. There is no consideration of the fact that reason, experience, authority and rational reflection should come into moral arguments and judgements. The second is that Moore, believing that it is usually impossible to test the consequences of any particular action, urged an adherence to the existing rules and conventions of society.² The intuitionist line of thought was taken up by Prichard in his famous essay 'Does Moral Philosophy Rest on a Mistake?', in which he claimed that duty was very much like Moore's goodness; that is, it was a simple, non-natural thing which could not be explained in other ways; No explanation could be given of why one ought to do one's duty other than the fact that it was one's duty. Yet, this outlook of Moore and Prichard that obligations and goodness were, in a sense, self-evident and obvious is unsettling. In fact, there is a good deal of dispute and it is to take a trite view of the world to say that no argument or doubt is ever possible on moral questions.

This scepticism was raised by Sir David Ross. There are, he believed, certain kinds of action whose goodness could be 'immediately apprehended', for example the action of keeping a promise; but there is no action (contrary to Prichard) which one can know without qualification that it is one's duty to do, because there always exists the possibility of a conflict of duties.

There are some other problems which are associated with the intuitionist position. Although the writings of Moore, Prichard and Ross are enlightening and interesting, they do not really answer the fundamental question of why we should do one thing and not another. To their minds, it is obvious what is good and what is bad, what it is one's duty to do and what it is not: therefore, why explain something that is obvious? Furthermore, to the intuitionists, moral qualities seem to be attached to certain acts and objects without apparent correlation with any other characteristic of the acts or objects themselves. The doubt can be

raised, whether moral qualities³ really are like this, whether some things can be called moral and some not, without any reference to their other qualities, and without their other qualities being important to any moral discourse. And lastly, it can be asked, if one person intuitively apprehends a certain act as good, and another as bad, how can a resolution ever take place between them, except possibly by weight of opinion on each side?

The ethological view can offer some suggestions on how these problems can be reduced and settled. In the first place, it will be noted that Ross's view has much in common with the version of conscience sketched in chapter twelve. That is, there are certain kinds of action which most people, quite naturally, believe to be right or believe to be wrong. If they act in other ways, they feel guilt and the pain of conscience. But these moral qualities which we find 'intuitively' good are far from unrelated to other qualities. For one thing, they are usually supportive of the social pattern and conducive to the survival of the group or species. The actions which are most conducive to the social pattern are the ones which are most deeply embedded in our conscience; these are the ones against which the most strict proscriptions hold and the ones which are most widely accepted. They can, therefore, be called 'intuitive' and we should expect a large measure of agreement about them. Nevertheless, like disputes about 'the right thing to do' which arise through incompatible pulls of the consciences of two different people, disagreement upon the intuitive apprehension of good is certainly possible, particularly where the point in question is not one of the simple and general principles (promise-keeping, abstaining from theft, etc.,) which are necessary for social life to exist at all. Where two of these general principles conflict will be another region of doubt and uncertainty. In this way, Ross's intuitionism is explicable in terms of the ethological heritage of human conscience.

Secondly, we have formulated a theory of why moral qualities turn up in discussions about certain actions but not in discussions about certain others. The intuitionists offered no explanations of why moral discourse should apply in one case but not another; they treated moral qualities as though they are completely independent of other qualities,

and were therefore denuded of a theory to explain the occurrence of such things. We see now that morality is, broadly speaking, something associated with things and actions which have some importance to the survival of the species and to the preservation of the social pattern of a group. This is at once a reason why morality should occur in certain contexts, and why intuition of moral qualities should have any psychological foundation in human beings at all.

Thirdly, the ethological approach explains why moral judgements should be important for our actions - simply, they are important because human welfare, which we as human beings who have evolved in a particular way consider valuable - hinges on them. The classical intuitionists, however, were unable to give an answer to this simple and penetrating question.

Lastly, let us consider the question of disagreement in the intuitive appraisal of actions or objects. Where human beings share a common evolutionary past, one would expect a measure of agreement in their values and actions. In a species selected as a group, one would expect all disruptive values and characteristics to have been selected out, since a society could only operate and could only leave successive generations given a measure of internal order. Furthermore, the need of human beings to be attracted to the same things (food, comfort and so on) and to be averse to other things (discomfort, parasites) has left each individual with a roughly similar valuation of many things that are important to the individual but are not exactly relevant to the furtherance of the social order. So not only is there a measure of agreement within any particular society upon moral rights and wrongs, there is also, perhaps more limited in scope and definition, some agreement between societies which may have completely different social organizations. Relativism is advocated under this scheme, in that the moral 'intuitions' of members of different societies could be quite different and fundamentally incompatible; and yet there must be a certain objectivism in human morality, since certain broad principles of action (and not others) are necessary for human survival from generation to generation.

This allows us to speculate more fully than most modern philosophers

have been able to do on the precise object of a moral code or prescription: what is covered by morality, and more importantly, who is covered. On the former question, the whole of this investigation is an attempt to find the answer. This answer is given in terms of the actions, values and dispositions which are necessary for the preservation, and therefore the evolutionary selection of, a particular social order or pattern of actions. Concerning the matter of who is covered by any moral code or prescription, some further comments are in order, bringing us to the question of universalisability of moral terms and principles.

Universalisation

The principle of universalisation was formulated by Kant, who used it as a sufficient criterion to distinguish moral from immoral principles, and has been revived vigorously by R.M.Hare, who sees it as a necessary device to distinguish the moral from the non-moral. To take an example from Hare, if I say "Shut the door!" to Jones, then I am issuing an imperative, amounting to "Let Jones shut the door here and now!" which is clearly not universalised since it refers to a particular time and place, and which does not need to be universalised.⁴ On the other hand, if I use a prescriptive term, such as "Jones really ought to shut the door: it's a standing invitation to thieves to leave it open as he does," then I must, for consistency, commit myself to some universalised judgement of the form "Let everyone in Jones's circumstances (say, with valuables in their room) shut the door." What I take to be good for Jones must be good for everyone in Jones's circumstances, according to me, if I am to be logically consistent in my use of the language.

According to Hare (and before him, Kant) this principle of universalisation offers a test of the moral; one's volitions, says Hare, must be universalised for them to be moral prescriptions or ideals and not just personal desires. An individual must be prepared to accept the consequences of any principle he espouses for that to be called a moral principle.⁵ In a somewhat similar vein, Mayo notes that when

someone remarks "This is a good spade," he is not just saying that he prefers it to most others, but is suggesting that any other rational individual with some rough knowledge of gardening would have the same preference, and would have to admit that it was a good spade too.⁶ This judgement is to be distinguished from a judgement of purely personal sentiment (or appetite or desire), which might be the case if the person in question had some particular emotional attachment to that particular spade. Such sentiments cannot be universalised; but moral judgements must be.

It has, in fact, become a common criticism of Hare that universalisation is not a distinguishing feature of morality alone, but is necessary feature of any rational judgement. D.H.Munro, in his perceptive book Empiricism and Ethics, points out that ordinary descriptions must be universalisable. If this is a good Siamese cat, according to the judge, then he would have to admit that another, identical to the first, would also be a good Siamese cat. This is descriptive universalisability. Munro also distinguishes social universalisability, say that if something is right for X to do, then it must be right for others in the same circumstances. When Mayo says that to describe a spade as 'good' is to make (at least implicit) reference to an accepted, conventional set of standards which are applied to distinguish good things from others, he is using this social universalisability; and when Hare says that "Jones ought to shut the door," he is doing the same. But it is not necessarily true that only moral terms have this brand of universalisability, although any consistent application of language certainly must.

When talking of universalisation in ethics, it is usually this social universalisation which is meant: that what is right for one person must be right for any other. But this principle of social universalisation is fraught with difficulties, since universalisation is not the same as general application in the logical sense. "Everyone with no source of income and serious war-wounds ought to be admitted free" is universal, since it refers to every member of a class, but it is nonetheless highly specific in its deliniation of the class. The fam-

iliar problem thus arises: is it not possible to describe some cases in such a way that only a very small class of individuals (perhaps a class which, upon examination, may be found to have only one member) is covered by some universalisable principle? Can not an egoist, by formulating principles of sufficient exactness, put forward principles which are universalisable, but which are designed to benefit only himself, even though these principles might be universalisable? It is easy to propound the view that any principle which applies to others must apply to oneself, or that any principle which applies to oneself must apply to all others like oneself in the same circumstances. But what are the 'same' circumstances, and what counts as being 'like' oneself?

The problem is no less serious if universalisability is taken to mean the standard under which whatever is a reason for one person to do a certain thing must be a reason for anyone else in the same circumstances to do the same. Once again, this does not define morality, since it is a feature of any consistent actions, and any consistent use of language. If the possibility of loose ground is a reason for me to stay away from the edge of a cliff, it is, undoubtedly, a reason for any other individual similar to me also to stay away from the edge of the cliff. But what counts as 'like me'? Someone who wished to commit suicide, although like me in many other respects, might reject my reasons for being cautious, and do quite the opposite from what I do in the same circumstances. What counts as 'similar' circumstances might also be debated in an identical way.

It is possible to maintain that universalisation, as a method for distinguishing moral from non-moral principles, or for distinguishing the moral from the immoral, is too wide to do the job. It may distinguish logically consistent actions and use of language from others, but does not appear to be a special feature of morality. When we attempt to apply it, we face further questions - 'which actions are similar?', 'who is like me?' and so on. Some other principle appears to be necessary to answer these questions, and it would seem that a principle of impartiality, particularly a principle of not favouring one-

self has been mixed up with the logical consistency element of universalisability, at least in the formulation of the doctrine by Hare and his adherents.

Impartiality, however, is itself a moral principle and cannot be made to distinguish moral from non-moral principles. In Hare's analysis, this principle of impartiality is taken to be inextricably bound up with logical consistency, suggesting that it has a far greater power than it actually has. The analysis seems to suggest, in fact, that the principle of impartiality is an over-riding principle and therefore necessary in all moral judgements.

The issue of whether we accept the principle of impartiality is open to debate; it is separate from the issue of logical consistency. Undoubtedly, many people would accept impartiality as a way of distinguishing moral from immoral principles, but the impartiality principle is itself not easy to formulate, since it can be argued that in a complex and changing world, no two circumstances are exactly identical,⁷ and no two individuals exactly alike. So what does impartiality really mean? Moreover, there is not necessarily any compulsion upon us to accept impartiality as a general principle if we are committed to some other moral goal. The utility principle, for example, will conflict with impartiality in many cases.

On the first point, the fact that the impartiality principle is difficult to formulate, the ethological approach offers examples and lessons. When the moralist does not recognize differences between situations which are, in fact, crucial to the preservation of social institutions, many unexpected difficulties can arise. From the simple and widely-accepted principle that killing is wrong in nearly all circumstances, for instance, the Australian government once outlawed the tribal hostilities which had separated some highland tribes living in areas where survival was just barely possible.⁸ As a consequence, these hill-dwelling people found that they were able to move to more settled parts without the constant fear of raids from other tribal units (although one doubts whether the legislation alleviated the feelings of hostility between these units!) Overutilization of the re-

sources of the new settlements, overpopulation and eventual starvation was the sad result; the tribal hostilities had served as a spacing-out mechanism that prevented the population from becoming too large to be supported by the capacity of the land to yield food. Here is an instance in which it was thought, by a national government with vast research materials at its disposal, and with much experience in dealing with tribal conflicts, that a proscription of killing in these circumstances would have the same (beneficial) consequences as the same proscription in most other circumstances. This application of the principle of impartiality was seriously mistaken, a point which must be admitted by anyone interested in the consequences of a moral judgement. If a national government is unable to discern relevant from irrelevant characteristics of a situation, it might well be doubted that individuals have the ability. Certainly, it is theoretically possible to vary the principle of impartiality to accommodate various differences in circumstance, in the same way that the general rules of our natural morality are qualified when they conflict with other general rules which we accept; indeed, this rule element of morality and the doctrine of impartiality are much the same thing. Yet it must not be thought that these qualifications and specifications are at all easy to construct. Innovations in morality and law, such as those imposed by the Australian government, require detailed consideration before they are applied, and an attempt to apply them without any empirical information about the functionality of the existing morality may lead to results which are wholly unintended by the authors of the change.

