

On Animal Analogies to Human Behavior and The Biological Bases of Value Systems

R. E. Lubow

Tel Aviv University

The recent recurrence of interest in demonstrating the biological bases of human value systems is discussed. A number of examples are cited. This trend is placed within the context of a broader human biological process—the need to explain. Given this need, there are a variety of ways to gratify it. However, it is demonstrated that such gratification does not guarantee the validity of an explanation. The ease of generating analogies which may serve as satisfying explanations within the context of a biological conceptual framework is presented as supporting the need for increased caution in drawing conclusions about human behavior from animal behavior.

Occasionally, there appears within the various streams of science a controversial current, a central theme that seems to cut across the banks of individual disciplines. Often these themes are recurrent. The nature-nurture or heredity-environment controversy is one such issue. Without carrying the history back to the ancient, classical philosophers, one can see the two polar positions in the English empiricist philosophers such as Locke, Hume, Hobbes, and Mills who represent the forces of environmental determinism, and the continental philosophers such as Descarte, Kant, and Leibnitz, who represent the forces which emphasize, relatively, the role of innate ideas. American Psychology, historically, has reflected the British Empiricist tradition which culminated in the influences of Thorndike and John B. Watson and the learning theories of Guthrie, Hull, Tolman, and Skinner. European Psychology, on the other hand, more influenced by the ideas of Kant, has followed in the works of the Gestalt Psychologists such as Wertheimer, Koffka, and Kohler, and in the writings of Piaget.

More recently, there appears to be an amalgamation of the two trends. Within contemporary American Experimental Psychology one can clearly see that inherited structure has been grafted onto environmental determinism. This shift in traditional viewpoints can be seen in the current emphasis of biological (as opposed to environmental) determinants of many types of individual behaviors including intelligence, depression,

schizophrenia, and, of course, all manner of social organizations (e.g. Wilson, 1975, 1978). This biological emphasis has, it appears, two separate and sometimes distinct approaches to the problem of explanation. There is the search for biological correlates of behavior that are contemporary to the behavior being studied, as in determining the effects of various hormone systems on aggression, or in mapping the hippocampal circuitry involved in attentional processes. In contrast to such proximal explanations, are those that attempt to explain presently existing behavior in terms of distal causality. This approach, of course, serves those who attempt to explain behavior in terms of evolutionary processes and adaptational significance.

This author takes no issue with the use of biology to determine proximal causes. Such an approach has proved itself valid in two quite different ways. On the one hand, theories of behavior have been developed and tested, some rejected, some revised, and tested again, and so on. On the other hand, the practical applications of medicine and other biologically derived technologies attest to the usefulness of the underlying biological theories.

However, attempts to employ the distal causality of evolutionary theory to explain contemporary behavior may fail on two counts. One, the nature of the theorizing may be such as to make it untestable, i.e., not falsifiable in the sense of Popper. Two, such theorizing has not yet generated a set of applications that can be viewed as derivable from the theory. That such applications have been widely bruited about is not questioned. But suggested "cures," for war, for instance, are neither formally derivable from theory, nor are they testable.

That such speculative applications are clever, that they contain a great deal of face validity, and that they are appealing to the reader cannot be denied, but they hardly represent the fruits of scientific inquiry. To prove this point, this essay will develop two separate instances of the casual, stimulating, and even fun games that one can play with evolutionary-type explanations of behavior. Hopefully, by illustrating what one can do in jest, it will provide a cautionary tale for those readers who peruse the works of contemporary writers who approach the problems of the evolutionary bases of behavior with a seemingly more profound intent. In particular, this essay will attempt to put in perspective the writings of those ethologists who attempt to apply Darwinian concepts to complex human activities that involve attitudes, beliefs, and values.

The ethologist, usually a zoologist by training, studies the behavior of animals in their natural settings and relates certain behaviors to survival goals within the particular ecological niche that is "home" for that species. Relating behavior to environment and to survival is of central concern to the ethologist, along with the elaboration of comparisons to

other species. These latter relationships are drawn along two quite divergent lines. On the one hand, comparisons are made of similar behaviors occurring in different ecological niches; on the other, of different behaviors occurring in similar niches. In the first case, information is gained with regard to origins—if the investigator has an independent assessment of the relative age of the species or structures being examined. This is the study of homologies. The classical example of homologous structure is that of the evolution of the frontal pair of appendages which in man and monkey we call arms; in four footed creatures, front legs; in birds, wings; in fish, frontal fins. Here, overtly different anatomical structures, serving grossly different behavioral functions can be shown through the techniques of comparative anatomy, comparative embryology, and comparative paleontology to have a common ancestral form. From a common ancestor, as a result of adaptations to very different environments, quite dissimilar structures have emerged.

