Commentary on "Subhuman and Human Fighting"

BY J.P. SCOTT

I welcome the opportunity to comment upon the paper by Dr. Suttles because it gives me the chance to presents some ideas which I deliberately omitted from my book on AGGRESSION (Scott, 1957). In that work I attempted to take the current information on fighting in animals and show how it was related to human behavior. Most of the animal work is concerned with fighting between individuals and, to a minor extent, combined fighting by small groups. I therefore made the causes of individual fighting the central theme of this book. In that connection, I pointed out that warfare can be considered not only the result of fighting behavior but also its cause, and dealt chiefly with warfare as a *cause* of human aggression. Nevertheless, there are certain aspects of animal behavior which have relevance to the causes of war itself, and I shall try to present some of them here.

Dr. Suttles has presented a summary of work on the fighting behavior of animals as studied by Tinbergen and other ethologists, and has particularly emphasized the possible adaptive aspects of fighting and warfare. He has done an excellent job of presenting this viewpoint. Apart from a few critical notes I shall chiefly refer to those aspects of the problem which he has deliberately omitted. One of the most obvious omissions is the large body of literature on animal sociology represented in the work of the late W.C. Allee (1951).

In his original paper, Dr. Suttles drew an interesting parallel between animal and human societies. In the former, the basic rules of behavior, and consequently the nature of social organization, are laid down chiefly by heredity, while in the latter the same effect is produced by verbal laws and customs. This means that the student of animal societies has a great many

of the same problems that confront the cultural anthropologist attempting to study a human society. He uses many of the same observational methods and is likely to develop similar concepts of behavioral organization, such as those of social relationships. More contact and collaboration between the two disciplines ought to be highly fruitful.

At the same time let us not forget that human social organization has a biological basis, even though it has been raised to a new level through the capacity for verbal communication. Conversely, we should remember that an animal society is affected by learning as well as heredity and often shows evidence of cultural inheritance, at least in a rudimentary form. In short, human and subhuman animal societies are continuous in most characteristics, just as the characteristics of human anatomy are continuous with those of related vertebrates.

One of the chief advantages in studying human behavior in relation to the behavior of other animals is that it gives a sense of perspective. Fighting behavior is part of a group of behavior patterns which we may call *agonistic*. It includes both aggressive and defensive fighting and also escape behavior and passivity. It can be defined as a system of adaptive patterns of behavior relating to conflict between individuals, and particularly conflict involving physical injury. Escape behavior is very primitive, occurring even in Protozoa, but actual fighting is seen only in the higher phyla of animals and particularly in arthropods and vertebrates.

War itself is primarily a phenomenon of human behavior. As Dr. Suttles says, it is doubtful if true warfare exists in any other species. Warfare certainly includes all the aspects of agonistic behavior defined in the paragraph above. The difference is that war is the fighting of one group against another and usually one society or culture against another. The skeptic may reasonably inquire why we should be interested in the agonistic behavior of lower animals.

The answer is that evolutionary theory justifies our looking for the biological basis of warfare among the lower animals. It is logical to look for these beginnings of war among man's closest biological relatives, the primates, and, on a broader basis, among

other mammals. Actually, we need look no further than the tendency of male baboons to combine against the predators living in their normal habitat on the South Africa plains. The basic capacity for group fighting *does* exist in primates, although one group is seldom, if ever, pitted against a group from the same species.

In order to obtain a somewhat broader perspective, we can also examine the results of recent research among other mammals. Anyone who starts to work with mammals is at once impressed by profound defferences in their behavior as compared to that of birds and fish. Complicated stereotyped patterns of behavior are extremely rare. Instead, the typical mammal has a few simple primary behavioral reactions which can be recombined, and highly modified by training and experience. This applies equally well to wild and domestic species. Their behavior is adaptive, but a large part of it is adaptive on a psychological level rather than a genetic one. Now let us look at some of the results of recent studies of mammalian behavior in addition to those mentioned by Dr. Suttles. King (1955) studied one of the most highly social of rodents, the prairie dog, and found that its social system involves a highly developed territoriality, and that agonistic behavior is related to this. Prairie dogs will threaten each other at the territorial boundaries, but there is almost never any serious fighting and injury of the participants. When a brood of young is raised, the older animals migrate to the outskirts of the colony and develop a new burrow system, leaving the old one for the less experienced young animals. The agonistic behavior of prairie dogs is highly adaptive, but adapted for the survival of the population rather than the individual.