Although within the realm of possibility, it is unlikely, given what we know of human nature, that a moral system founded on rigid impartiality principles could operate at all for any length of time. Differences of age, sex, and even status are taken into account in any moral decision we make, are there are, as has been shown, strong evolutionary reasons why these determinants should be important. To treat women identically with men, for instance, could forge a society in which women would face the various hazards of male life - being called to serve in battle, being awarded equal status as men in some rescue effort, and so on - which would, in turn, threaten the survival pot-

ential of the society (and with it, the moral code) due to a small but persistent diminution in the fertility rate and the increased chance of behavioural abnormality in infants deprived of maternal care. The principle of impartiality, specious in theory, may be, to use Burke's phrase, 'ruinous in practice'.

When moral principles are adjusted to take account of these personal differences, we are still not in a position to apply them generally with confidence. What is appropriate in one social group could be destructive in another; customs vary between societies, at least in their overt expression if only rather little in their functional importance. The use of some particular set of behaviours that are accepted in one culture might cause outrage in another. Similarly, as the case witnessed by the Australian government showed, unintended consequences may result when we attempt to extend the rules governing behaviour in a social group to cover individuals outside the group. All societies have different standards of ethics pertaining to strangers as opposed to their own members. Superficially, this seems to be the cause of much hatred and conflict between societies; but its evolutionary functions must not be overlooked before pious judgements are made concerning the unacceptability of such a dual standard.

Acceptance of this rather small point helps us to escape from the problems of a utopian formulation of morality such as that proposed by John Rawls.⁹ Rawls seems to be so anxious to treat his moral agents equally that he leaves no room for possible differences between societies that rational calculation alone is unable to remove. The rules which are deduced are, one must take it, supposed to be binding on all human beings, and differential treatment of persons outside one's own local population is inadmissible. One might ask of Rawls, who excludes so much of the empirical basis of human nature in order to formulate his moral system, why the species of an individual, never mind his society, his time-period, or his social position, should colour our judgements; but clearly, this is not what we take morality to be about. We do recognize a difference in moral value between men and animals, and we do recognize a difference between members of our own

society and those of others. A utopian morality which does not take account of these empirical aspects of human personality will be difficult or impossible to apply.

In summary, we see that universalisability seems to confuse consistency with impartiality, and assumes that impartiality is an overriding concern in morality, that moral principles must be applied equally to all individuals in similar circumstances. The ethological approach, being based in the empirical observation of human nature and the recognition of the functional aspects of social institutions, requires that these empirical features be accounted for in any moral system. Particularly, utopian social engineering, which would replace existing moral principles with major innovations on a holistic scale, is likely to produce disaster on a holistic scale unless amply supplemented by experience about the effects of reforms, learned through the ethological method and through small-scale social experiments.

Emotivism

The emotivism of Stevenson and others has come under attack because it does not seem to agree with what we commonly think of as moral discourse. While I am no emotivist, I think that the ethological view can offer a few considerations that would shore up the emotivist position, if the members of that particular school chose to develop them.

The first criticism is that the doctrine, that the purpose of a moral statement is to change the attitude of the person to whom it is made, is actually quite rare in ethics. Ethics, it is alleged, is not done with the major purpose of influencing the attitudes of another. But this argument might be handled as follows. Men naturally have a disposition to comply with the prevailing norms and rules, even with the prevailing authorities. That has been shown in human societies, and also in animal social groups; it seems to be a natural tendency in social species. The more people that try to convince you that you are wrong, then, the more are you likely to actually change your attitudes toward some moral statement or position. In arguing with you, one is merely attempting to put a subtle pressure on you to come round to my way of thinking. This argument is all the more sound when one considers

our tendency to agree with others is heightened if we have mutual respect or personal admiration for them; psychologists know what twisted reasoning the human mind will employ in order to come to agreement with one we like. That is why moral argument between friends usually convinces one of them to change his ground, however slightly, whereas argument between enemies tends to be a more difficult process through which to reach agreement.

The second thing which might be said against emotivism is that it has no strength when the other person agrees with one's position anyway. Yet moral discourse is still possible in such circumstances, particularly when one of the parties is not arguing seriously, or does not care about the subject, or knows that he is unable to influence others. But against this it can be said that the consolidation of opinions, not only in an individual, but between individuals, is an important part of human psychology. That is why political parties spend so much time and effort convincing and keeping in touch with their own members; the reinforcement effect of discourse, moral and otherwise, cannot be overlooked. Were the emotivists to incorporate this into their system, saying for example that the characteristic object of moral discourse is to convince others to change their attitudes, or to reinforce acceptance of one's own attitudes, or to reinforce the confidence of others in their own attitudes which the speaker agrees with, then under this definition, the doctrine would have more weight.

Prescriptivism

Prescriptivism, the doctrine introduced and largely developed this century by R.M.Hare, has largely been dealt with in this chapter, since the universalization hypothesis is one of its main implications. Our comments here will be restricted to the claim of prescriptivism that it escapes the conclusion that moral discourse is fundamentally non-rational, an implication of the schools of intuitionism and (to some extent) emotivism.¹⁰ This particular claim arises because the problem of getting a person to do something is simply the problem of using an effective method to do so. When any means can be deployed, the solution to that problem need not be rational - I could force you, or feed you drugs, or trick you into acting a certain way - but according to emotivism, any effective

means of changing someone's mind and influencing his actions can be used, no matter whether it is irrational or not. For the prescriptivist, since his attention is limited to the issuance of guides to action, the guides themselves must be intelligible to the other party, must be associated with good reasons (not necessarily explicit) and need not in fact be acted on by the person to whom the advice is given. Since it is a process between rational beings, and takes the form of rational answers to practical questions, it cannot be (say the prescriptivists) a non-rational activity.

Yet it is. When I ask someone "What ought I to do," and receive the answer "You ought to do X," what is really going on? Quite simply, your advice to me is predicated on your own particular values. These values might be shared by many people, or everyone, but insofar as a prescription is offered to me, my action must be seen to you as an object of those values. Hence, by offering me a certain piece of advice, your own notions of how the world ought to be will be recommended to me, with the hope and intention that I should accept the advice. If I follow your advice rather than the advice of another, I will be acting in such a way that will be in accord with your values, even though your desire for my happiness (or other emotion) is included. What weight there is behind a prescription does not lie in any logical link between the words you use and the actions which are recommended under them. The weight of the prescription lies in its correspondence with the values which I happen to have. If you offered a prescription which was at odds with my fundamental values, for example, then it would not be taken; it is only when I am doubtful about my own valuation of the situation (say, because several deeply-held values are in conflict) that such advice will be useful to me in the resolution of that doubt. This activity of recommendation, then, is not by any means a rational activity; the prescription is based on irrational values held by one person, and directed at irrational values held by another. It is quite possible that the prescriber will not be fully aware of the value-system of the person being addressed, or will say one thing, not realizing that purely contingent qualities of the action prescribed will appeal to the values of the other person. At bottom, all moral discourse is about values, and no moral system can claim that it is rational because

those values are themselves non-rational.

Utilitarianism

Utilitarianism is an example of a rationalistic philosophy which, although it is persuasive in its recommendations, nevertheless divorces itself from real human institutions and values. I take it that we are not talking about an extreme brand of utilitarianism which would so extend the definition of 'pleasure' or 'happiness' that whatever one does is alleged to have occurred through motives of pleasure, such that even the martyr who dies at the stake does so because he is caused less pain than had he betrayed his principles. As Sidgwick remarked, by such an extension it is possible to make the theory accommodate any one of our traditional values and institutions - and indeed Mill went to great lengths to demonstrate that utilitarianism was compatible with popular notions of justice.

Such adjustments are post hoc modifications of a theory which is too insensitive to incorporate the multiplicity of institutions and human values which are necessary for a society to survive. For example, I have said that the institution of retribution or punishment, whether enacted by some legal authority or by the relatives of a victim, is a rather basic and natural value which, incidentally, achieves a stable social situation and which therefore generates a great deal more happiness than the anarchy surely resulting, were the institution to be dissolved. The utilitarian might accept the consequence, and therefore say that it is clear, on notions of utility, that retribution is a good institution. In that he is justified; but it would have been impossible to predict from his theory itself, that this particular institution would yield such consequences. A utilitarian might be quite determined to promote the general happiness, and may recognize that the preservation of the species is the way to do it; but without an evolutionary social psychology, his philosophy is, as Herbert Spencer described it, "no more than a statement of good intentions," some of which might have been disastrously wrong. The statute book in such a world would be "a record of unhappy guesses." "

Furthermore, it is far from certain that our values are in accord-

ance with principles of utility. Our values have been shaped by the past events that have caused our species to be selected in one way and not another. If we accept that to follow a certain value is not the same as to follow the pleasure principle, then it is clear that our actions and values are merely rules for survival, not necessarily rules for pleasure (although in many everyday circumstances, such as eating and drinking, the two go together). Survival is not a question of pleasure and pain. It is possible for a species to go into very pleasurable extinction; but the traits which precipitated that decline will not be seen after that date. When the utilitarians urge us to promote happiness, it suggests that survival has little to do with morality, and that happiness here and now is the important thing, the survival of the species being important only in so far as its contemplation brings us pleasure. Nature, however, does not build men in this way.

Like other rationalistic approaches, utilitarianism does not distinguish who and what it is that moral codes apply to. Most people agree that animals are able to experience pleasure and pain. They act in ways that are identical with human beings when experiencing pleasure and pain, and indeed we can be motivated by the obvious enjoyment or displeasure of a pet animal. Are animals to be included under our utilitarian principles like other humans? There is no clear answer until we examine the other facets of human nature which determine where and when moral principles are applied,

In fairness to classical utilitarianism, it might be said that of all moral doctrines it has enjoyed the most widespread acceptance, except perhaps a very few other doctrines that are reinforced with a principle of religion. Each of them, however, is simple and general in the prescriptions they make - 'love thy neighbour' or 'promote the greatest happiness' - which is, as has been said, one of the most important characteristics of any moral system if it is to survive the test of time, and be spread by transmission from one individual to another. Nevertheless, when a rule is so general as these, one can derive only general prescriptions from it. The utilitarian philosophy is made much more useful and much more of a guide to our actions when it is supplemented with information about human nature, a supplement which can be

gained very readily from a brief consideration of the implications for human action of the mechanisms of natural selection.

Summary.

As well as being able to make some positive prescriptions about human action in the social sphere, the ethological approach to ethics is useful as a means of justifying, or attacking, positions taken by modern moral philosophers. The principles of classical intuitionism, for instance, can be much improved when we consider the source of moral values in human beings, that is, evolution by natural selection as it affects the moral constitutions of men. Furthermore, the tests commonly employed to distinguish moral from non-moral statements can be subjected to closer scrutiny when the group selection approach is used; for morality must produce workable solutions to human problems if the consequences of moral prescriptions are to have any merit at all, by whatever standard normally accepted in men. Universalization, for example, is seen as a fruitless construct when the heterogeneity of human life and institutions is considered. Human roles must be complementary and not necessarily uniform or equal; the same action, practised upon different people, and in circumstances which might look superficially similar but which are crucially different, could have greatly different results.