The study of homologies allows one to understand the past, to point to historical origins. This enterprise is as worthy as any other pursuit of knowledge which is aimed at increasing the understanding of ourselves. (In its broadest meaning, such understanding would include knowledge about our own origins as well as about all aspects of the environment in which we live—*independent* of whether one can demonstrate a *direct* connection between the subject of study and the human condition).

Nevertheless, more and more ethologists have taken up investigations of what they call “convergence”—the study of behaviors that appear to be similar, but have evolved from *different* origins. Here the emphasis is on studying species that are widely dissimilar from each other. Contrary to what one might expect, ethologists propose that we can learn more about our own human behavior from studying many varied species that are quite different from us, as opposed to studying, for example, the anthropoid ape. Wickler (1972) summarizes the attitude of the critics and defends the study of convergences:

Man, these writers claim, is a primate, and not a kind of goose, and the ethologist should therefore either concern himself with fields directly related to human problems or else admit that his science is no more than an esoteric hobby which has no contribution to make to the question of man's continued existence.

What these critics fail to recognize is that the evolution of species reveals ecological niches in just the same way as a study of economics discloses deficiencies in the market. (p. 33)

Wickler goes on to describe an analogy which, in part, highlights many of the problems with the ethologists' approach to convergence and their conclusions concerning human behavior from ethological data.

Related species avoid each other as competitors like similar products of the same firm. The market researcher who wants to familiarize himself with the typical and functional characteristic of a product will therefore investigate not the other pro-

ducts of the same firm, but rather the products of some completely different firm which are aimed at the market, the same group of consumers. (p. 33)

The same author, Wickler, has used this point of view to write about *The Biology of the Ten Commandments* (1972a), the biological bases of human sexual behavior, and marriage customs (1972b). Indeed, this biological approach has become a common point of reference for both popular writers and Nobel laureates. It has been used not only to expound on and to explain nationalism (Ardrey, 1966), aggression and war (Eible-Eibesfeldt, 1976; Lorenz, 1966; Tinbergen, 1968), but also as a justification for maintaining different social roles between males and females in human society (Ardrey, 1976; Tiger, 1969); and, in spite of it all this, to support optimism (Tiger, 1979).

Though this approach may not serve to commend the human as a scientist, it certainly does illustrate something about the nature of humankind: whether scientist or untutored layperson, there is a need to explain oneself, to find in all one's observations—whether on members of our own species, the lowly ant, chemistry of compounds, or the movement of the stars—something that is relevant to oneself. The human animal is so egocentric that it is impossible for one to accept that a night-sky full of moving stars may have nothing to do with one's own fate. That the stars should be irrelevant to homo sapiens is an offensive impertinence, a slap to a face that is constantly searching for its own meaning, and everywhere sees a reflection that it must interpret. It is, perhaps, the unique sign of humankind that it will countenance no accident. This very attitude produces both science and superstition, facts from observation, and fantasies from the need to explain and to understand.

So strong is the urge to understand human behavior that we cannot resist creating frames of understanding even from the most flimsy of sources. We order the world and our understanding of it with religion no less than with science, with philosophy no less than with political ideology—indeed, most of the activities that we would characterize as being peculiarly human would seem to be those that are pressed upon us as ways of making the world more predictable, more coherent. Prudent scientists must not forget these obvious human foibles if they are to separate objectively derived knowledge and useful theories from wishful thinking and fruitless fantasy.

The ethological approach to the understanding of human behavior is particularly compelling. There is a long list of distinguished advocates (some of whom I have already mentioned), and a longer list of recent books and monographs which have a large group of supporters—both among professionals and laypersons—as attested to by the tremendous sales of such books as Morris' *The Naked Ape* (1968) and Ardrey's *The Territorial Imperative* (1966), to mention just two. The very subject mat-

ter, steeped in the Darwinian tradition of continuity between animal and human, seems to squeeze out analogies like toothpaste. Even a skeptic, who questions the ethologist's unbridled jumps from animal to human, whose brow may be furrowed by wide-eyed amazement at the pretentiousness of zoologists' lecturing about human ethics and values, can succumb to the pressure of such analogy.

