

Chapter 34

The Use and Misuse of Aggression Research

David B. Adams

Department of Psychology, Wesleyan University, Middletown, CT 06457

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INTRODUCTION

This chapter has grown out of a particular event, the first symposium of the International Society for Research on Aggression concerning the ethical issues of aggression research. Having served as one of the organizers of that symposium, I was asked to prepare this chapter as a result. The symposium, held at the biennial meeting of the Society in July, 1980, in Haren, The Netherlands, produced considerable discussion of the use and misuse of aggression research, and helped me to formulate the ideas expressed here. Plans are underway to publish the proceedings in detail at a later date.

The concern of the Aggression Society with ethical issues is embedded within a broader historical trend in which scientists and other professionals in many fields are becoming increasingly aware of the significance of these issues in the conduct of their work, in the application of their discoveries, and in the pressures brought to bear upon them from other social institutions. The American Association for the Advancement of Science recently found that 57 of 178 professional and scientific societies that responded to their survey have established committees responsible for matters relating to professional ethics. As a background to this trend, the report suggested that: "the 1970s have witnessed a wave of increasing public concern about the development and use of scientific and technical knowledge." And it concluded with the following advice: "the 1980s will be a period of even further scrutiny of the professions, and it is time for the societies to become active participants in weaving the threads of science and technology

into the fabric of our lives, in a way that enhances the very essence and dignity of our shared humanity" (Chalk, 1980).

The core of this chapter deals with the topics implied by its title which was suggested by the editors: the use and misuse of aggression research. In order to analyze the use of the research, I will consider two types of rationale: those of funding agencies and those of individual scientists. To analyze the misuse of aggression research, I will consider a number of criticisms that have been aimed at aggression research and its interpretation which have come from a variety of viewpoints. In the course of the analysis, however, it becomes necessary to consider issues surrounding the definition of aggression; therefore, the first section will address this question.

Finally, I will not claim to be an "objective" observer, but I will speak from my own experience and I will suggest certain courses of action for our scientific societies. My own experience is that of a North American, and thus a large portion of the examples and information will be drawn from the United States. In the final section, I will propose that our scientific societies should engage in more extensive and intensive discussions of the ethical and political implications of our research, and that we should consider the advisability of taking some collective actions regarding the use of our research. In defense of this subjectivity, I argue that whether we like it or not, our research will be used and mis-used, and that our ignorance or silence can have consequences as much as our actions.

THE DEFINITION OF AGGRESSION

What is aggression? Webster's unabridged dictionary defines it as a "culpable unprovoked overt hostile attack.". But, as with any such definition, we are left with the problems raised by its actual use in various social contexts. These problems, it turns out, are more than semantic. In the context of ideological differences they become substantial problems.

Three types of aggression were distinguished in a presentation by the Soviet social scientist N .A. Kovalsky in his presentation to a UNESCO conference called "Understanding aggression" (Kovalsky, 1971). He distinguished: "(a) individual aggression; (b) aggression within the context of a national or State community; and (c) aggression as an instrument of foreign policy.". He then drew the conclusion that only the last type ought to be given the title of aggression. Acts of individual aggression, he concluded, can often be regarded as "protection or defense.". Regarding the second category, he stated that: "far from being a manifestation of aggressiveness on the part of workers, young people, Negroes and others, strikes, anti-racist and youth action, and the like, are protection against the perceived injustices of the corresponding social system.".

The issue raised by Kovalsky involves, among other things, the distinction between legitimized aggression and aggression condemned by a society. Aggression can only be evaluated within a social context and within an explicit or implicit ideology or framework of values. As Scheibe (1974) has pointed out, there is considerable difference between the shooting of a bank robber by a bank guard and the shooting of a bank guard by a bank robber, According to the dominant institutions of the society such as the courts or the mass media, the latter may be considered as an act of aggression, while the former

is simply performance in the line of duty. To a revolutionary organization, however, the values might in some cases be reversed.

Another related issue is the distinction between animal and human aggression. In some cases they may not even be analogous, let alone homologous. For example, the offense and defense behaviours that can be identified in animal behaviour are not necessarily involved in certain types of human violence that occur in crimes, revolution and warfare (Adams, 1979). This issue becomes important when there is an ideological position implicit in attempts by some authors to extrapolate from animal to human behaviour; such extrapolations may take the form of inferring that violence in human culture cannot be solved because it is "caused" by inborn biological factors.