Other rationalistic doctrines can be improved by injection of a dose of human nature as revealed by the ethological method. This can be done in two ways: firstly, the examination of the evolutionary foundation of our morality can yield prescriptions which could not have been contemplated were our ethics free from any empirical content about human nature. Secondly, our attempts to draw up successful moral codes can be usefully limited by a notion of human psychology with its implications about what is and what is not possible. This latter point will be referred to in the final chapter.

FOOTNOTES TO CHAPTER THIRTEEN

1. Edmund Burke, Impeachment of Warren Hastings, 19 Feb., 1788.
2. For a presentation of these points, see Warnock, Contemporary Moral Philosophy, chapter 1. For original source, see Principia Ethica, page 167.
3. When dealing with intuitionism, it is almost inevitable that one should talk in terms of 'qualities'. Certain comments on this subject have, however, been made already in chapter 3.
4. See The Language of Morals, chapter 2.
5. Freedom and Reason, chapter 10.
6. Bernard Mayo, Ethics and the Moral Life, pages 24-26.
7. For an interesting and original analysis of this, see Hayek, 'The Theory of Complex Phenomena' in Hayek, Essays in Philosophy, Politics and Economics.
8. This incident is recorded in the New Guinea edition of the American Anthropologist (1965) and is recounted by Eibl-Eibesfeldt in Ethology, chapter 20.
9. This has been discussed in chapter 10.
10. The rationalistic nature of prescriptivism is made explicitly by Warnock in Contemporary Moral Philosophy, chapter IV.
11. Herbert Spencer, Social Statics (see J. Barrow, chapter 6 for comment).

Chapter 14

THE ORIGINS AND LIMITS OF MORALITY

"True law is right reason in agreement with nature; it is of universal application, unchanging and everlasting... We cannot be freed from its obligations by Senate or people... And there will not be different laws at Rome or Athens, or different laws now and in the future, but one eternal and unchangeable law will be valid for all nations and all times."

Cicero¹

This chapter will review some of the main concepts of the theory of the ethological roots of morality. Our knowledge about animal and human social behaviour is presently expanding very rapidly; but the comparative recency of the scientific study of such behaviour leaves any attempt to specify the exact connections between human evolution and human morality open to subsequent argument and qualification. The attempt of Herbert Spencer to formulate an egoistic morality on Darwinian lines, and its subsequent discredit in the hands of the ethologists is an instance of an evolutionary theory which subsequent observation proved to be inadequate: our ideas about human nature today will no doubt be revised by further findings in ethology and the new science of 'sociobiology', which makes use of population genetics theory in the

study of comparative social behaviour. At this stage in science and in philosophy, the theory of the ethological roots of morality cannot pretend to be a series of answers; it is more a set of guideposts for a field of enquiry that has just opened. It promises to be one of the most refreshing and productive adventures in ethical philosophy.

Selection mechanisms

The main concept linking ethology to moral philosophy is not really the study of other species, nor even primitive human cultures, but the concept of evolutionary selection of functioning social orders. From the simple axioms of the theory of evolution by natural selection, it is possible to propose that groups of individuals, and the pattern of social activity in which they participate, may evolve by natural selection. Although transmission of behavioural traits, whether it be genetic or through learning, must take place from individual to individual, the selection process may operate on the whole group of organisms.

In terrestrial species, there is evidence that many advantages accrue from living in social groups. Even the Hobbesian egoist derives some benefit from being part of a functioning society. In men no less than in the social insects, selection on the basis of breeding populations is a workable explanation of social behaviour, and the conditions (stringent as they are) for the operation of this mode of behavioural selection were satisfied during our own evolution.

Group selection may be supplemented by, or in some cases opposed by, kinship selection processes, in which the inclusive fitness of a set of relatives will determine the survival rate of some genetic character or behavioural trait that is inherited. Like the process of interdemic selection, that is, selection of breeding populations, it can explain the emergence of altruism and self-sacrifice by individuals with respect to evolution. In interdemic selection, the functioning pattern of activity of the whole population is the factor which determines the survival of a genetic characteristic: in kinship selection, the survival of the characteristic within a kinship group, where it is

shared to a greater or lesser extent by relatives, may be improved by actions which promote the survival of relatives even at personal cost or self-sacrifice for an individual.

The third mechanism of selection is that proposed by Trivers, the reciprocal-altruism model. Any number of individuals who enter (intentionally or otherwise) into a reciprocal altruism bargain will enjoy selective advantage provided that the acts of altruism by one partner are indeed reciprocated. Hence, this sort of selection process will operate most effectively in small societies where movement of the individuals away from each other is limited, where lifetimes are sufficiently long to allow reciprocation and detection of the 'cheaters' who do not reciprocate, and where altruistic aid is dispensed to any member of the society, not merely an individual who is owed reciprocation. Once again, this mode of selection explains the emergence of a complicated network of inter-related acts of altruism, obligations and debts. Perhaps more fully than interdemic and kinship selection, it explains the emergence of various points of moral psychology, including guilt when an individual does not behave altruistically, moral disapprobation from others in the same circumstance, gratitude to and praise for the altruist, methods to identify and expose non-altruists, and so on.

Each process of selection represents a process in which a number of individuals are selected as a unit. Social Darwinist notions of the 'survival of the fittest' individual do not explain the presence of human and animal societies in which some individuals sacrifice themselves in circumstances where advantage will accrue to the rest of the population. Sometimes, individuals who are very far from fit in evolutionary terms - the sterile worker castes of social insects, for instance - but who bring other benefits to the community, are represented in every new generation of the species, another feature of animal societies that Social Darwinism would find it difficult to explain.

Populations or societies that have been selected under these various mechanisms are enabled to survive because of their power to meet the conditions of the environment. They are self-regulating

orders, and if they have survived through the long reign of evolutionary selection on Earth, then it can be assumed that they are able to accommodate most of the conditions that the environment is likely to present to them. One feature of this self-regulation of societies which interests the moral philosopher is the fact that different social patterns of action may be conducive to survival in different circumstances. A behavioural trait, or a conscious rule of action, may be appropriate in some environments (say, a low-population frontier society) but highly dangerous in another (say, in a highly populated city or state). To formulate abstract moral principles without reference to the environmental conditions would be a practice that could not be conducive to the prosperity of any community.

Selection and the source of obligations

Human values can easily be equated with human appetites, provided that sufficient specifications and qualifications are made about the meaning of the terms. Hence the evolutionary selection of values is no mysterious phenomenon; in the same way that likes and dislikes of a certain kind can have a bearing on the survival of the individual who has them, so might values of a certain kind determine the survival of an individual or group of individuals sharing them. A society which valued altruistic or benevolent acts, for instance, would probably enjoy a selective advantage over other societies which did not share such values. A society with little valuation of life would face, most probably, an imminent extinction.

This being so, there may be found an evolutionary explanation of the source of the feelings of obligation and justice upon which our morality is founded. Where such values confer an advantage to the population or kinship group, it is quite possible that they would be selected. Hume was correct to note that our sentiments of morality are precisely those sentiments which are directly or indirectly useful to ourselves or others; in fact, the morality which nature has given us is useful to us in the sense that it promotes the survival potential of our population. The call of conscience, feelings of guilt, sympathy and obligation are all explicable in this way.

The primacy of this biological, self-regulating social order makes superfluous any explanation of human moral obligation solely in terms of an overt, rational contract between individuals. Social order and the moral behaviour which goes with it can be found in many thousands of animal species, even though we would not wish to credit animals with any ability to come to a contractual agreement with each other. Human societies, and the morality which made them possible, were likewise prior to an advanced power of calculation or contractual bargaining.

The suggestion of the social contract as the source of all moral obligation, all authority and all duties is not merely unnecessary; it is also misleading. From the concept of a fictitious 'original position' in which free and equal individuals discuss the possibility of forming a just society, it is easy to argue that moral rules will be devised in which all individuals are treated equally. In John Rawls's presentation of the contract theory, this equality would hold regardless of age, sex, race or any other characteristic. Because individuals in such a contract would devise these rules, however, is no reason why we should be obliged, or even willing, to accept them, unless perhaps our commitment to social equality is particularly great, which human history suggests is not the case. But the most important point is that this contractual hypothesis, which has to eliminate a part of human nature and a number of widespread human desires and aspirations before it can be formulated, overlooks the complexity of animal and human social life. Societies are able to continue only because they have a complicated but self-regulating morality, a morality which depends on different actions in different circumstances, and the differential treatment of individuals within a society for its survival. If children were not excused many of the obligations of adult life, if the injured were not assisted by others, and if selfish individuals were not discouraged, then the foundations of society itself would have crumbled, and the prospect of long life for our species would have vanished. It is doubtful that any human social contract or written constitution could ever match the functional potency of our natural mor-

ality, built as it is upon the biological experience of thousands of generations.

The natural selection of human values helps to explain a number of moral institutions that would be difficult, or impossible, to explain under a contractual theory. The complicated proscriptions on sexual behaviour, which are a feature of any human society, are a case in point. Could a body of contractarians, ignorant of human attitudes and human genetics ever foresee or condone a proscription upon incest? Could the same men, ignorant of the environmental conditions of a society, ever determine whether it should be polygamous or monogamous? Only with respect to the selective advantage of such institutions can they be explained; elaborate deductions from a non-empirical foundation of supposed human nature (or human equality) are insufficient for the task. Another institution which is helpfully explained by the evolutionary approach is that of positive law, including punishment. The classical contractarians were divided upon the individual's obligation to submit to punishment, especially capital punishment. Evolutionary theories, starting from the point of view of the functioning society instead of from the point of view of the individual, can accommodate punishment and legal institutions as a means of preserving the overall social pattern of actions, and maintaining the behavioural regularity within a society which makes social living feasible at all.

Unsociable sociability

A contractual approach to ethics is similarly unable to predict or account for many of the parts of human nature that, despite their apparent unsociability, serve to make social life possible. Aggression, for example, is a necessary part of human life; without a certain degree of it, overpopulation could well result, and without its power to regulate the social order through the pervasive but subtle system of human dominance, the stability of society would be shaken. Personal ambition and competition between individuals are other features of human nature that may seem divisive but which account for a large part of human progress, as Kant rightly knew. Differential

treatment of individuals on account of personal differences between them might also promote the selective fitness of a whole society, as has been mentioned, and it is therefore scarcely surprising that such inequalities are seen in nearly every human group. The differential treatment of individuals from outside one's own society is a case in point. It has, unquestionably, a certain evolutionary function, although the problems which it raises for a modern industrialised society are manifest. It is the source of racial conflict, and even warfare. But it would be a callous and unsuccessful philosophy which attempted to suppress such differential valuation of individuals by law, and it is by no means certain that the consequences of such a suppression, even if it could be successful, would be wholly beneficial to mankind. The evolutionary, ethological approach to morality advises us that if we are to deal with such problems, caused by the inadequacy of our natural behavioural repertoire to adjust to certain features of the modern world, we must find ways to channel our behaviour into more harmless tributaries, rather than to pin our hopes upon damming up that behaviour completely.