Recently, while preparing some lectures, I had to read a number of articles and books about animal behavior. During this time I also had occasion to shop for some clothes, and to think about the current turmoil in the Middle-East. Both activities, however trivial and significant, made me recognize apparent connections to animal behaviors described in the literature. As I have stated above, it is a profound part of our humanness to find relationships even among the most disparate events. Whether it be viewed as a parlor game or as a science, as mere fun or an intellectual imperative, we pursue the challenge and find it gratifying. But is it useful beyond the arena of personal satisfaction? We will return to this question after I have presented two analogies between animal and human behavior that thrust themselves into my mind, quite unexpectedly—one concerning clothing and one concerning politics.

To begin, let's look at the ethologist's notion of the dominance hierarchy. This extensively studied phenomenon is found in a large number of animal species, particularly those whose members live in groups. The dominance hierarchy is characterized by a relatively stable pattern of interactions among the group members—each to the other, as well as to some non-group members and to external objects. The hierarchy can be likened to a network of status relationships in which higher status individuals enjoy certain preogatives that are withheld from lower status members.

As but one well known example, baboon society is highly organized around the troop which, itself, is completely dominated by a few adult males. The common baboon (*Papio cynocephalus*), occupying the savanna and forests south of the Sahara, lives in troops that range in size from about 10 to 200, with an average number of about 40. Within these troops, the dominant males control social space and access to food. "The dominant males are harassed less during mating, having access to females at the peak of their estrous cycle and have priority in social space within the troop. Less dominant animals avoid them or direct submissive gestures toward them, such as presenting their hindquarters or grimacing" (Bramblatt, 1967). In regard to spacing, there appears to be a reliable pattern. When the troop is moving—either foraging for food or leaving an inhospitable area—the members are distributed in such a way that mothers carrying their children are at the center of the group. Next to them are the dominant adult males. Male baboons of low rank may

occupy positions at the very periphery of the troop, acting as "point-men" for the troop's advance, and giving alarm barks in situations of impending danger.

The orderly arrangement of roles no doubt serves a useful stabilizing function for group activities, and is eminently adaptive to the baboons' life style. Indeed, it would be impossible to imagine what baboon social and troop behavior would look like without some degree of organization. Within baboon society the social organization in terms of the dominance hierarchy is maintained by fight and threat behaviors between males. The dominant males are the ones who win most often. It follows from this that the dominant male will usually be mature, big, strong, agile, etc.,—whatever qualities go into making a winner in a fight.

The above description, given in some detail and with a number of behaviors that are peculiar to baboons, finds general expression in many species. One can, for example, identify a dominance hierarchy amongst humans. Although, for the human, status differences may not depend on brute physical strength, they can probably be shown to vary as a function of other indices of power, as for example monetary wealth in industrial societies. The trappings of affluence—designer clothes, exotic automobiles, exclusive restaurants, private schools, and what have you, serve at least two complementary functions. First, they are the symbols of power. The naked baboon always carries his status with him. He need only show his physical presence to remind his companions that he is the leader. (Perhaps this is no less so amongst human social groups that do not organize around differences in wealth. Adolescent urban street gangs may be structured so as to place a leadership premium on strength—probably coupled with intelligence). Secondly, the symbols of power elevate the *self*-esteem of their proprietors. The increase in one's own perceived value, in turn, may effect the naked behaviors of the human—posture, gait, facial expression, speech mannerisms, style of interaction with other people, etc., (Jolly [1966] reports, for instance, that amongst ringtailed lemurs in the forests of Madagascar, subordinate animals can be identified not only by the fact that they lag behind the moving group, but also by their posture which reflects their lack of confidence in themselves).

Thus for the human there are many types of signals that communicate status. These behaviors may be self-reinforcing as well as indirectly reinforcing by eliciting certain behaviors in others. Did you ever notice that when you try on a new sports jacket or suit or dress you almost automatically assume a more erect posture? The next time that you are in a clothing store pay attention to the male customer that is viewing himself and his new garments in the mirror. He throws his shoulders

back, puffs out his chest, and virtually struts before his reflection. Even without the mirror, he assumes an air of proud dignity—like some haughty bird. It is my guess that the new clothes associated with high-status elicit relatively stronger posture-of-status behavior than low-status clothes. Compare, if you will, the posture of a man trying on overalls to a man being fitted with a tuxedo. In the latter case, almost consciously, the purchaser is trying to visualize the effect of his new appearance on others. He parades in front of the mirror turning one shoulder then the other, and watches himself through the eyes of the future party goers. They take his measure, and he is found not wanting. He is high on the status pole—confirmed by the image reflected from their eyes.