Let me also point out that territoriality is not only a cause of fighting, but a means of control of fighting. The young prairie dog quickly learns to avoid fighting by avoiding boundary lines.

Another type of control of agonistic behavior is the dominance-subordination relationship (the peck-order of birds), which has been observed in both laboratory and wild populations. Its successful operation is based on mutual recognition, which must be difficult for nocturnal animals.

Nor can nocturnal rodents maintain true territorial boundaries, since they cannot observe when strangers cross them. Terman (1959), in a field study of deermice, found that when these animals meet a stranger there is usually no fighting or even a "dominance-subordination" relationship, but rather a relationship of mutual avoidance, even if the stranger is occupying an animal's home nest. This contrasts greatly with the behavior of deermice in small cages, where they fight fiercely and sometimes kill each other.

One might expect to find the equivalent of warfare in ungulate mammals such as deer, sheep, and goats, since their behavior is so highly allelomimetic and hence coordinated, and since so much agonistic behavior does go on in the rutting season. However, the combats among these animals, whether wild or domestic, are always between pairs. The hoofed animals never "gang up" in order to attack either individuals or groups. We might therefore suppose that if a species of ungulate had developed the power of language it might never have developed group warfare, at least as an enjoyable occupation. In spite of the prolonged nature of these conflicts, they rarely result in severe injury or death under natural conditions. Observers have sometimes labelled these combats "jousting."

On the other hand, certain carnivores such as wolves and dogs definitely show a tendency to cooperate in their agonistic behavior. This applies to hunting, to resisting larger predators such as bears, and to driving off strange individuals of their own species. Nevertheless, Murrie (1944) finds that the behavior of a well-organized wolf pack under natural conditions is highly cooperative and peaceable within the group.

In both the herd animals and carnivores we can find examples of what Tinbergen has called "reproduction fighting," where males fight over the possession of females. When Carpenter (1934) first reported his observations on howling monkeys, these seemed to be very atypical primates because of the absence of sexual jealousy and the lack of fighting over females. Several recent field studies of primates (Imanishi, 1960) indicate that the situation seen in the societies of howling monkeys is typical of a wide variety of primates under natural conditions,

including such anthropoids as gorillas, and old world monkeys. The typical primate group consists of several adult males and females with immature offspring. The males are organized into a dominance order, keep their distance from each other, and consequently never get into serious fights. Females in estrus may consort first with the most dominant male, but move freely from male to male without exciting fighting. Females with young are often found in the vicinity of the most dominant male, not because held there, but because this is the place of maximum safety in the group. Since the subordinate males keep their distance, they are found near the edge of the group and are the first to meet the threat of predators. All males will combine to attack a predator, particularly if a young animal is involved.

While such a group may be considered a "family" in a broad sense, it is not composed of nuclear families in which males, females, and young are permanently associated. This suggests the possibility that the human nuclear family may be a human biological or cultural invention. It also suggests that human beings may have derived their ideas concerning the way males fight over females from observing their domestic animals: cattle, sheep, and dogs. Our ancestors might have come to different conclusions if they had domesticated other primates. Fighting over females is much less obvious in primates, and such fighting seems to break out chiefly in cases of social disorganization

One of the most striking examples of the high degree of control of fighting among well-organized animal societies is that of the baboon. Most of us obtained our ideas about baboon behavior from Zuckermann's (1932) account of a colony in the London Zoo in which males continuously fought with each other over a period of years and literally tore their mates to pieces. In contrast to this, Washburn (1958) finds that the baboon societies in South Africa have a well-developed dominance order, so that the adult males keep their distance from each other and almost never fight. An inexperienced young male may come too close, be chased and threatened, but never actually injured. There is no fighting over females, which move freely from male to male. The cry of an infant will rally the males as a group to attack a predator.

We now realize that the zoo colony studied by Zuckermann was highly disorganized, being made up of strange individuals crowded together in an extremely small area and frequently upset by the artificial addition of new strangers. We can conclude that serious fighting among animal populations is a result of social disorganization, and that in a normal mammalian society agonistic behavior is highly controlled (Scott, 1960).