Disagreements about the definition of aggression can, on some occasions, not only reflect real historical phenomena, but also they can actually influence the course of historical events. Thus, the founding member of the International Society for Research on Aggression from the Soviet Union, Professor O.K. Tikhomirov, withdrew from his position as a councillor of the Society in part because of a "very negative reaction to the name of the society ("aggression")" (John Paul Scott, personal communication). Since that time, there has been minimal Soviet participation in the Society.

For purposes of the present chapter, I will take the broadest possible definition of aggression. In so doing, however, I wish to leave open the questions raised by many Western scientists as well as those from the Soviet Union, that such a broad definition may, in some cases, be used in the service of particular ideological purposes with which we may wish to disagree.

THE USE OF AGGRESSION RESEARCH: SOURCES OF FUNDING

One way to analyze the uses of aggression research is to examine the rationales stated by the various agencies that provide its funds. There are at least four types of funding agencies, each with different perspectives on the importance and potential use of aggression research: state and federal research agencies; universities; private industry (especially the pharmaceutical industry), and private foundations.

State and federal funding of aggression research is based upon at least four different rationales. Firstly, it may be assumed that aggression research can help to solve problems of social violence and conflict. Secondly, the research may be considered as useful for the development of treatment for mental illness. Thirdly, it may be pursued for its potential military uses. And fourthly, it may be pursued as a basic science, for its intrinsic value and for its potential to contribute in an unforeseen way to the development of various applied sciences.

Can aggression research help to solve problems of violence and conflict in society? The government has taken this question seriously in response to the many violent events that occurred in the United States in the late 1960s, several federal commissions were established which turned for answers to aggression research. One was established following the assassinations of Robert Kennedy and Martin Luther King, Jr. in 1968: the National Commission on the Causes and Prevention of Violence. Another was established in 1969 in response to Congressional demands for an investigation of the effects of television violence upon social, and especially children's, violence. This became the Surgeon General's Scientific Advisory Committee on Television and Social

Behavior. A detailed history of the events surrounding the latter committee (Cater and Strickland, 1975) will be considered in some detail in the present paper. In addition to assassinations and television violence, these commissions were reactions to concerns about nuclear war, the war in Vietnam, wars of national liberation, urban riots and rising rates of violent crime.

Aggression researchers themselves have often stated or implied that their work could be applied to problems of conflict in society. There are many examples, and only a few can be given here to illustrate the point. From its earliest days the International Society for Research on Aggression has given an award, sponsored by Dr. Saul Rosenzweig, for research on "constructive alternatives to destructive aggression.", Kenneth Moyer, as the opening piece in his collection of essays entitled *The Physiology of Hostility* (1971), included one entitled "Brain Research Must Contribute to World Peace.". In his introduction to the book of essays resulting from a conference on aggression control, John Knutson (1973) pointed out that: "aggression is a timely topic of concern. The news media are continuous sources of information on aggressive and violent behaviors, committed within any number of different contexts: multiple murder, urban riot, military atrocities, assault, and other individual and collective aggressive behaviors.". In these and similar statements by aggression researchers about the relevance of their work to social issues, there is often confusion between animal and human models of aggression and between legitimized and socially condemned violence. As noted earlier, in some cases the confusion may reflect conscious value judgments of the writer. In other cases, however, it may reflect a failure to examine value judgments, and it may lead to misconceptions regarding the applicability of aggression research to social problems.

Government support of aggression research also reflects the conviction that it can contribute to general problems of mental health and disease. Although the first act of the American Congress setting forth large-scale funding for health research was the Cancer Act of 1937, the second was the National Mental Health Act of 1946 (Strickland, 1972, p. 45). By the 1970s the National Institute of Mental Health had become one of the largest funding sources of specific research in the world, and the largest single source of funds for research related to aggressive behaviour. This reflects the fact that in the clinical setting the issues surrounding aggression and the repression of aggressive impulses continue to be considered crucial by therapists. Although much of the funding of mental health research on aggression is directed towards animal studies, often there is not enough consideration of the difficulty of extrapolating from animal to human aggression.

