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SOCIOBIOLOGY

Edward Wilson made history and stirred up controversy in 1975 with the publication of his *Sociobiology*. In this paper Dr. Gordon Clarke explains what sociobiology is about and how it relates to Christianity.

It was in 1975 that Edward Wilson, curator of entomology at Harvard Museum of Comparative Zoology, published his monumental book *Sociobiology - the New Synthesis*.¹ Immediately, a reaction of a powerful and at times almost hysterical nature arose in Harvard itself, and rapidly spread through the academic community. Eventually, the furor having subsided a little, the debate reached our side of the Atlantic, and was summed up in a set of three articles in *New Scientist* in May 1976.² Much debate and correspondence followed, and although many biologists have felt that Wilson had said a great deal that was worthwhile, social and political scientists soundly castigated him for, in their opinion, unacceptable views. The Christian community has had little to say on the subject as yet, although a critical article in *Third Way* magazine³ made some points of interest.

So what was it that an entomologist could say to cause such a storm? "Sociobiology" is an attempt - a very successful and scholarly attempt - to survey all we know about the social behaviour of animals and man in the context of our knowledge of genetics. In effect it is a synthesis of a wide range of studies from genetics and population biology right through to psychology and anthropology. The most controversial part of the book is the 28 pages (out of 600) concerned with the human species. Most people, it seems, are prepared to accept that social behaviour in animals has a strong genetic element, but not so with human beings. There are some good reasons for their doubts, as we shall see below.

The purpose of this article is to explain the origins of sociobiology as a science, to examine the arguments which have already been mentioned and to explore the implications that this 'new science' might have for our faith. Wilson's work is really the centrepiece of the issues raised, so much of what follows concerns the book and reactions to it; in particular of course

the crucial section on the sociobiology of man - the attempt to give the social sciences a biological basis.

Development of Sociobiology

In the first chapter of his book Wilson describes the way in which biological sciences in the broadest sense have been moving over the years. In the '50s there existed an extensive middle ground of ethology and comparative psychology between the extremes of micro-biology (cell biology and neurophysiology) on the one hand and macro-biology (behavioural biology and population biology) on the other. Increasingly, the trend is towards a concentration on the two major disciplines of neurophysiology (the breakdown of how an animal works in molecular terms) and sociobiology (a quantitative science of animal behaviour in an evolutionary perspective).

Sociobiology, then, is absorbing much of the middle ground of comparative psychology and animal behaviour, and relating these to population biology and genetics. Wilson hopes that, eventually, the two great disciplines will enable us to understand and control human behaviour in a precise way.^{1a} It is this kind of statement which has contributed to Wilson's unpopularity, since it begs so many questions about the political and social consequences of this kind of research.

In commenting on the background to Wilson's work on the human species, we could say that two main lines have coalesced in Sociobiology. One is the long-established science of behaviour genetics and the other is the more highly popularised attempt by several authors in the last fifteen years to codify and explain man's behaviour in terms of animal behaviour.

Behaviour genetics has tended to develop along two separate avenues:-

- (1) Reductionist approach; starting from a single gene in a primitive organism, causing a point mutation of the gene and seeing the effect on the behaviour of the animal.
- (2) Macroscopic approach; observing the species variation in a basically stable behaviour pattern and selectively breeding for certain behaviours (e.g. in bees). It can be shown that individual genes control or modify particular aspects of behaviour.

In both these areas, the attempt is being made to see how behaviour is encoded genetically. There are two big problems in this: one *qualitative* - the gap between the gene and the phenotype (the behavioural phenomena for which the gene is the coded basis)

is so great that the assessment of the relationship between them is by no means straightforward; and one *quantitative* - what units can we use to measure behaviour and assess the differences in the behaviour patterns of species and species variants?