This means that the so-called law of fang and claw, largely attributable to romantic 19th Century naturalists and literary artists who had never observed natural populations, is largely a figment of the imagination. Many animals have the capacity for destructive behavior, particularly under conditions of confinement and social disorganization, but this behavior is unnatural rather than natural. It follows that destructive fighting in human beings is not a necessary result of biological ancestry and, indeed, it may only be the result of social disorganization. If so, we can no longer excuse fighting on the basis of man's biological nature, sinful or otherwise.

This means, among other things, that we should be extremely cautious in applying the idea of adaptation to the phenomenon of war. Adaptation is a somewhat teleological concept at the best, and it is easy to reason that, because behavior is usually adaptive, any behavior must be adaptive. We can argue that because war exists it must be useful. This is a dangerous line of thought, as it can easily lead to finding excuses and justification for war, just as the 19th Century social Darwinists found similar excuses for sharp business practices in the doctrine of natural selection.

On the other hand, there is a great deal to be said for studying the natural history of human societies, particularly if we study them purely objectively and do not see only that which we wish to see. We immediately notice that, while social disorganization often seems to be associated with fighting and violence, the human society which is most successful in war is the one which is actually the best organized. This conclusion goes back as far as history. In short, a human society may be organized for the purpose of conducting war, and this type of organization is itself a cause of war.

To take another example, one way of analyzing human societies is to classifiy them according to the sources of their enegy and relate this to the occurrence of war. There seems to have been very little warfare of any kind among food gathering societies or even among primitive hunters. War became a major occupation and serious problem when people developed domesticated animals and plants, began living in towns and cities, and in general achieved wealth which could be stolen. This is an example of the use of the idea of adaptation in warfare. There are, of course, all sorts of other ways in which wars can be profitable under certain kinds of conditions; that is, profitable for one human society at the expense of another. This is adaptive, in a sense, but adaptive at a relatively low level of organization and at an even lower level of ethics. On the level of organization between human societies, it is maladaptive and destructive.

The possibility of gain through warfare will always exist among human societies, just as the same possibility for profit through fighting always exists between individuals. The difference is, that while animal societies have developed means for the control of individual aggressions through evolution guided by natural selection, the human society is a new evolutionary invention which has not yet evolved stable methods of control between societies.

We must also remember that the evolution of human societies has to a large extent escaped its original biological basis. Language and knowledge are inherited through culture rather than biological mechanisms, which now have become limiting factors for change rather than the primary mechanisms of change.

These reflections on human social organization go far beyond anything which can be learned directly from animal societies, except what one might express as an article of faith: that any sort of evolution, whether of individuals, societies, or groups of societies, will in the long run tend toward a peaceable and well organized existence. Our principal direct conclusion from the animal studies is that we as people can and do apply the same basic biological and psychological methods for the control of destructive fighting as those found within animal

societies — territoriality, dominance, inhibitory training, and primary socialization — to the problem of fighting between individuals and small groups within a human society.

A more general conclusion is that fighting on any level of organization has multiple causes and responds to multiple methods of social control. In practical terms, this means that there is no one simple solution to the problem of war. We have good evidence to support William James' hypothesis that one of the causes of war is the biological capacity for group fighting found in many primates. It seemed to him that a major cause of war was the fact that men enjoyed it, particularly as he observed the easy conquests of primitive peoples by European nations in the 19th Century. We now realize that "war for fun" is only one of many other causes.

Of these multiple factors I have emphasized two in this paper. One is social disorganization, which frequently precedes destructive fighting, and the other is the society organized for war. This is the paradox of the relationship between social organization and war. Disorganization can lead to destructive violence, but organization for the purpose of destruction can produce the same effect. To be consistent, let me add that these are not the only causes of war. Indeed, these factors themselves are not really unitary. There can be many different sorts of social disorganization, and many kinds of social organization can be directed toward violence. These are broad and general concepts which need to be explored in greater detail. As a beginning, they lead to the conclusion that, against the broad perspective of animal sociology, warfare and destructive violence are not necessities but abnormalities.

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