It is often assumed that aggression research may have military implications. Over one-third of American government funding for psychological research in 1974 was from military sources, primarily the Department of Defense, but also to a lesser extent from the National Aeronautics and Space Administration (Kiesler, 1977). Beyond this, there is some secret military funding of research, although its extent is unknown. The budget of the Central Intelligence Agency is not reported as such in the federal budget, but in the last few years it has begun to reach the attention of the public that this agency has been involved in programmes that evaluated effects of psychoactive drugs on unwitting citizens. The belief in military application of aggression research reaches to the top of the present (at the time of writing) American government. The then chief of the National Security Council, Brzezinski, has written that within the next few decades technology

will: "very probably develop" for the military "to exploit for strategic-political purposes the fruits of research on the brain and on human behavior.". He gives as an example that some sort of electronic shock could be used "to seriously impair the brain performance of very large populations in selected regions over an extended period."(Brzezinski, 1970, p. 57).

A less direct implication that aggression research is funded because of its potential military use comes from its funding as a basic science by the U.S. National Science Foundation. This federal agency is the historical successor to the National Defense Research Committee which was instituted during World War II and which was concerned, among other things, with development of the atomic bomb. The military, and to some extent, the American Congress, has been persuaded to fund basic research by arguments that it is critical for military preparedness; e.g. those of James Conant (1951) who was Chairman of the wartime National Defense Research Committee; and those of the National Academy of Sciences (1965, p. 23), which has traditionally taken a "hard line" on these issues.

It is hard to know how much aggression researchers believe that their work is relevant to military application. At the close of a paper funded by the U.S. Army, Valzelli (1976) remarks that: "two main tasks now seem to assume particular importance, to have at our disposition a drug able to completely abolish aggressive behavior and a drug able to prevent its development." Certainly this has military implications. There has not been much public discussion on this topic, however, perhaps in part because scientists are afraid that such discussion might paradoxically make the military uses of their research more apparent by calling attention to them. If so, we are caught in a bind. If we avoid discussions of the military use of our work, then we also avoid the assumption of moral responsibility for them. One could argue that discussion is needed to deal with the moral issues, and that if discoveries are made that have military implications, they would be made eventually in any case, whether or not their potential is publicly discussed in the meantime.

Although government funding of basic science is often justified on military grounds, it also may be justified on the basis of belief in the intrinsic value of basic scientific research. This argument is presented by the scientific lobby, especially the American Association for the Advancement of Science, before Congressional committees

Another major source of funding for aggression research is directly or indirectly provided by university support of faculty and student research. As such, it comes within the general realm of basic science, social science and humanities scholarships, which are funded largely out of a belief in the intrinsic value of these pursuits.. To some extent, however, universities justify their support of basic science research on the grounds that it generates grants from outside sources such as federal and private foundation agencies, and that the universities will benefit from the overhead payments associated with the grants.

The pharmaceutical industry has sponsored considerable research on aggressive behaviour. Animal models of aggression such as shock-induced fighting and isolation-induced fighting of rats have been used as behavioural measures in the screening of new psycho-active compounds. To some extent the pharmaceutical industry may wish to develop or market drugs with specific effects on aggression (see quote from Valzelli

above), but to an even greater extent they seem to regard aggressive behaviour as a convenient biological assay.

Finally, there is support for aggression research from private foundations. Two may be noted here. The Peace Research Institute of Sweden was founded specifically to research questions related to war and peace, among them research on aggressive behaviour. The Harry Frank Guggenheim Foundation in the early 1960s turned its considerable resources (now close to a million dollars a year) to research on: "the trait of dominance, tentatively defined as the drive of any person in human society to control, direct, coerce, or manipulate another or others for ends desired by the dominator," (Report of the Foundation, 1974). The implied use of aggression research, in the case of these foundations, is similar to that of the federal commissions on violence, that aggression research can help to solve problems of contemporary society such as war, revolution, riots and crime. Despite this emphasis upon human social aggression, however, the Guggenheim foundation devotes at least a third of its funding to work with animal models of aggression and does not devote attention to the problems that arise when the distinctions between animal and human models of "aggression" are blurred and confounded.