Sociobiology, in attempting to follow a similar macroscopic approach in the analysis of *social* behaviour has inherited these problems. It is particularly difficult to make any realistic quantitative assessments of social behaviour without protracted periods of intense study of large numbers of the social groups of the animals in question. Behaviours must be noted, described and contrasted according to other factors such as habitat, food availability, age and size of social group, etc., before even broad generalisations can be accurately drawn. This is the main stream of the study of the evolution of behaviour, considering social organisation as a higher form of adaptation to the environment. It is apparent that even closely related species may behave entirely differently in the same habitat, so a very close look at social behaviour is necessary before predictions can be made about one species from observations of another. A considerable amount of this kind of work has been done on primates⁴ as well as other animals, and particularly birds.⁵

In applying the techniques of sociobiology to man, Wilson has taken a step beyond the popular 'Naked Ape' school of human behaviour studies - the second strand to be drawn into his analysis. He has continued in the same mould - attempting to analyse human behaviour in the light of evolutionary history - but has applied a more rigorous and more quantitative technique. He points out^{1b} that the recent popular books in this field by Konrad Lorenz⁶, Desmond Morris⁷, Robert Ardrey⁸ and Lionel Tiger & Robin Fox⁹ illustrate a misleading method of behavioural analysis. These writers examine various small samples of animal behaviour and extrapolate them to man. The best available method is to examine a series of closely related species, close to man in phylogenetic terms, and determine which traits alter drastically from one to another (labile traits) and which stay relatively fixed (conservative traits). The conservative ones are the only ones which can be extrapolated at all, and these only tentatively, since the directions of quantum jumps in evolution are not easy to predict. At the extreme, it could be that all behavioural traits of closely related species are modified out of recognition in man. However, it would appear to be true that conservative traits, such as aggressive dominance systems, scaling of aggressive responses, prolonged maternal care, socialisation of young and a tendency towards matrilineal organisation are characteristics which we share with our primate cousins. Perhaps the most remarkable thing about man, however, is the great gulf between us and other primates in the range of unique characteristics we possess, such as language, elaborate culture, continuous sexual receptivity of

females, incest taboo, kinship networks and co-operative division of labour between the sexes.

The writers mentioned above called attention to the biological nature of man, his evolutionary history and the ways in which he is biologically equipped to deal with the environment. They corrected the behaviourist stimulus-response view of man which had been current and opened up a more constructive line of thinking. Wilson went yet further in examining the possible evolutionary mechanisms for our emergence as a species in semi-quantitative terms. In so doing, he laid himself open just as much as the behaviourists to the charge of dehumanising the human species. His, it seemed, was just a different kind of reductionism.

Sociobiology and its critics

Having examined something of the development of sociobiology in general and the approach of Wilson's book in particular, we shall now look at the arguments which were precipitated by its publication. These fall into two types; technical and philosophical/ideological criticism. For the purposes of this discussion, we shall add a third and make some observations on the subject from a Christian point of view.

1. *Technical criticism*

As mentioned before, most of the criticism of Wilson's book centres on the conclusions of his last chapter - that concerning the sociobiology of man.

The most significant step in the development of an evolutionary framework for human social behaviour is the advent of altruism. How can such an apparently non-adaptive trait survive? The problem was first raised by Darwin in *The Origin of Species* in connection with the evolution of sterile castes of social insects. The solution appears to be 'group selection': an individual sacrifices itself in order to benefit its group. If the group shares that individual's genetic endowment, the process is called kin-selection (a term coined by John Maynard Smith¹⁰). Hence, if an individual's altruism benefits his close relatives (who share his genes) even at the price of his own genetic fitness, his altruistic genes will be passed on. Wilson pays great attention to this and other concepts of group selection in chapter 5 of *Sociobiology*, developing a mathematical framework for the process, but his background assumptions have been strongly attacked.

The technical criticism has concentrated on Wilson's use of kin-selection as an explanation for the evolution of human characteristics, and his idea of a 'multiplier factor' which compounds the effects of cultural evolution. The arguments have

been assembled in a monograph by the anthropologist Marshall Sahlins.¹¹ Sahlins considers that the whole idea of kin-selection in the human species is fallacious because it depends upon the action of individuals being affected by a kind of 'mystic knowledge' of consanguinity. Those who reap the benefits of altruism must have been recognised by the altruistic individual as related *genetically* whereas in fact our recognition of kinship is *cultural* where our actions towards others are concerned.^{11a} Even in primitive societies today, most of a man's genetically closest relatives (e.g. sisters, brothers, daughters) do not live with him^{11b}, and it is where people live that determines kinship rather than pure genealogy.