We cannot exclude from moral discourse those desires which appear to be unsociable but which are essential to social life. For example, it is one of the more persistent fantasies of men that aggression can be eliminated: 'The lion shall eat straw like the ox,' predicts Isaiah; the Isle of the Blessed was a Greeek creation; Ovid's Golden Age, described in Metamorphoses is another instance of it.² Yet, as Anthony Storr observes, "it is impossible to believe that there could ever be a society without strife and competition... For this same aggressive impulse which can lead to strife and violence also underlies man's urge to independence and achievement. Just as a child could not possibly grow up into an independent adult if it were not aggressive, so an adult must needs continue to express at least part of his aggressive potential if he is to maintain his own autonomy."³

This warns us of the dangers of utopian social engineering. It is very recently that we have begun to understand the functional role played by these 'unsociable' traits, and it may well be hoped that we

learn from that knowledge. Where such traits are a vital part of the social order, or of the regulation of population numbers between human societies, then it would be disastrous to eliminate them: this is, of course, precisely the problem which arose in the case of tribal hostilities that were suppressed by the Australian government, mentioned in a previous chapter. In other words, the limits of moral debate are perhaps rather more tightly drawn than many utopians would care to admit.

Stabilizing features of social life

As it has been argued, social life is possible only where the activities of individuals are not random, but are steady and predictable. This condition, for example, is one of the reasons why promise-keeping and truth-telling are essential to any society; without the predictability that they bring to human life, no agreement or planning for the future would be possible. Fortunately, human beings do conform to prevailing norms to a large extent, and their behaviour is indeed modified by criticism from other members of society. That conformity is probably an object of natural selection, along with other social values, and it explains the remarkable persistence of traditional, received morality, even in the most enlightened cultures. Traditional morality is often encased in religious belief, which is itself highly resistant to change. The psychological authority of political leaders or family members adds its own weight to the solidarity of traditional moral standards. Of course it is possible for morality to change, either by force or by slow development. Yet it is recognized that force, although it may change a person's actions, does not necessarily change men's beliefs and values, and that these, if they are to change, change slowly over the generations. In a complex society, where changes in structure are likely to be destabilizing, this resistance to sudden change is to be expected. The theory of evolution, whether it be of the evolution of physical or behavioural structures, gives us a theory of change, but it is a theory of slow change, not of revolutionary change.

A prominent feature of moral psychology which exemplifies this permanence of human morality is the conscience. Again, one assumes that most of the moral rules upon which the conscience dictates to us

are learned in early socialization, but once they are learned, it becomes very difficult for us to act against them because of the pull of this psychological force. Even this can be viewed in evolutionary terms, and Darwin himself remarked that "Ultimately, a highly complex sentiment, having its first origin in the social instincts, largely guided by the approbation of our fellow men, ruled by reason, self-interest and in later times, by deep religious feelings, confirmed by instruction and habit, all combined, constitute our moral sense or conscience."⁴

Like religious sentiments, the pull of conscience may operate to different degrees in different people. It can also vary widely between different societies. These differences, however, are quite compatible with an evolutionary hypothesis, which does not require complete conformity in behaviour, either within or between groups, provided that the pattern of behaviour within each group is conducive to group survival. The ethological approach can help solve some of the philosophical problems with conscience; for example, of its appropriateness. We must recognize that conscience is, ultimately, an evolutionary construct which has to be somewhat general in its application. It would be impossible for any moral sentiments to be inherited, whether by genetic endowment or by learning, and yet be applicable in every possible circumstance. Consequently it is often the case that our conscience pulls us in one direction, but that our reason dictates another course. When we calculate the details of some situation, we might indeed find that our values are best satisfied by a course of action opposite to that prompted by conscience, an opposition which may stem from the multiphase evolution of human morality and moral psychology; but the conscience offers us a 'rule of thumb' guide to morality of astonishing strength. It is a feature of our psychology which resists a change away from traditional morality, while not preventing such a change completely, and leads to a regularity and permanence in human moral conduct.

Received morality

Complete submission to the preaching of received morality could,

however, prejudice the long-term survival of any community. Traditional morality and the moral codes of most religions aver that it is better to give than to receive, that selfishness is bad, that the use of force over others is wrong, and so forth. Nevertheless, unless a certain degree of selfishness, or self-assertion, or other of the 'unsociable' aspects of sociability were in fact present in men, the survival of the society and the individuals themselves would be less likely. A society of perfect altruists could not exist, because everyone would refuse to accept the benefits of the altruism; a society of perfectly and equally meek individuals could similarly not endure, because there would be no structure to or basis of agreement in such a social order. Traditional morality is often thought to be rather one-sided: 'do no violence', 'be generous' and 'do not force your will on others' being typical examples of traditional moral codes. They appear to be one-sided, since we can normally rely on an individual to be somewhat selfish, somewhat aggressive and so forth, and therefore need only a rule to curb the opposite, destabilising extremes of his behaviour. In fact, however, received morality is generally two-sided, and for every maxim such as 'do not force your will on others' there is a complementary prescription to the individual to protect his own interests and to 'stick up' for himself. Excessive generosity, similarly, is popularly considered to be strange or questionable behaviour. The biological social optimum is neither one extreme nor the other, but somewhere between.

It is interesting to speculate upon the question of how social preaching and teaching of moral precepts accords with or complements the innate morality of our species. Preaching, of course, prompts us toward complete altruism and continual performance of certain rules. Our inherited tendency to observe that preaching and perform those rule-guided actions is less than perfect. Individual selection and kinship selection may prompt us away from traditional moral acts on occasions, inclining us to be selfish self-preservationists rather than socially optimal altruists. In a species like ours, comparatively free from selective competition with other species, such sub-optimality may endure for a long time. If moral preaching can raise our actions from that

sub-optimal state, then provided that our actions do not advance beyond the optimum, the social order may be preserved longer (and the pattern of moral and social actions will be preserved with it). This effect of traditional moral preaching, and of approbation and disapprobation of individuals with respect to their moral behaviour, gives us a useful evolutionary starting-point for a systematic study of the distinction between 'perfect' and 'imperfect' duties, first formulated by Kant. Perfect duties appear to be those which are necessary for the preservation of the social order and for the continued life of the group or society adhering to those principles. Imperfect duties, although they may increase the survival potential of the society, are not necessarily essential to it. Although this is a somewhat broad summary of the distinction, it is fair to argue that the distinction, if it is to be useful, must be made in terms of evolutionary concepts.

Traditional morality is sometimes confused by the desires which appear to be unsociable but which are in fact necessary for social life to exist. Nevertheless, the two-sided nature of most traditional moral codes does accommodate, to some extent, these features. Furthermore, the codes of most cultures support precisely those virtues which the ethological method suggests are necessary to animal social life. The ancient complex civilizations all preached against selfishness and cowardice; bravery is rewarded in every society even today. The seven deadly sins of Christian belief are seen, in one form or another, in nearly all other religious and moral systems. Disobedience is punished, particularly in children, and nonconformists are either punished or persecuted in most societies (either legally or otherwise). In religious cultures, blasphemy, which shakes the firm foundations of religious thought and the moral regularities which are bound up in religious doctrine, is considered a serious sin. It might be said that nonconformity in non-religious cultures is thought to be similarly heinous.

Yet there are other features of human morality which are not so easily explained in evolutionary terms. The frequent proscriptions

against gossip or 'backbiting' may be a case in point; it is plausible to argue that gossip is a means of promoting the spread of information about the moral attitudes of other members of society, which would, in evolutionary terms, be advantageous, for it would inform individuals about the behaviour appropriate towards others. Can proscriptions upon it then be explained? Possibly they can, but the solution to this and many other difficulties will be possible only after lengthy cooperation between philosophers and biologists at the mutual frontier of their disciplines.

The limits of moral debate

The ethological approach to morality is primarily a descriptive approach; it helps us to establish what human attitudes and goals actually are by understanding their origin. As a prescriptive morality, however, the ethological approach is certainly of use, although it is confined to answering the more important questions about human conduct, and is comparatively powerless in trivial moral questions. The approach could not, for example, say what would be the appropriate punishment for a naughty child; but it would give us important insights into the nature and function of punishment generally and the consistency in application or in the matching of the severity of the punishment to the offence which is necessary to sustain a functioning punishment system in any society or subset of society.

The approach does give us an empirical tool to distinguish between a number of quasi-empirical moral systems. The Social Darwinist system, for instance, is easily defeated once we have some elementary grasp of the workings of animal social systems: we find in these circumstances that animal nature is not a case of 'survival of the fittest individual' as the Social Darwinists made it out to be. In fact, Social Darwinism would not be conducive to high rates of survival in any local population. Similarly, a number of rationalistic approaches, which almost by definition have to suppress or deny the importance of many traditional moral rules and many parts of the present, functioning human nature that is common to men, can be attacked for a misleading abstractness which makes them an inappropriate foundation for human morality, and which

prompts the adoption of moral principles which would be either unforeseen in their consequences or impossible for men, because they are men, to accept and act in accordance with.

A number of other social philosophies can be criticised under the ethological approach because of their sub-optimality in an evolutionary sense. This is not necessarily to assert that continued survival of our own or any other species is necessarily good, but if we value that continued survival, and as products of the evolutionary system we would be unlikely to think otherwise, then such criticism of sub-optimal social philosophy is useful. It is often possible for us to assume that a certain moral system would be laudible in practice, when in fact the reverse could be true. By giving us some empirical information about the probable results of social practices, the ethological method can assist in this criticism.

A simple case in point might be epicureanism. One variant of this appealing doctrine would encourage a hermit-like existence, away from the possibility of pain caused by others, except perhaps a few close and trusted friends. Yet in evolutionary terms such an arrangement is sub-optimal; individual and group interests would be served by a system in which the gains from reciprocal altruism and the division of duty and responsibility between individuals could be enjoyed. Although this observation is not a conclusive argument against such philosophies by any means, it is a useful one for the critic to possess.

The most important aspect of the ethological approach, then, is perhaps best formulated as this: it allows us to draw the limits for moral debate. In the first place, it helps us to discern what types of behaviour and which values are likely to be thought of over-riding importance in a culture, or which qualify under most definitions of morality. That is, we can achieve a better idea of what is covered by morality than would be possible under a non-empirical approach to the subject. Secondly, the approach enables us to say which individuals are covered by a moral code; as we have seen, it is mistaken for the moralist to assume that his codes can be applied to all individuals, regardless of their social group or personal characteristics. For a

moral system to be workable, it has to function within the limits of human behaviour. The more certain we are of those limits, the more workable will our moral codes be. This point is clearly of use to the first-order moralist. In the third place, we are given useful information about the way in which environmental or other circumstances affect the moral practices of a society. From experiments with social animals we may infer that practices applicable and beneficial to a society under one set of conditions can be disastrous under another. This implication of the approach warns us against moral codes which purport to follow a unitary, general principle of conduct or set of principles of conduct, alleged to be valid under all circumstances. The same behaviour may, however, have completely different effects in different conditions, and it is unlikely that we would be able to devise a single rule of action (except one with many qualifications) that would suit the requirements of a working morality.

The exception might be a consequentialist doctrine, like classical utilitarianism, which specifies the ends of morality, but which leaves us somewhat ignorant of the best way to achieve that end. Once again, in these circumstances the ethological approach, with its empirical foundation, will be able to help us decide precisely what sort of human action will achieve the proposed ends. Therefore it would seem to be an indispensable tool to many systems of ethics.

The importance of rules, however, should not be forgotten despite this qualification. Men are guided by general rules, and some very broad rules are probably rooted in the genetic foundation of human nature. Certainly, general rules of conduct are learnt in the social situation, and children are eager to accept their authority almost without qualification. In adult life, however, the simple rules of childhood are qualified to suit particular circumstances, like an artist's filling in of a sketch. The essential point about human behaviour is that it must be governed by general principles, and not by highly specific 'act' formulations of ethics; for only in a society of omniscient individuals could such deviation from general principles be of overall advantage to the social group. Our morality, like many

other things, cannot be perfect, because it has to operate within the less than perfect boundaries of human nature. Adherence to general principles is perhaps the most advantageous strategy for beings that are not omniscient.