Clothes, then, do make the man and the woman—but not entirely. What can evoke more patronizing pity or rude laughter than the sight of a man ill-suited for a tuxedo? A mismatch between manner and posture and dress appears to elicit our more base emotions. The conflicting signals emanating from behavior and from clothes force the recognition that there is an imposter amongst us. The person is either foolish, impertinent, or a calculating deceiver.

As mentioned earlier, the ethologists' popular theme of dominance and status also can be invoked in an analysis of international politics. The present situation in the Middle-East, in regard to the Israeli-Arab conflict, provides a case-in-point, particularly the peace initiatives which began with Egyptian President Sadat's surprise visit to Jerusalem in late 1977, and culminated in the American sponsored Camp David agreements between Egypt and Israel.

The first assumption in the ethological argument is that the three major parties in the negotiations can be ranked in terms of dominance. I think that most readers would accept at face-value that the dominance hierarchy would be in the order: United States, Israel, Egypt. Certainly if we adopted one of the standard tests of dominance, in which each member is paired with every other member in a fight, the order of winners would confirm these rankings.

Konrad Lorenz provided the "insight" for my understanding of the relationship between three such national powers. In writing about analogous moral behavior in social animals (1954), he provides a number of animal analogies for human moral behavior—including the demand that weaker individuals should be helped by stronger ones. He noted that amongst jackdaws, a common crow-like bird of Europe, when a fight breaks out within the colony between two birds of unequal rank, the highest ranking jackdaw immediately intervenes on the side of the bird with the lowest rank. As Lorenz points out, it is not necessary to presume that the high-status bird is acting out of a feeling of compassion. The apparent defense of the weak simply follows from the fact that, within such

hierarchies, there is always more aggression towards members who are closer in status. Therefore, what seems to be protective behavior is merely a by-product of the normal tendency of the strongest to attack the one most like himself in strength. Inevitably this means that the dominant animal aggresses against the one that is winning the fight to which he was a spectator.

The State of Israel was born on the blood of the holocaust in which six million Jews were murdered. In 1948 virtually the entire world conceded that a Jewish State should be established, albeit at the expense of the Arab competitors. Even the Russians supported the Jewish aspirations in the Mid-East. There can be little doubt that in those immediate post-concentration camp years, the Jewish people were perceived as long-suffering and defeated. As victims they elicited the moral and material support of the relatively uninvolved high status nations, especially the United States.

Once the State of Israel was established, it was both Israel's fortune and misfortune to decisively defeat its Arab adversaries in several short but hard-fought wars. In addition to 1948, there was the war in 1956 (fought *together* with the British and French against the Egyptians), the Six-Day war in 1967, and the Yom Kippur war in 1973. As Israel's image was transformed from vanquished to victor there was an increasing erosion of support from within the United States. Public opinion polls as well as American political activities reflected the fact that Israel's image had changed—from haunting skeletons with large hollow eyes peering dumbly between twisted strands of barbed wire, the crematorium walls still warm behind them, to proud soldiers harnessing their steel chariots ready to give battle. And, it is in the nature of things that winners beget losers, but twice-fold: There is first the enemy as a loser, and his losses make him strong as he is able to draw on the support of his more powerful neighbors—until one would presume he becomes more mighty than the original conqueror. This process would repeat itself in never ending cycles—the fruit of each victory carrying the seeds for its own eventual destruction—at least so it would seem for the Middle-East, where the fighting is between the two lower members of the dominance hierarchy, while the third, most powerful, looks on, refereeing like a jackdaw, always siding with the weak and only sometimes with the just.

But bird behavior does not exhaust the supply of interesting political animal analogies. Consider Kummer's (1968) observations of the hamadryas baboons of Ethiopia. As with a number of other anthropoid apes, this baboon uses a special gesture for indicating appeasement. To stave off an aggressive higher status animal, the baboon will crouch down on all fours and present his buttocks towards the face of the potentially hostile neighbor. This signal serves to confirm the dominant-submissive

relationship, thereby preventing a fight.

On occasion there arises a situation that is similar to the jackdaw triangle; two lower status animals fighting while a third, high-status baboon, watches. The dominant observer can be made to take sides in the fight by the simple artifice of having one of the combatants turn its hind-quarters in his direction. The ape of superior rank will then enter the fray in support of the appeaser. This technique for drawing support from a powerful bystander can be used by either member of the belligerent pair. It is, of course, particularly useful for the weakest member who cannot win without help from the outside.