Human beings, Sahlins continues, reproduce as social creatures, rather than just as individuals. Arranged marriages, for instance, perpetuate cultural systems rather than individual sets of genes, and it is cultural systems which are the stuff of humanity.^{11c} Human culture is unique in its possession and use of language with its symbolic power to generate meaning over and above the individuals involved.^{11d} The human world is thus something separate from the individuals involved in constructing it. This idea is reminiscent of Popper's "World 3" - the material of human culture and experience which is passed on through the generations.

It is very difficult to assess the validity of Sahlins' argument in quantitative terms. To tell how Wilson's equations would be modified by less emphasis on strict genealogical altruism, one would require to know a number of parameters which are extremely hard to define. On the face of it, though, the technical criticism has merit and human sociobiology as a science stands or falls on its theory of kin-selection.^{11e}

Sahlins is in accord with Wilson in criticising the 'vulgar sociobiology' of Lorenz, Morris, Ardrey, Tiger & Fox and others who assume that human social behaviour is a direct manifestation of individual biological propensities laid down in the course of evolution. This view is far too simplistic, being a kind of anthropomorphism in reverse, an excessive extrapolation of the social behaviour of animals to that of man. Again, the uniqueness of human culture and its effect on behaviour over and above genetic endowment must be stressed.^{11f} Wilson also criticises the determinism of Lorenz^{1c} and has now explicitly stated^{2b} that "culture is clearly the dominant force" in the genesis of human behaviour. This may not be so in that of other animals who do not possess the symbolic power that language represents.

2. *Philosophical criticism*

Here we are observing this generation's version of the 'nurture vs. nature' debate. Three points of interest emerge.

Firstly, to what extent is sociobiology just a new form of biological determinism?, secondly how much of the criticism on such grounds is merely invalid logic on the part of the critics?, and thirdly, what are the political implications of sociobiology - is Wilson another Jensen?

I think it must be clear that Wilson is not a died in the wool reductionist, even though he attempts a synthesis of many disciplines into one new one! He is explicit in stating, as mentioned above, that culture is dominant over genetics in the determination of human social behaviour. This idea, too, appears reasonably clearly in *Sociobiology* itself^{2b}, although since the book is concerned with analysing the elements of behaviour which *are* genetically based, it is hardly surprising that the cultural theme is not stressed. Nevertheless, Wilson has been berated by his critics for implying that the present state of society is the result of our genes and therefore somehow inevitable.^{2c}

Sahlins accuses sociobiologists in general of the tendency to reduce human social behaviour to genetics in the same way that is done with, for example, insects. He points out helpfully, though, that culture is to biology no more than biology is to chemistry and physics. That is, there is a hierarchical relationship between culture and biology; and "culture is biology plus the symbolic faculty". This is a useful point and one with which I suspect Wilson would thoroughly agree!

There is something particularly unsatisfactory in the idea of genetic determinism that we see in Wilson and works like Dawkins' *The Selfish Gene*.¹² One is reminded of the off-quoted "a chicken is the egg's way of producing another egg." The picture conjured up is one of conspiring molecules plotting and scheming. The basis of DNA's self-maximisation process is not to be seen in these anthropomorphic terms, of course, any more than the plotting and scheming of men is to be seen in terms of DNA maximisation.

To move on to the second point, it is evident that Wilson's critics attack a position somewhat beyond that which Wilson himself adopts.^{2b} They believe that his work is tantamount to an attempt to justify Western society on biological grounds. This is really a logical error on their part, although Wilson does not go very far in refuting such an interpretation in the original work. The critics are committing the Naturalistic Fallacy in interpreting *Sociobiology*. They have assumed that Wilson's statements about the nature of man imply that he holds that the present state of man is natural and correct. In other words, deriving propositions about what ought to be the case from propositions about what is the case, which is not *logically* possible. Furthermore, it is not possible to extrapolate from the genetic background of mankind to derive what an ideal social

set-up for today should be. The indications are always ambiguous and a logical connection between nature and ethics cannot be made.