In summary, the ethological approach to morality offers a promising new tool for both the moralist and the moral philosopher. For the former, it constitutes a means for gauging the probability of success or failure of any new system or rule of morality. For the latter, it makes possible a clearer understanding of many of the persistent issues in ethics. For both, it uncovers a fascinating new field of enquiry with insights and issues of its own.

FOOTNOTES TO CHAPTER FOURTEEN

1. Cicero, De Republica, III, xxii, 33.
2. For further examples, see N.Cohn, The Pursuit of the Millenium.
3. Storr, Human Aggression, chapter 6.
4. Darwin, The Descent of Man, I, p.159.

REFERENCES

- ADKINS, A.W.H., Moral Values and Political Behaviour in Ancient Greece. London: Chatto & Windus, 1972.
- ADLER, Alfred, Superiority and Social Interest. London: Routledge & Kegan Paul, 1965.
- ALEXANDER, Richard D., 'Natural Selection and the Analysis of Human Sociality', in C.E.GOULDEN (ed.) Changing Scenes in Natural Sciences. Philadelphia Academy of Natural Sciences: in preparation.
- ALEXANDER, Richard D., 'The Search for an Evolutionary Philosophy of Man', Proceedings of the Royal Society of Victoria, Australia, vol. 84, 1971.
- ALLEE, W.C., A.E.EMERSON, T.PARK, and K.P.SCHMIDT, Principles of Animal Ecology. Philadelphia: W.B.Saunders, 1949.
- ALLEE, W.C., 'Population Problems in Protozoa', American Naturalist, v. 75, 1941.
- ALLEN, M., Rites de Passage. Melbourne University Press, 1967.
- ALTMAN, Stuart A., Social Communication Amongst Primates. Chicago University Press, 1967.
- ALTMAN, Stuart A., 'Field Study of the Sociobiology of Rhesus Monkeys', Annals of the New York Academy of Science, v. 102, 1962.
- ALVERDES, F., Social Life in the Animal World (translated by K.C. Creasy). London: Kegan Paul, 1927.
- ARDREY, Robert, The Territorial Imperative. London: Collins, 1967.
- ARDREY, Robert, The Social Contract. London: Collins, 1970.
- ARDREY, Robert, The Hunting Hypothesis. New York: Atheneum, 1976.
- ARDREY, Robert, 'Four Dimensional Man', Encounter, February 1972.
- ASCH, S.E., 'Studies of Independence and Conformity', Psychological Monographs, v. 70, 1956.
- AYER, Alfred Jules, Language, Truth and Logic. London: Victor Gollancz, 1937.
- BALGUY, Richard, Foundations of Moral Goodness. London, 1728.

- BANFIELD, Edward, 'The Contradictions of Commercial Society: Adam Smith as Political Sociologist', Unpublished paper delivered to the Mont Pelerin Society in St. Andrews, 1976.
- BARNETT, S.A., A Study in Behaviour. London: Methuen, 1963.
- BARNETT, S.A., A Century of Darwin. Harvard University Press, 1958.
- BARROW, J., Evolution and Society. Cambridge University Press, 1966.
- BARTHOLOMEW, G.A., and J.B. BIRDSSELL, 'Ecology and the Prothominids', American Anthropologist, vol. 55, 1953.
- BEACH, F.A., & JAYNES, J., 'Studies of Maternal Retrieving in Rats, 2: Effects of Practice and Previous Parturitions', American Naturalist, v. 90, 1956.
- BENEDICT, Ruth, Patterns of Culture. London: Routledge & Kegan Paul, 1935.
- BENTHAM, Jeremy, Of the Influence of Time and Place in Matters of Legislation. In Bowring, J., Bentham: Collected Works, London, 1843.
- BERGER, A., In Afrikas Wildkammern als Forscher und Jaeger. Berlin, 1922.
- BLOCH, Marc, Feudal Society. University of Chicago Press, 1961.
- BOORMAN, S.A., and P.R. LEVITT, 'Group Selection on the Boundary of a Stable Population', Proceedings of the National Academy of Sciences, U.S.A., vol. 69(9), 1972.
- BOORMAN, S.A., and P.R. LEVITT, 'Group Selection on the Boundary of a Stable Population', Theoretical Population Biology, vol. 4, 1973.
- BOWLBY, John, Attachment and Loss; Attachment. London, Hogarth Press, 1969.
- BOWRING, J., J. Bentham: Collected Works. 11 volumes, London 1843.
- BRADLEY, F.H., Ethical Studies. Oxford University Press, 1927 (2nd ed)
- BRANDT, Richard B., Hopi Ethics. Chicago University Press, 1954.
- BUTLER, Joseph (Bishop), Sixteen Sermons. London: 1726.
- BUXTON, J., 'Clientship Among the Mandari of the Southern Sudan', in COHEN, R., & MIDDLETON, J. (eds) Comparative Political Systems. New York: American Museum of Natural History, 1967.
- CALHOUN, John B., 'Population Density and Social Pathology' in Scientific American, February 1962.
- CAMPBELL, B.G. (ed.), Sexual Selection and the Descent of Man. Chicago, Aldine Publishing Co., 1972.

- CAMPBELL, Donald T., 'On the Conflicts Between Biological and Social Evolution and Between Psychology and Moral Tradition', American Psychologist, December 1975.
- CARPENTER, C.R., Naturalistic Behaviour of Nonhuman Primates. Pennsylvania State University Press, 1964.
- CARPENTER, C.R., 'Territoriality: A Review of Concepts and Problems', in ROE, A., & SIMPSON, G.G. (eds), Behaviour and Evolution. Yale University Press, 1958.
- CARRICK, David, 'Ecological Significance of Territory in the Australian Magpie', Proceedings of the 13th International Ornithological Congress, 1963.
- CARR-SAUNDERS, Alexander, The Population Problem. London: Oxford University Press, 1922.
- CHURCH, R.M., 'Emotional Reactions of Rats to the Pain of Others', Journal of Comparative and Physiological Psychology, v. 55, 1962.
- CHAUVIN, Remy, Animal Societies. London: Gollancz, 1968.
- CHITTY, D. 'The Natural Selection of Self-Regulatory Behaviour in Animal Populations', Proceedings of the Ecological Society of Australia, vol. 2, 1967.
- CHITTY, D. 'What Regulates Bird Populations?', Ecology, vol. 48, 1967a.
- CICERO, Marcus Tullius, Pro Sextio.
- COASE, R.H., 'Adam Smith's View of Man', unpublished paper delivered to the Mont Pelerin Society in St. Andrews, 1976.
- COHEN, R., & MIDDLETON, J. (eds), Comparative Political Systems. New York: American Museum of Natural History, 1967.
- COHN, N., The Pursuit of the Millennium. London: Secker & Warburg, 1957.
- CONDOMINAS, Georges, 'The Primitive Life of Vietnam's Mountain People', in R.A. GOULD (ed.), Man's Many Ways. New York: Harper and Row, 1973.
- CROOK, John Hurrell, 'The Socio-ecology of Primates', in J.H. CROOK (ed.), Social Behaviour in Birds and Mammals: Essays on the Social Ethology of Animals and Man. New York: Academic Press, 1970.
- CROOK, John Hurrell, & GARTLAN, J.S., 'Evolution of Primate Societies' Nature, June 1966.
- CULLEN, Ellen, 'Adaptations in the Kittiwake to Cliff-Nesting' Ibis, v. 99, 1957.

- DANIEL, W.J., 'How Co-operatively do Individual Rats Solve a Problem in a Social Situation?' American Psychologist, v. 2, 1947.
- DARLING, Frank Fraser, A Herd of Red Deer. Oxford University Press, 1937.
- DARLINGTON, Cyril D., The Evolution of Man and Society. New York: Simon & Schuster, 1969.
- DARLINGTON, Cyril D., 'The Genetic Component of Language', Heredity, vol. 1, 1947.
- DARLINGTON, Cyril D., and K.MATHER, The Elements of Genetics. London: Allen & Unwin, 1949.
- DARLINGTON, Cyril D., and K.MATHER, Genes, Plants and People. London: Allen & Unwin, 1950.
- DARWIN, Charles, The Expression of the Emotions of Man and Animals. London: John Murray, 1872.
- DARWIN, Charles, On the Origin of Species. London: John Murray, 1859. Reprinted, London: Dent, 1956.
- DAWKINS, Richard, The Selfish Gene. Oxford University Press, 1976.
- D'AZEVEDO, W.L., 'An Approach to Aesthetics' American Anthropologist v. 60.
- DE CHARDIN, Teilhard, Man's Place in Nature. London: Collins, 1966.
- DE CHARDIN, Teilhard, The Phenomenon of Man. London: Collins, 1959.
- DELFGAAUW, Bernard, Evolution: The Theory of Teilhard de Chardin. London: Collins (Fontana), 1969.
- DEVLIN, Patrick Arthur (Lord of Appeal), The Enforcement of Morals. Maccabaeen Lecture in Jurisprudence of the British Academy, 1959. Oxford University Press, 1959.
- DEVORE, Irving, (ed) Primate Behaviour. New York: Holt, Rinehart & Winston, 1965.
- DILGER, W.C., 'The Behaviour of Lovebirds', Scientific American, 1962.
- DIMOND, Stuart J., Animal Social Behaviour. London: Batsford, 1970.
- DIXON, Norman F., On the Psychology of Military Incompetence. New York: Basic Books, 1976.
- DOBZHANSKY, Theodosius, Mankind Evolving. Yale University Press, 1962.
- DOBZHANSKY, Theodosius, 'Species after Darwin', in BARNETT, S.A., (ed) A Century of Darwin. Harvard University Press, 1958.

- DODGE, Norton T., Women in the Soviet Economy. Johns Hopkins University Press, 1966.
- DOVER, Keith J., Greek Popular Morality in the Time of Plato and Aristotle. Oxford: Blackwell, 1974.
- DUVERGER, Maurice, The Political Role of Women. U.N.E.S.C.O., 1955.
- EIBL-EIBESFELDT, Irenaus, 'Concepts of Ethology and Their Significance for the Study of Human Behaviour', in STEVENSON, H.W. (ed), Early Behaviour: Comparative and Developmental Approaches. New York: Wiley, 1967.
- EIBL-EIBESFELDT, Irenaus, 'Zur Ethologie des Hamsters', Zeitung für Tierpsychologie, v. 10, 1953.
- EIBL-EIBESFELDT, Irenaus, Ethology. New York: Holt, Rinehart and Winston, 1970.
- EIBL-EIBESFELDT, Love and Hate. (translated by G. Strachan). London: Methuen, 1971.
- ESTES, R.D., and J.GODDARD, 'Prey Selection and Hunting Behaviour of the African Wild Dog', Journal of Wildlife Management, vol.31, 1967.
- ESTES, R.D., 'The Comparative Behaviour of Grant's and Thomson's Gazelles', Journal of Mammalogy, vol. 48, 1967.
- EVANS, M. Stanton, 'The Liberal Twilight', Imprimis v. 5, 1976. Hillsdale, Michigan: Hillsdale College Center for Constructive Alternatives, 1976.
- EYSENCK, Hans Jurgen, Crime and Personality. London: Paladin, 1970.
- FERGUSON, Adam, An Essay on the History of Civil Society. London: 1767. New edition, Farnborough: Gregg International, 1969. Also Forbes, D. (ed), Edinburgh University Press, 1966.
- FESTINGER, I., 'Informal Social Communication', Psychological Review, vol.57, 1950.
- FEULNER, Edwin J.(ed), China - The Turning Point. Washington, D.C.: Council on American Affairs, 1976.
- FLETCHER, Ronald, Instinct in Man: In the Light of Recent Work in Comparative Psychology. London: Allen & Unwin, 1957.
- FLEW, Anthony G.N., Evolutionary Ethics. London: Macmillan, 1967.
- FRISCH, K. von, The Dancing Bees. New York: 1955.
- FRISCH, K. von, 'Honeybees: Do They Use Direction and Distance Information Provided by their Dancers?', Science, v. 158, 1968.