THE USE OF AGGRESSION RESEARCH: THE SCIENTISTS' OWN VALUES

Another way to analyze the uses of aggression research is to examine the rationales of the scientists themselves. To some extent scientists may provide rationales that meet the expectations of funding agencies. But, scientists are not simply passive agents of funding agencies or instruments of a research industry. Scientists choose to do one kind of project rather than another. They work up proposals for funding and submit them to one agency or another as a result of their own personal goals and plans. And these goals and plans reflect a complex interaction of their education and training, the values that they have assumed from their religious and political involvement, the way they have been influenced by their friends or the mass media, and the traditions within science itself.

The use of aggression research by the individual scientist may have a component that is uniquely involved with his or her own personal situation. It may reflect a problem-solving activity directed towards a social issue that has affected the researcher, or towards a problem that has arisen in the personal life of the researcher. Since aggression is involved in social and inter-personal conflicts, it seems likely that aggression research may often reflect these motives in the researcher.

It would be interesting to know more about the personal values and how they play a role in the research decisions of scientists engaged in aggression research. Personal values may take on special importance if they do not coincide with those of funding agencies, or if they are vulnerable to the criticisms that are aimed at the misuse of this research. These considerations lead to a proposal, to be discussed below, that scientific societies and their members undertake more systematic discussion of the ethical implications of their research.

THE MISUSE OF AGGRESSION RESEARCH: SOME CRITIQUES

Although aggression research as a whole is not usually attacked, certain aspects of its conduct and interpretation have come under heavy criticism from a number of viewpoints. Civil rights organizations have been concerned about the mistreatment of human subjects, animal welfare organizations have criticized cruelty to animals, Congressional critics have attacked what they consider to be "wasted money for research", and political organizations on both the Right and the Left have charged that aggression research is often interpreted in such a way as to serve as political propaganda.

In recent years there has been increasing concern by civil rights organizations that human subjects may be mistreated or deprived of their rights in the course of scientific research. Tabitha Powledge of the Hastings Institute of Society, Ethics and the Life Sciences, has documented three particular instances where public concern has led to the cancellation of particular projects: a Center for the Study and Reduction of Violence at the University of California; a screening programme for XYY chromosomes at a Boston hospital; and a programme for behaviour modification in American federal prisons. The first of these was the subject of a published report (Hastings Center, 1979). Following charges that the proposed Violence Center at the University of California might do aggression research on prisoners, and rumours that the research might involve brain surgery and even the use of a military base that was "remote" and "securely fenced", there was an outcry from civil rights groups that led ultimately to the cancellation of the project. These events will be discussed in a forthcoming book (Powledge, in press).

The increased public pressure for protection of human subjects has led to the development of guidelines for informed consent, and the work of a Presidential Commission for the Protection of Human Subjects. There has been a complex interplay of scientists, legal experts and government regulation which deserves more attention than it can receive here. The interested reader may find further discussion in recent papers by Eichelman (1976, in press).

There have been an increasing number of attacks upon animal research on the grounds that it may involve unnecessary cruelty to animal subjects. These attacks can have a strong "chilling" effect upon research, extending beyond the immediate consequences of the cases where they have actually stopped ongoing research. Several such cases have occurred. The British researcher Robert Prescott was halted from research on aggressive behaviour on cats because he had allowed a doctoral student to obtain birds from pet stores to be used as targets of attack and did not have the proper license to do so (The Times of London, March 25, 1978). In New York City, following months of picketing at the American Museum of Natural History to protest research conducted on the sensory systems used by cats during social behaviour, the status of the entire Department of Animal Behavior is in jeopardy. This is of particularly great symbolic importance since the department was the original home of animal behaviour research in the United States.

Among the Congressional attacks upon aggression research, one has come to international prominence because of the scientists' decision to fight back. Senator Proxmire of Wisconsin attacked the research of Ron Hutchinson, a member of the International Society for Research on Aggression, as "worthless" and a waste of taxpayer's money. In response to the attack, which was made in the Congress where

remarks are usually free from libel suits, Hutchinson sought and won a landmark court decision that enables him to sue the Senator for defamation (Schaar, 1979).