For example, the Lorenz and Ardrey school postulate that our humanity is a product of our aggression; that we have developed all that we call human because our species killed for a living for millions of years.^{8a} So we have to be extremely careful about this fiendish proclivity in our very nature. However, it could also be argued^{13a} that it was the co-operative nature of the hunt and the sharing of spoils which was the spur to our development as human beings, in which case, co-operativity and sharing should be our prime genetic endowment. Clearly neither view is exclusively true. In any case, whatever the genetic background, the plasticity of behaviour in response to different environments is immense, even in primates.^{13b} In human beings, with cultural effects also coming into play, the gap between genes and behaviour is vast indeed.

The question of sex roles is another case in point. Wilson stresses that the universality of male dominance in primates and human society suggests that it is not unreasonable to postulate a genetic element in such a 'conservative' trait (see above). But again, even if male dominance is in our genes, this "cannot be used to bolster a continuation of social and economic inequalities that are embedded in so many cultural traditions".^{13c} What was biologically sound two million years ago is not necessarily social justice today, and to say it is involves the naturalistic fallacy.

It is unfortunate the Wilson did not anticipate in the first place that people would fall into this trap in interpreting his work. It is also unfortunate, though, that his critics have almost reached the point of denying that there is any genetic element in behaviour at all.^{2b} This is virtually a Skinnerian behaviourist position which they (and Wilson) also attack.

This brings us to the third point, the political and ideological implications of Sociobiology. Most of the vehement criticism Wilson has received has been from the radical end of the political spectrum largely on the grounds of the sociobiologists' use of capitalist language and philosophy. Sahlins^{11h} is highly critical of Wilson's use of economic 'market place' terminology, the ideas of individual advantage and the strong deliberately trying to maximise their genetic profit. Selection in the Darwinian sense is essentially passive, he says, so creatures don't find themselves with a set of attributes and deliberately try to maximise their successful offspring. It is common to find the presuppositions of a particular society in its writings about biology. American sociobiologists like Wilson and, more particularly, R.L. Trivers,¹⁴ have assimilated into their writings

not just the language, but the assumptions of Western society, particularly the competitive and acquisitive characteristics. "Of course it is true", says Sahlins,¹¹ "that all Americans are human, but it is not true that all humans are American - and still less that all animals are Americans".

Some of this criticism is no doubt justified, like Wilson's turns of phrase in describing animal behaviour in human terms such as 'slavery'. These shorthand metaphors lend persuasiveness to the similarities drawn between biological determinism in lower animals and man (see ref.3, p.5). However, some of the critics' rhetoric can be rapidly derailed, as it merely indicates a superficial knowledge of the book.^{2b} There seems little point in attacking turns of phrase unless there really is a sinister ulterior motive behind them. I suspect one would require a particularly suspicious nature to detect a serious intention on Wilson's behalf of following in the footsteps of Spencer's ideas of social determinism¹⁵ and the pernicious 'Social Darwinism' that followed.

It is unlikely and perhaps undesirable that science will ever be entirely culture-free, but perhaps Sociobiology needs to free itself from some of these inbuilt assumptions and, particularly, to recognise the passivity of natural selection more clearly. What is more important, from the political point of view, is that social policy must not be guided by such culture-dependent science, particularly when the problems of method and interpretation discussed above make many conclusions highly tentative. Perhaps we should be concerned that criminologists in Holland are planning a survey of prisoners to find genetic links with aggression.¹⁶ What will happen to those who carry the gene but, for some reason (genetic or cultural), do not exhibit the behaviour, will they also be placed under restraint? There have been many abortive attempts to tie down 'undesirable' behaviour in such ways.^{2c} They have usually turned out to be excuses for maintaining the status quo, or suppressing a minority group.

Politicians are not usually as aware of the limitations of science as are scientists themselves. The result seems to be that, like the atom bomb, Sociobiology is perfectly safe as long as no use is made of it.