- FORBES, D. (ed.), Adam Ferguson: An Essay on the History of Civil Society. Edinburgh University Press, 1966.
- FOX, Robin, Kinship and Marriage. Harmondsworth: Penguin, 1967.
- FOX, Robin, 'Alliance and Constraint: Sexual Selection in the Evolution of Human Kinship Systems', in B.G.CAMPBELL (ed.), Sexual Selection and the Descent of Man. Chicago: Aldine, 1972
- FREUD, Sigmund, Totem and Taboo. New York: New Republic, 1931.
- FRANKENA, W.H., in SELLARS, W., & HOSPERS, J. (eds), Readings in Ethical Theory. New York: Appleton Century, 1952. Reprinted from Mind, 1939
- GARNETT, A.C., Ethics. New York: Ronald Press Co., 1960.
- GIBBON, Edward, The History of the Decline and Fall of the Roman Empire. London: Methuen, 1897.
- GLASS, Bentley, Science and Ethical Values, University of North Carolina Press, 1965.
- GOLDMAN, I., 'Status Rivalry and Cultural Evolution in Polynesia', in COHEN, R., & MIDDLETON, J. (eds), Comparative Political Systems. New York: American Museum of Natural History, 1967.
- GOLDSCHMIDT, Walter, The Ways of Mankind. Boston: Beacon Press, 1954.
- GOLDSCHMIDT, Walter, Exploring The Ways of Mankind. New York: Holt, Rinehart & Winston, 1960.
- GOSLING, Justin, 'The Moral Supremacy of Conscience' in PETERS, R.S., Nature and Conduct (Royal Institute of Philosophy Lectures, v. 8) London: Macmillan, 1975.
- GOUGH, J., The Social Contract. Oxford University Press 1936.
- HAILMAN, J., 'How an Instinct is Learned', Scientific American, 1969.
- HALDANE, J.B.S., The Causes of Evolution. London: Longmans, Green, 1932. (Reprinted by Cornell University Press, 1966).
- HALL, K.R.L., 'Aggression in Monkey and Ape Societies' in The Natural History of Aggression. London: Academic Press, 1964.
- HALL, K.R.L., 'Behaviour of Patas Monkeys', Folia Primatologica, v.139, 1962.
- HALL, K.R.L., & DEVORE, Irving, 'Baboon Social Behaviour' in DEVORE, Irving (ed), Primate Behaviour: Field Studies of Monkeys and Apes. New York: Holt, Rinehart & Winston, 1965.

- HALL, Oswald, 'Gender and the Division of Labour' in Implications of Traditional Divisions between Men's Work and Women's Work in Our Society. Ottawa: Department of Labour (Canada) 1964.
- HAMILTON, W.D., 'The Genetical Theory of Social Behaviour, I,II. Journal of Theoretical Biology, vol. 7, 1964.
- HAMILTON, W.D., 'Selection of Selfish and Altruistic Behaviour in some Extreme Models' (Paper presented at a symposium on Man and Beast, 1969) Reprinted in J.F.EISENBERG and W.S.DILLON (eds.) Man and Beast: Comparative Social Behaviour. Washington, D.C.: Smithsonian Institution, 1971.
- HAMILTON, W.D., 'Selfish and Spiteful Behaviour in an Evolutionary Model', Nature, vol. 228, 1970.
- HAMILTON, W.D., 'Geometry for the Selfish Herd', Journal of Theoretical Biology, vol.31, 1971.
- HAMILTON, W.D., 'Altruism and Related Phenomena, Mainly in Social Insects', Annual Review of Ecology and Systematics, vol. 3, 1972.
- HANLY, Kenneth, 'Zimmerman's is-is: A Schizophrenic Monism' in HUDSON, W.D., The Is/Ought Question. London: Macmillan, 1969.
- HANSON, E.W., & MASON, W.A., 'Socially Mediated Changes in Lever-Responding on Rhesus Monkeys', Psychological Reports v. 11, 1962.
- HARDIN, Garrett, 'Population Skeletons in the Environmental Closet', Bulletin of the Atomic Scientists, vol.28, 1972.
- HARE, Richard M., The Language of Morals. Oxford University Press, 1952.
- HARE, Richard M., Freedom and Reason. Oxford University Press, 1963.
- HARLOW, Harry F., & HARLOW, M.K., 'Social Deprivation in Monkeys', Scientific American, v. 207, 1962.
- HART, H.L.A., The Concept of Law. Oxford University Press, 1961.
- HART, H.L.A., Law, Liberty and Morality (The Harry Camp Lectures at Stanford University, 1962) Oxford University Press, 1963.
- HAYEK, Friedrich August von, 'The Theory of Complex Phenomena', in BUNGE, M., The Critical Approach to Science and Philosophy, New York: Free Press, 1964.
- HAYEK, Friedrich August von, 'Rules, Perception and Intelligibility', Proceedings of the British Academy, v. 48, 1962.
- HAYEK, Friedrich August von, The Constitution of Liberty. London: Routledge, 1960.

- HAYEK, Friedrich August von, Law, Legislation and Liberty. University of Chicago Press, 1973.
- HAYEK, Friedrich August von, The Counter-Revolution in Science. Glencoe, Illinois: 1952.
- HAYEK, Friedrich August von, 'Notes on the Evolution of Systems of Rules of Conduct', in HAYEK, Friedrich A. von, Studies in Philosophy, Politics and Economics. University of Chicago Press, 1967.
- HAZLITT, Henry, The Foundations of Morality. New York: Van Nostrand, 1964.
- HELMUTH, Hermann, 'Cannibalism in paleoanthropology and ethnology', in MONTAGU, Ashley (ed) Man and Aggression, Oxford University Press, 1973.
- HEMPEL, C.G., 'The Function of General Laws in History', Journal of Philosophy, v. 39, 1942.
- HERODOTUS, The Histories.
- HESS, E.H., 'Imprinting: an Effect of Early Experience', Science, v. 130, 1959.
- HINDE, Robert A., & SPENCER-BOOTH, J., 'The Behaviour of Socially-Living Rhesus Monkeys in their First Two and a Half Years', Animal Behaviour, v. 15, 1967.
- HINDE, Robert A., Biological Bases of Human Social Behaviour. New York: McGraw-Hill, 1974.
- HIRSCHFELDT, Magnus, The Sexual History of the World War. New York: Panurge Press, 1934.
- HOBBS, Thomas, Leviathan. London: 1651. Modern edition with introduction by John Plamenatz, London: Collins, 1962.
- HOBHOUSE, L.T. Sociology and Philosophy. London: G.Bell & Sons, 1966.
- HOBHOUSE, L.T. 'The Simplest Peoples' in HOBHOUSE, L.T., Sociology and Philosophy, London: G. Bell & Sons, 1966.
- HOHN, J.E., 'Testosterone-Induced Nuptial Feathers in Phalaropes', Condor, v. 66, 1964.
- HOLMES, S.J., Life and Morals. New York: Macmillan, 1948.
- HORNSTEIN, H.A., 'The Influence of Social Models on Helping' in MAC-AULAY, J. & BERKOWITZ, L., Altruism and Helping Behaviour. New York: Academic Press, 1970.

- HUBER, P., 'Observations on Several Species of the Genus Apis, known by the name of humble-bees, and called Bombinatrices by Linnaeus', Transactions of the Linnean Society of London, vol. 6, 1802.
- HUDSON, W.D. (ed) The Is/Ought Question. London: Macmillan, 1969.
- HUME, David, 'Of the Original Contract', in HUME, David, Essays Moral and Political. London: 1748. Modern edition in MACINTYRE, Alasdair (ed) Hume's Ethical Writings. London: Macmillan, 1965.
- HUME, David, Enquiry Concerning Human Understanding, in Hume, Essays, (ed.) T.H.GREEN and T.H.Grose, London: Longmans, 1875.
- HUME, David, A Treatise of Human Nature. London: John Noon, 1739. Modern edition in SELBY-BIGGE, L.A. (ed) A Treatise of Human Nature by David Hume. Oxford University Press.
- HUME, David, Enquiry Concerning the Principles of Morals. London: 1777. Modern Edition in MACINTYRE, Alasdair (ed), Hume's Ethical Writings. London: Macmillan, 1965.
- HUME, David, Essays, Moral, Political and Literary. New edition, Oxford University Press, 1963.
- HURZELER, J., 'Oreopithecus banbolii Gervais', Verhalten der Naturf. Gesellschaft, v. 69, 1958 (Basle).
- HUTCHESON, Francis. Inquiry Into the Origin of our Ideas of Beauty and Virtue. London and Edinburgh, 1738.
- HUTCHESON, Francis, Essay on the Nature and Conduct of the Passions and Affections, and Illustrations on the Moral Sense. London: 3rd Edition, 1742.
- HUTCHESON, Francis, System of Moral Philosophy. London and Edinburgh, 1755.
- HUXLEY, Thomas H., 'Evolution and Ethics' (1893 Romanes Lecture) in HUXLEY, Thomas H., & HUXLEY, Julian, Evolution and Ethics, 1898-1943. London: 1947.
- IMANISHI, Kinji, 'Social Behaviour in Japanese Monkeys', in SOUTHWICK, Charles H. (ed), Primate Social Behaviour. New York: Van Nostrand, 1963.
- JENKINS, D., WATSON, A., & MILLER, G.R., 'Population Fluctuations in the Red Grouse Lagopus lagopus scotius', Journal of Animal Ecology, v. 36, 1967.
- JAY, Phyllis, 'Mother-Infant Relations in Langurs' in RHEINGOLD, H.L. (ed), Maternal Behaviour in Mammals. New York: Wiley, 1963.