Similar behaviors have been noted in other baboon species as well as in the rhesus monkey (Kummer & Kurt, 1965). In the Middle-East, Anwar Sadat's Jerusalem trip can be viewed as appeasement behavior aimed at Washington. And, indeed it seems to have been quite successful in drawing increased American support towards Egypt. When this is coupled with Egypt's repeated displays of homage to the United States, while Israel takes a position of almost defiant intransigence and continues to strut in front of the American electorate, the effects on American public opinion would seem to be quite predictable.

The lesson from the jackdaw and the baboon would appear to be that one way to preserve victory is to disguise it behind a cloak of humility. Unfortunately, that may not be Natural.

Lest the reader come to the wrong conclusion, I must repeat that these forages into clothes and politics, as it were, with the ethologists' net, were merely meant to show how easy it is to come up with analogies; and, in fact, how the human mind is driven to produce relationships amongst different events. We cannot help it. Sometimes it provides a useful insight which may be worth examining more critically; more frequently it generates the appearance of understanding a phenomenon and thus interferes with further, more careful investigations—but it is always fascinating. Nevertheless, such analogies should never be accepted as a substitute for explanation. The more broad the human behavior that the analogies are meant to explain, the more carefully they should be examined.

A few more examples will serve to alert the reader to the dangerously widespread use of analogies and metaphors as proofs of the animal basis of human behavior. The following quotes are all taken from a book by Hans Hass, a photographer and ethologist who has worked for many years in close association with the eminent biologist Irenaeus Eibl-Eibesfeldt. The book, *The Human Animal* (1970), was described in the New York Times as an attempt "to build a conceptual bridge from ethology to political science, economics and aesthetics".

Another instructive parallel is provided by the infantilisms which occur between

sexual partners. It is a widespread phenomenon among mammals and birds that the male activates the female's brood-tending instinct in order to approach her and break down her individual barrier. In practice, this means that the male goes through various behavior patterns peculiar to the young of the species, thereby eliciting suitably friendly reactions from the female and facilitating sexual advances. Females, in turn, activate the protective instinct of the male in order to reinforce bond formation. Analogous procedures can be observed in human couples. Here, too, there is a resort to words and gestures usually employed towards infants. Fondling the other party, soothing him or her with caresses, tending the skin, feeding, the bestowal of childish pet names—all these derive from the behavioral repertory of brood tending and represent, in man's case too, a roundabout way of overcoming a partner's inhibitions by means of entirely different instinctive action. (p. 75)

If a pair of cichlids (fish) are isolated in an aquarium from other members of their species, the male's aggressive urge turns against the female because there are no other males to attack. This may even result in the male's killing the female. If another male is placed in the aquarium, even behind a sheet of glass, the male will violently attack its fellow male and turn into an amicable mate. Cichlids are certainly not to be compared with human beings, but the functional relationship cannot be ignored.

If human beings living at close quarters—whether in the marital home, a military camp, or elsewhere—cannot work off their aggression on something outside, they will turn on their partners or companions. (p. 76)

One gesture undoubtedly influenced by heredity is the bowing of the head as a token of submission. Analogous movements are to be found in many animal appeasement gestures, by means of which an inferior activates the appropriate inhibition in its superior. Either the most vulnerable part of the body is presented—the vanquished wolf exposes its unprotected throat to the victor—or the animal performs the contrary of a threat movement by lying flat on the ground in front of its superior rival. In man there is a combination of both elements: the antithesis of the impressive stance, and the presentation of a particularly vulnerable spot—the unprotected back of the head. Self-observation discloses that this still activates a corresponding inhibition in us today, if only a vague one. Looking as tall as possible and expanding the chest is universally employed by human beings as a means of intimidating an adversary, as witness the behavior of small boys. So long as man's ancestry remained obscure, it was possible to regard this as an unimportant similarity, but it is really a signalling movement with an analogous basis. The same applies to the opposite behavior, our appeasement posture. This too developed in the course of time—through the conventional ritualization—into the bow of greeting, which was eventually indicated by no more than a slight nod of the head. (pp. 146-147)

This last example conveniently illuminates the major problems of this approach—arbitrary selection of evidence. Only a few pages ago I presented evidence from baboon studies which show that their gesture of appeasement and greeting was to face their buttocks towards the neighboring baboon. Is the baboon's backside an analogously vulnerable structure to the human's head? I fear that some of the ethologists' arguments might indeed suggest at least a functional similarity between the two. Or consider, if you will, the consequences to the body-politic, if we were to draw, analogously, conclusions from Von Holst's observation that the wrasse, a fish that lives in large groups, will school after a specimen that has had its forebrain surgically removed!