A Christian Critique

Christian thought would parallel some of the issues already discussed here. The idea of biological determinism and other forms of reductionism have often been discussed in Christian circles and satisfactorily resolved to a large extent by the ideas of hierarchical levels of explanation and the distinction between physical and logical indeterminacy.¹⁷ On the political and ideological front, Christians have been slow to speak in the past

and, in their fear of espousing any political philosophy, have tended to collapse into reaction. Hopefully, though, Christians now are more aware of the dangers of 'Social Darwinism' and its descendants, and are speaking out against the evils of discrimination and prejudice rationalised on biological grounds. In our caution, we are often slower than radical groups to recognise a danger, but we need to take our time to ensure that our arguments are not lost in rhetoric as they were in Darwin's day.³

What of the more direct attacks of the sociobiologists on what we might term our own ground, the biological basis of religion and ethics? Wilson sees religion in terms of a basic human need to conform.^{1d} Human beings, it is true, are astonishingly easily indoctrinated, a trait which perhaps has a genetic origin since it is universal. Bergson has suggested that we need to restrict choice because human behaviour is so plastic. Without restrictions, our behaviour would be chaotic.^{1e} There are plenty of societies which appear to function quite adequately with sets of religious and moral beliefs quite alien to our own, so it seems that "virtually any set of conventions works better than none at all".^{1e} However, the fact that religion is universal and man indoctrinable says nothing about whether or not religious beliefs are true. It may well be the case that conformity has survival value, but not all conformisms are the same. It is interesting that we see conformism in political as well as religious circles, both have their fanatics and their attacks on 'backsliders' or 'bourgeois individualists'. The validity of the beliefs, however, is independent of human genetic makeup, although presumably there should be an optimum 'set of conventions' to conform to. The Christian has little doubt that it is his own, but then so have adherents of other beliefs.

In the field of ethics, Wilson's opinion again appears to be strongly influenced by his cultural background. His claim is that a system of ethics based on fairness (or in Christian terms justice) is biologically incorrect, since 'the human genotype and the ecosystem in which it evolved were fashioned out of extreme unfairness'.^{1e} Here Wilson himself seems to be committing the Naturalistic Fallacy, since far from indicating that we should continue to be unfair it is perhaps precisely because of this background that we have systems of ethics at all. That is, assuming the orthodox evolutionary view, systems which ensure conformity and hence co-operation and sharing, may have provided the motive power for our evolution as human beings. Again we see that an evolutionary background does not logically determine a system of ethics. We could say it should make us unfair; we could say it should make us co-operative. In fact we see both these traits. There is simply no logical connection between biological background and a moral choice.¹⁸

So, in Christian thinking, we can recognise that Sociobiology, like any other science, adds to our understanding of God's universe. However, we must ensure that it does not at the same time detract from our appreciation of it. Wilson's radical critics are acutely aware of this, pointing out that it is man's uniqueness which should be stressed together with his ability to transcend the merely biological with culture, language and the capacity for symbolic thought.^{2c, 11j} For Christians, the New Synthesis can be illuminating, but it must not be allowed to blind us to other logical views of physical reality.

Conclusion

Sociobiology as a science is in its early days. We have learnt a great deal from it so far, gaining a greater appreciation of our continuity with the rest of the animal kingdom. However, Wilson's excessive optimism about the realms of knowledge which the subject will open up should put us on our guard. The evidence is not there. We should be even more concerned at his suggestions that the findings of sociobiologists will lead us on to successful social engineering. This must be anathema to the free man - the image of God. Wilson sees the dangers but forgets, perhaps, that it has all happened before. The power science gives us easily gets out of control in the hands of the few.

Above biology is culture. In the words of Huxley, the evolutionist, man "finds himself in the unexpected position of business manager for the Cosmic process of evolution".¹⁹ Not only is this so in the sense that man has the power of life and death over the planet, but that his creative, symbolic powers separate him from the animal kingdom and allow him to transcend his biology.

And above Culture is God. At yet a higher level, we see a higher transcendence, a higher level of explanation and logical description. Let us not be tempted to examine the foundations without ever standing back to admire the building.

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Footnote:

Since the above paper was written, the following book has been published:

The Sociobiology Debate: Readings on Ethical and Scientific Issues,
 edited by A.L. Caplan, Harper and Row, New York, 1978.
 514 pp. U.K. price £7.95.

It consists of readings selected from the works of a large number of authors, from Charles Darwin and Herbert Spencer to the present day, who have made significant contributions to what is now called the Sociobiological Debate. It provides a balanced view of the debate for readers who do not have the time or the facilities for surveying the great mass of original publications.