- JONES, W.C., & ROTHENBUHLER, W.C., 'Behaviour Genetics of Nest-Cleaning in Honey Bees, II', Animal Behaviour, v. 12, 1964.
- KALELA, O., 'Über den Revierbesitz bei Vögeln und Säugetieren als populationsökologischer Faktor. Annales Zoologici Societatis Zoologicae Botanicae Fennicae 'Vanamo'', Helsinki, vol. 16, 1954.
- KALELA, O., 'Regulation of reproductive rate in subarctic populations of the vole Clethrionomys rufocanus (Sund.)' Annales Academiae Scientiarum Fennicae (Suomalaisen Tiedekatemia Toimituksia), series A (IV, Biologica), vol. 34, 1957.
- KANT, Immanuel, Groundwork of the Metaphysics of Morals. New edition, London: Harper & Row.
- KANT, Immanuel, On the Foundation of Morality (translated by B.E.A. Liddell) Indiana University Press, 1971.
- KANT, Immanuel, Werke in 6 Bänden. Wiesbaden, 1960.
- KANT, Immanuel, Kants Werke, edited by Ernst Cassirer, Berlin: 1912-1922 (10 vols).
- KAWAMURA, Syunza, 'Process of Sub-culture Propagation Among Japanese Monkeys', in SOUTHWICK, C.H. (ed), Primate Social Behaviour. New York: Van Nostrand, 1963.
- KAYE, F.B., The Fable of the Bees. Oxford University Press, 1924.
- KEITH, Arthur, Essays on Human Evolution. London: Watts & Co., 1946.
- KEITH, Arthur, A New Theory of Human Evolution. London: Watts & Co., 1948.
- KELSEN, Hans, What is Justice? University of California Press, 1960.
- KENNY, Anthony J.P., LONGUET-HIGGINS, H.C., LUCAS, J.R., & WADDINGTON, C.H., The Nature of Mind, (Gifford Lectures 1971/72). University of Edinburgh Press, 1972.
- KING, J.A., 'Maternal Behaviour and Behaviour Development in two Sub-Species of Peromyscus maniculatus', Journal Mammal., v. 39, 1958.
- KLINGHAMMER, E., 'Factors Influencing the Choice of Mate in Altricial Birds', in STEVENSON, H.W. (ed), Early Behaviour. New York: Wiley, 1967.
- KLUCKHOHN, Clyde, 'Values and Value-Orientations in the Theory of Action', in PARSONS, T., & SHILS, E.A. (eds) Towards a General Theory of Action. Cambridge, Mass:
- KNIGHT, Rex, & KNIGHT, Margaret, A Modern Introduction to Psychology. London: Tutorial Press, 1948.

- KNIFE, Humphrey, & MACLAY, George, The Dominant Man: The Pecking Order in Human Society. London: Souvenir Press, 1972.
- KOEHLER, Wolfgang, The Mentality of Apes. London: Kegan Paul & Co., 1927.
- KOFFKA, K., Principles of Gestalt Psychology. London: Kegan Paul & Co., 1935.
- KROPOTKIN, Peter A., Mutual Aid: A Factor In Evolution. London: Heinemann, 1919.
- KRUTCH, Joseph Wood, The Modern Temper. New York: 1929
- LACK, David, 'Natural Selection and Human Nature' in RAMSEY, I.T. (ed), Biology and Personality. Oxford: Blackwell, 1965.
- LACK, David, Population Studies in Birds. Oxford University Press, 1966.
- LACK, David, The Life of the Robin. London: Pelican, 1953.
- LANCASTER, Jane B., & LEE, Richard B., 'Annual Reproductive Cycles in Monkeys and Apes', in DEVORE, I. (ed), Primate Behaviour. New York: Holt, Rinehart & Winston, 1965.
- LAWICK-GOODALL, Jane van, In the Shadow of Man. London: Collins, 1971.
- LEVINS, R. 'Extinction', in M. GERSTENHABER (ed.), Some Mathematical Questions in Biology. Providence, R.I.; American Mathematical Society, 1970.
- LEVI-STRAUSS, Claude, 'The Social and Psychological Aspects of Chieftainship in a Primitive Tribe', Transactions of the New York Academy of Sciences, v. 7, 1944.
- LEHRMAN, Daniel S., 'A Critique of Konrad Lorenz's Theory of Instinctive Behaviour', Quarterly Review of Biology, v. 28. 1953.
- LEWIS, C.S., Mere Christianity. London: Macmillan, 1943.
- LINDAUER, M., 'Recent Advances in Bee Communication and Orientation' The Annual Review of Entomology, v. 12, 1967.
- LINDAUER, M., Communication Among Social Bees. Harvard University Press, 1961.
- LOCKE, John, Two Treatises of Government. London: 1690. Modern Edition, London: Dent, 1924.
- LOCKE, John, Essay Concerning Human Understanding. London: 1690.
- LORENZ, Konrad Z., King Solomon's Ring. London: Methuen, 1952.

- LORENZ, Konrad Z., 'Der Kumpan in der Umwelt des Vögels', Journal für Ornithologie, v. 83, 1935.
- LORENZ, Konrad Z., Studies in Animal and Human Behaviour. London: Methuen, 1970.
- LORENZ, Konrad Z., On Aggression. London: Methuen, 1966.
- LORENZ, Konrad Z., Behind the Mirror: A Search for the Natural History of Human Knowledge. London: Methuen, 1977.
- LOWIE, Robert, Primitive Society. London: Routledge, 1949.
- LYNCH, Kevin, The Image of the City. Cambridge, Mass, 1960.
- MACAULAY, J., & BERKOWITZ, L. (eds) Altruism and Helping Behaviour. New York: Academic Press, 1970.
- MACINTYRE, Alasdair, Hume's Ethical Writings. New York: Macmillan, 1965.
- MACINTYRE, Alasdair, 'The Idea of a Social Science', Proceedings of the Aristotelian Society, v. 41, 1967. Reprinted in WILSON, Bryan R., Rationality, Oxford: Blackwell, 1970.
- MACINTYRE, Alasdair, A Short History of Ethics. London: Routledge, 1967.
- MACGEE, Bryan, Modern British Philosophy. London: Secker & Warburg, 1971.
- MACHLUP, Fritz, Essays on Hayek. Hillsdale, Michigan: Hillsdale College Press, 1976.
- MALINOWSKI, Bronislaw, The Sexual Life of Savages in North-Western Melanesia. London: Routledge & Kegan Paul, 1932.
- MANDEVILLE, Bernard, The Grumbling Hive: Or, Knaves Turned Honest. London: 1705. Modern Edition, KAYE, F.B., The Fable of the Bees. Oxford University Press, 1924. Also HARTH & PHILIP (eds) The Fable of the Bees, London: Penguin, 1970.
- MANDLEBAUM, David G., 'The Plains Cree', Anthropological Papers. New York: American Museum of Natural History, v. 37, 1940.
- MANNING, Aubrey, An Introduction to Animal Behaviour. London: Arnold, 1967.
- MARSHALL, L., '!Kung Bushman Bands', in COHEN, R., & MIDDLETON, J. (eds) Comparative Political Systems. New York: American Museum of Natural History, 1967.

- MAYNARD SMITH, J., 'Group Selection and Kin Selection', Nature, vol. 201, 1964.
- MAYNARD SMITH, J., 'The Evolution of Alarm Calls', American Naturalist, vol. 99, 1965.
- MAYO, Bernard, Ethics and the Moral Life, London: Macmillan, 1958.
- MCGILL, T.E., Readings in Animal Behaviour. London: Holt, Rinehart & Winston, 1965.
- MEAD, Margaret, & KAPLAN, F.B. (eds) American Women: The Report of the President's Commission on the Status of Women. New York: Schreiber, 1965.
- MELDEN, A.I. (ed), Essays in Moral Philosophy, University of Washington Press, 1958.
- MILGRAM, S., 'Behavioural Study of Obedience', Journal of Abnormal Psychology, v. 67, 1967.
- MILGRAM, S., Obedience to Authority. New York: Harper & Row, 1974.
- MILL, John Stuart, A System of Logic. Modern Edition, London: Longmans, 1961.
- MILL, John Stuart, On Liberty. London, 1859. Modern Edition, WARNOCK, Mary (ed), Utilitarianism: John Stuart Mill. London: Collins, 1962.
- MILL, John Stuart, Utilitarianism. London, 1861. Modern Edition, WARNOCK, Mary (ed), Utilitarianism: John Stuart Mill. London: Collins, 1962.
- MISES, Ludwig von, Human Action. Yale University Press, 1949.
- MOHR, H., 'Zum Erkennen von Raubvogeln, insbesondere von Sperber und Baumfalk, durch Kleinvogeln', Zeitschrift für Tierpsychologie, vol. 17, 1960.
- MONTAGU, Ashley, Man and Aggression. Oxford University Press, 1973.
- MOORE, G.E., Principia Ethica. Cambridge University Press, 1903.
- MORRIS, Desmond, The Naked Ape. London: Cape, 1967.
- MORRIS, Desmond, The Human Zoo. London: Cape, 1970.
- MOWRER, O.A., Learning Theory and the Symbolic Process. New York: Wiley, 1960.
- MUGDOCK, George P., 'Comparative Data on the Division of Labour by Sex', Social Forces, v. 15, 1965.
- MULLER, H.J., 'Human Values in Relation to Evolution', Science, v. 127, 1958.

- MUNRO, David Hector, Empiricism & Ethics, Cambridge University Press, 1967.
- MUNSON, Ronald, Man and Nature: Philosophical Issues in Biology. New York: Delta, 1971.
- MURDOCK, George P., Social Structure. New York: Macmillan, 1957.
- MURPHY, R., review of PAULME, D. (ed) Femmes d'Afrique Noire, American Anthropologist, v. 64, 1962.
- NAPIER, J., 'The Antiquity of Human Walking', Scientific American, April 1967.
- NEEDHAM, Joseph, History is on Our Side. London: Allen & Unwin, 1946
- NIXON, H.L., & RIBBANDS, C.R., 'Food Transmission in the Honeybee Community', Proceedings of the Royal Society for Biology, v. 140
- NOTT, Kathleen, Philosophy and Human Nature. New York University Pr., 1971.
- NOTTEBOHM, F., 'Ontology of Bird Song', Science, vol 167, 1970.
- NOWELL-SMITH, P.H., Ethics. London: Penguin, 1954.
- NOZICK, Robert, Anarchy, State and Utopia. New York: Basic Books, 1974.
- OAKESHOTT, Michael, Rationalism in Politics and Other Essays. London; Methuen, 1974.
- ORWELL, George, Animal Farm. London: Secker & Warburg, 1945.
- PENROSE, L.S., 'Self-Reproducing Machines', Scientific American, June 1959.
- PEARSON, Lionel, Popular Ethics in Ancient Greece. Stanford University Press.
- PERICOT, L., 'The Social Life of Spanish Paleolithic Hunters as Shown by Levantine Art', in WASHBURN, S.L. (ed) Social Life of Early Man. London: Methuen, 1962.
- PERRY, R.B., General Theory of Value. Harvard University Press, 1950.
- PETERS, R.S. (ed), Nature and Conduct, (Royal Institute of Philosophy Lectures, volume 8). London: Macmillan, 1975.
- PILBEAM, David R., 'Man's Earliest Ancestors', Science Journal, v. 3, 1967.
- PIRIE, D.Madsen, Trial and Error and the Idea of Progress. La Salle, Illinois: Open Court, 1977.

- POPPER, Karl Raimund, The Open Society and Its Enemies. London: Routledge, 1945.
- POPPER, Karl Raimund, Conjectures and Refutations. London: Routledge, 1963.
- POPPER, Karl Raimund, The Poverty of Historicism. London: Routledge, 1957.
- POWELL, H.A., 'Competitive Leadership in Triobriand Political Organization', Journal of the Royal Anthropological Institute, v. 90, 1960.
- PRICE, G.R., in Nature, vol. 227, 1970.
- PRICHARD, H.A., Moral Obligation. Oxford University Press, 1949.
- QUINTON, Anthony, 'Ethics and the Theory of Evolution' in RAMSEY, I.T. (ed) Biology and Personality. Oxford: Blackwell, 1965.
- RAPOPORT, A., and A.CHAMMAH, Prisoner's Dilemma. University of Michigan Press, 1965.
- RAPHAEL, D.Daiches, 'Darwinism and Ethics', in BARNETT, S.A., A Century of Darwin. London: Heinemann, 1958.
- RAMSEY, I.T. (ed), Biology and Personality. Oxford: Blackwell, 1965.
- RASHDALL, H., The Theory of Good and Evil. Oxford University Press, 1907.
- RAWLS, John, A Theory of Justice. Oxford University Press, 1972.
- RAWLS, John, 'The Sense of Justice', Philosophical Review, v. 72, 1963.
- RHEINGOLD, Harriet L., Maternal Behaviour in Mammals. New York: John Wiley & Sons, 1963.
- RICE, G.E., & P. GRAINER, 'Altruism in the Albino Rat', Journal of Comparative and Physiological Psychology, v. 55, 1962.
- ROBERTS, Morley, Bio-politics. London: Dent, 1938.
- ROE, Anne, & SIMPSON, George Gaylord (eds), Behaviour and Evolution. Yale University Press, 1958.
- ROSS, D.M., 'The Association Between the Hermit Crab Eupagurus Bernhardus l., and the Sea Anemone Calliactus Parasitica', Proceedings of the Zoological Society of London, v. 134, 1960.
- ROSS, W.D., The Right and the Good. Oxford University Press, 1930.