Ethologists are particularly outspoken on the subject of human ethics. They are irritatingly presumptuous about their rights to the stewardship

of human value systems. Lorenz, for example, often has written about the social instincts, instinctual aggression, and the deviation of our moral sense from innate reactions. Wolfgang Wickler, a well known German ethologist, summarizes the attitudes of many contemporary ethologists:

...criticism of social norms...is a job that specifically belongs to the ethologist. His long term goal...is to test ethical norms against natural laws...If, however, we are to justify any such higher aim, we must make use of arguments at the level of the laws of nature which show clearly why it is *possible and permissible* (my italics) for man to leave this purely natural sphere.

If these arguments are not forthcoming, the ethical direction may still be correct, but—strictly speaking—it should not be followed. (Wickler, 1972, pp. 21-22)

The fact of the matter is that nature abounds with a diversity of animal behaviors. Zoologists, psychologists, and ethologists who want to play the roles of social philosophers and guardians of human ethics must become more sensitive to the complexities and pitfalls of reasoning by analogy, to the perceptual biases that are introduced by cultural norms and then confirmed by selective pickings in the animal behavior literature. One need only be reminded of the manner in which Darwin's theory of evolution based on variation and natural selection gave rise to a corrupt doctrine of survival of the fittest; this doctrine was employed for selfish ends by the robber-barons of capitalism to justify free-enterprise, and by the demonic Nazi butchers to rationalize the slaughter of Jews. Many people accepted these twisted political acts as normal because they supposedly were confirmed by the authority of biology and science.

Fortunately, however, there are also more careful and critical scientists working in the area of animal behavior. Perhaps they will serve to balance and correct the more extravagant assertions from the pompous pulpit of ethology. Colin Beer (1974) argues that we should not only stick to homologies, but that even this concept is vague, and can be used with some confidence only at the lowest taxonomic levels, i.e., with closely related organisms.

As one moves to comparisons at higher taxonomic levels the concept becomes progressively restricted in its applicability, and in comparison between phyla it is of virtually no use at all.

This point has implications for the attempt to arrive at ideas about the evolution of human behavior on the basis of comparison with other species, particularly of those species as far away from man as insects, fish, or birds. Konrad Lorenz has made some of the most sophisticated analyses of evolution of behavior at micro-evolutionary levels. He has also based ideas about human development, human motivation, and the evolution of human behavior on studies of geese, fish, and so forth, employing essentially the same type of argument as in the micro-evolutionary studies, but employing them in a context where the comparative concepts cannot be applied (Lorenz, 1966). Instead of argument by homology we end up with argument by vague analogy. The farther one goes from micro-evolutionary levels in attempting to arrive at ideas about the evolutionary history of behavior the more uncertain grounds for evolutionary speculation become, and the more warily one must proceed, because the guidance of the ancient comparative concepts is no longer available. (p. 181)

A final cautionary note is provided by Daniel Lehrman (1974), the well known experimental psychologist and student of animal behavior, who died just a few years ago. With typical insight and good humour he provided but one other example—human sex roles—whereby the selective use of animal literature and analogy might well lead us astray:

To assume that animal work really can demonstrate the biologically appropriate differences between men and women is hazardous. It is, at best, naive to think that the fact that a father monkey spends his time protecting the troop while the mother takes care of the baby suggests that it is somehow inappropriate for a man to take time off from programming computers...to make possible a widening of roles for the female of his species in a way which is technologically feasible. The human male's involvement in organizing universities, building industries, and making submarines is an enormously unbiological distortion of the original and immediately perceptible relationship between the food-getting activity and getting food. When men who do these things imply that God really intended women to stay home and take care of the babies, they remind me of the little old lady in the New Yorker cartoon who is offered a drink by an airline stewardess, and who says, "No thank you, I do not believe that God intended us to drink while flying". (p. 196)

In summary, to be *concerned* with morals and values is indeed a peculiarly human activity, and this essay has freely shown how certain behaviors exhibited by sub-human species may not be related to apparently similar overt patterns in homosapiens—for example, aggression or altruism. But the ability to create an interesting story about the adaptive significance of two overtly similar behaviors found in two or more dissimilar species tells us more about another unique human feature—the need to provide explanations—than it does about the phylogenetic or evolutionary development of the behavior in question.

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