- ROTHENBUHLER, W.C., 'Behaviour Genetics of Nest-Cleaning in Honey Bees, I', Animal Behaviour, v. 12, 1964.
- ROTHENBUHLER, W.C., 'Behaviour Genetics of Nest-Cleaning in Honey Bees, IV' American Zoologist, v. 4, 1964.
- ROUSSEAU, Jean-Jaques, The Social Contract. Paris, 1762. Modern edition, BRUMFIT, J.H., & HALL, J.C. (eds) London: Dent, 1973.
- ROUSSEAU, Jean-Jaques, Of the Origin of Inequality. Paris, 1754. Modern edition, in BRUMFIT, J.H., & HALL, J.C. (eds), Rousseau: The Social Contract and Discourses. London: Dent, 1973.
- ROWELL, T., 'Long-Term Changes in a Population of Ugandan Baboons', Folia Primatologia, v. 2, 1969.
- RUSSELL, Bertrand, Philosophical Essays. London: Allen & Unwin, revised edition, 1966.
- RUSSELL, Bertrand, Has Man a Future? London: Allen & Unwin, 1961.
- RYAN, Alan (ed), The Philosophy of Social Explanation. Oxford University Press, 1973.
- RYLE, Gilbert, The Concept of Mind. London: Hutchinson, 1949.
- SADE, D.S., 'Determinants of Social Dominance in a Group of Free-Ranging Rhesus Monkeys', in ALTMANN, S.A. (ed), Social Communication Among Primates. University of Chicago Press, 1967.
- SAGAN, Carl, The Dragons of Eden. New York: Random House, 1977.
- SARTRE, Jean-Paul, Being and Nothingness. London: Methuen, 1957.
- SCHJELDERUP-EBBE, T., 'Social Behaviour of Birds' in MURCHISON, A., (ed), A Handbook of Social Psychology. 1935.
- SCHJELDERUP-EBBE, T., 'Beitrage zur Sozialpsychologie des Haushuhns', Zeitung Psychologie, vol. 88, 1922
- SCHMIDT, H.D., 'Bigotry in Schoolchildren', Commentary, v. 29, 1960.
- SCHNEIDER, L., The Scottish Moralists. University of Chicago Press, 1967.
- SCHOPENHAUER, A., Essays (translated by T.B.SAUNDERS) London: Allen & Unwin, 1951.
- SCHUETTINGER, Robert Lindsay, 'Are Some More Equal Than Others in the New China?', in FEULNER, Edwin J., (ed) China - The Turning Point. Washington, D.C., Council on American Affairs, 1976.

- SCHUYLER, R.L., Josiah Tucker: A Selection from his Economic and Political Writings. New York, 1931.
- SELLARS, W., & HOSPERS, J. (eds), Readings in Ethical Theory. New York: Appleton-Century, 1952.
- SHENFIELD, Arthur, 'Scientism and the Study of Society', in MACHLUP, Fritz, Essays on Hayek. Hillsdale, Michigan: Hillsdale College Press, 1976.
- SCHALLER, G., The Mountain Gorilla. University of Chicago Press, 1963.
- SHEPHERDSON, M., 'The Traditional Authority System of the Navajos', in COHEN, R., & MIDDLETON, J. (eds), Comparative Political Systems. New York: American Museum of Natural History, 1967.
- SIEBENALER, J.B., & CALDWELL, D.K., 'Co-operation Among Adult Dolphins', Journal. Mammal., v. 37, 1956.
- SLATER, Miriam, 'Ecological Factors in the Origin of Incest', American Anthropologist, vol 61, 1959.
- SMART, J.J.C., & WILLIAMS, Bernard, Utilitarianism: For and Against. Cambridge University Press, 1973.
- SMART, J.J.C., 'Extreme and Restricted Utilitarianism', Philosophical Quarterly, v. 6, 1956.
- SMITH, Adam, The Wealth of Nations. London, 1776. Modern Edition, SKINNER, A.S. (ed), London: Penguin 1970.
- SMITH, Adam, The Theory of Moral Sentiments, in Essays, London, 1869. Modern Edition, London: Cass, 1967.
- SOLOMON, Maurice E., Population Dynamics. London: Arnold, 1969.
- SOUTHWICK, Cyril H. (ed) Primate Social Behaviour. New York: Van Nostrand, 1963.
- SPENCER, Herbert, The Principles of Ethics. London: 1892-93
- SPILSBURY, Richard, Providence Lost: A Critique of Darwinism. Oxford University Press, 1974.
- SPINOZA, Benedict de, Tractatus Politicus. Modern Edition in WERNHAM, A.G. (ed), Benedict de Spinoza: Political Works. Oxford University Press, 1958.
- SPITZ, R., 'Die Anaklitische Depression', in BITTNER, G., & SCHMID-CORDS, E. (eds), Erziehung in Fruher Kindheit. Munich: Piper, 1968.

- STEVENSON, H.W. (ed) Early Behaviour: Comparative and Developmental Approaches. New York: Wiley, 1967.
- STORR, Anthony, Human Aggression. London: Penguin, 1968.
- STRUHSAKER, T., 'Social Structure Among Vervet Monkeys', Behaviour, v. 29, 1967.
- SUSSMAN, Robert W., 'Child Transport, Family Size, and Increase in Human Population During the Neolithic', Current Anthropology, vol. 13, 1972.
- SUSSMAN, R.W., & RICHARD, A., 'The Role of Aggression Among Diurnal Prosimians', in HOLLOWAY, R. (ed), Primate Aggression, Territoriality and Xenophobia. New York: Academic Press, 1974.
- SWIFT, Jonathan, Gulliver's Travels.
- TENER, J.S., 'A Preliminary Study of the Musk Oxen of Fosheim Peninsula, Ellesmere Island, N.W.T.', Canada Wildlife Service, Wildlife Management Bulletin, 1st Series, no. 9, 1954.
- THORPE, William H., Nature and Human Nature (Gifford Lectures 1973/74) University of Edinburgh Press.
- THORPE, William H., Bird Song. Cambridge University Press, 1961.
- TIGER, Lionel. Men in Groups. London: Nelson, 1969.
- TIGER, Lionel, & FOX, Robin, The Imperial Animal. London: Secker & Warburg, 1972.
- TINBERGEN, Niko, A Study of Instinct. Oxford University Press, 1951.
- TINBERGEN, Niko, The Herring-Gull's World. London: Collins, 1953.
- TINBERGEN, Niko, Social Behaviour in Animals. London: Methuen, 1953a
- TINBERGEN, Niko, 'On War and Peace in Animals and Man', Science, June, 1968.
- TOULMIN, Stephen, Foresight and Understanding. London: Hutchinson, 1961.
- TOULMIN, Stephen, Examination of the Place of Reason In Ethics, Cambridge University Press, 1950.
- TRIVERS, R.L., 'The Evolution of Reciprocal Altruism', Quarterly Review of Biology, v. 46, 1971.
- TUCKER, Josiah, Josiah Tucker: A Selection from his Economic and Political Writings, edited by R.L.Schuyler. New York: 1931.

- VINER, J., The Role of Providence in the Social Order. 1972.
- WADDINGTON, C.H., The Ethical Animal. London: Allen & Unwin, 1960.
- WALSH, W.H., An Introduction to Philosophy of History. London: Hutchinson, 1951.
- WARNOCK, G.J., 'Kant and Anthropology', in PETERS, R.S. (ed), Nature and Conduct. London: Macmillan, 1975.
- WARNOCK, G.J., The Object of Morality, London: Methuen, 1971.
- WARNOCK, G.J., Contemporary Moral Philosophy. London: Macmillan, 1967.
- WASHBURN, S.L., & DEVORE, Irving, 'Social Life of Baboons', Scientific American, June 1961.
- WASHBURN, S.L., Conflict in Primitive Society. London: Churchill 1966.
- WATSON, A., 'Population Control by Territorial Behaviour in Red Grouse', Nature, v. 215, 1967.
- WECHKIN, S., MASERMAN, J.H., & TERRIS, W., 'Shock to a Conspecific as an Aversive Stimulus' Psychonomic Science, v. 1, 1964.
- WESTERMARK, E., Origin and Development of the Moral Ideas. New York: Macmillan, 1917.
- WESTERMARCK, Edward, The History of Human Marriage. London: Macmillan, 1894.
- WEYER, E.M., 'The Structure of Social Organization Among the Eskimo', in COHEN, R., & MIDDLETON, J. (eds), Comparative Political Systems. New York: American Museum of Natural History, 1967.
- WILLIAMS, G.C., Adaptation and Natural Selection: A Critique of Some Current Evolutionary Thought. Princeton University Press, 1966.
- WILLIAMS, G.C., 'Natural Selection, the Costs of Reproduction, and a Refinement of Lack's Principle', American Naturalist vol 100, 1966.
- WILSON, A.P., The Social Behaviour of Free-Ranging Rhesus Monkeys with an Emphasis on Aggression. Ph.D. Dissertation, University of California at Berkeley. (Cited by J.H.Crook, 1970, q.v.)
- WILSON, Bryan R., Rationality. Oxford: Blackwell, 1970.
- WILSON, Edward O., 'On the Queerness of Social Evolution', Bulletin of the Entomological Society of America, vol. 19, 1972.
- WILSON, Edward O., Sociobiology. Harvard University Press, 1975.
- WILSON, M., 'Nyakusa Age-Villages', Journal of the Royal Anthropological Institute, v. 79, 1949.
- WINCH, Peter, The Idea of a Social Science. London: Routledge, 1958.

- WINTER, P., PLOOG, D.W., & LATTA, J., 'Vocal Repertoire of the Squirrel Monkey (Samiri Sciureus): its Analysis and Significance', Experimental Brain Research, v. 1, 1966.
- WOLF, Arthur P., 'Childhood Association, Sexual Attraction, and the Incest Taboo', American Anthropologist, vol. 68, 1966.
- WOLF, Arthur P. 'Childhood Association and Sexual Attraction: A Further Test of the Westermarck Hypothesis', American Anthropologist, vol. 72, 1970.
- WOODWORTH, Robert S., and Harold Schlossberg, Experimental Psychology. New York: Holt, 1954.
- WRIGHT, David, The Psychology of Moral Behaviour. London: Pelican, 1971.
- WYNNE-EDWARDS, C.V., Animal Dispersion in Relation to Social Behaviour. New York: Hafner, 1962, and Edinburgh, Oliver & Boyd, 1962.
- YOUNG, J.Z., Doubt and Certainty in Science. Oxford U. Press, 1951.
- ZIMMERMAN, M., 'The Is/Ought: An Unnecessary Dualism', in HUDSON, W.D. (ed), The Is/Ought Question. London: Macmillan, 1969.
- ZUCKERMAN, Solly, The Social Life of Monkeys and Apes. New York: Harcourt, Brace, 1932.