In all of the attacks upon aggression research mentioned so far, there are echoes of a more general public attitude that many have characterized as "anti-scientific". This particular question was specifically addressed by Bertram Brown, head of the National Institute of Mental Health, in an address to the American Psychiatric Association in 1976:

". . .the field of mental health has suffered in common with the other Research areas from the anti-intellectual forces that chronically attack the entire research community as remote from the day-to-day needs of real people in their functioning environment.

The growth of anti-science. The golden era of the scientist appears, at least temporarily, ended. The physical sciences have been under attack since the time of Hiroshima; the biological and life sciences are now being called to ethical account in matters of genetics and other life-manipulating matters. The psychiatric and psychological sciences are viewed by many as the most threatening and frightening of all, dealing with mind control, behavior modification, lobotomies, psychiatric drugs - all ways to manipulate others." (Brown, 1976).

Although most of the political attacks upon aggression research have come from the liberal or Left perspectives, there have also been some attacks from the Right: In one celebrated case, the American Legion and a local newspaper accused researchers of undermining existing social institutions and contributing to social unrest, revolution and "communism". The research concerned the relationship between television violence and ratings of aggressiveness among schoolchildren in a small town in New York State (Eron and Walder, 1961; Cater and Strickland, 1975);

Criticism from the Left is aimed at those who use aggression research to argue that aggression is an unavoidable biologically determined behaviour and that therefore the political status quo is inevitable. In particular, these criticisms charge that popular writers have tried to use the results of research to justify the existing class structure of society and imperialistic relations between societies. The controversy has centered on the publicity given to the writings of Lorenz, Ardrey and Wilson.

There are two major sources of criticism from the Left. One is from New Left groups, such as the American organization, Science for the People, who have undertaken a campaign against the widespread publicity given to the writings of Wilson and his followers in sociobiology. Some of their criticisms have been published in a volume entitled *Biology as a Social Weapon* (Ann Arbor Science for the People Editorial Collective, 1977). A second source of criticism comes from critics in socialist countries. One particularly extensive critique given a large printing in the Soviet Union has been the book *The Sociology of Violence* (Denisov, 1975).

Since the Denisov book has not been translated and is not generally available, I will outline here its major conclusions. After considering the various popularized accounts of Delgado, Ardrey, etc., Denisov enumerates the following characteristics that he considers to be distortions in Western theories of violence:

(1) an abstract, classless, and ahistorical approach to the many types of violence in society;

(2) an analysis of violent actions that ignores the role of class struggle and emphasizes, instead, the subjective, chance and abstract characteristics of violence;

(3) representation of violence as a necessary instrument of state power to maintain social order, and a claim that this order is in the interests of all strata of the society;

(4) over-emphasis upon the significance and role of violence in historical processes;

(5) portrayal of the escalation of violence in today's world as an "unavoidable cost" of industrialization, rather than as a procedure of imperialism; and

(6) an attempt to prove the eternal and natural character of social violence by attributing it to an inborn quality of human nature.

Denisov is referring to Western aggression research and its popularization in the mass media, when he alludes to theories that attribute violence to an: "inborn quality of human nature." He concludes that this "bourgeois" analysis is unable to elucidate the nature of contemporary social violence or to work out ways to predict or eliminate it, and that it leads ultimately to pessimism about the future.

Although the Denisov critique would appear to reflect the dominant attitude in official Soviet institutions, as manifested in the remarks of Kovalsky (1971) and Tikhomirov, both quoted earlier, and in the reports from Soviet social scientists at last year's meetings of the International Political Association in Moscow, it does not mean that there is no basic research on aggressive behaviour in animals. For example, there is considerable recent work in Leningrad (Poshivalov, 1979), Moscow (Simonov, 1978), Estonia (Allikmets, 1977) and Soviet Georgia (Koridze and Oniani, 1972).

In addition to the Left, many Western social scientists have been highly critical of certain authors who have popularized what Durant (1981) has called the: "myth of the beast in man." Durant has documented how writers through the centuries, including Plato, Darwin, Spencer, Galton, Freud and, more recently, Lorenz and Wilson, have developed a myth concerning a basically evil human nature, inherited from man's evolutionary history which was supposedly a violent one, and which is under tenuous control by more rational, "civilized" forces in the mind. The critique of Durant is not only similar to that of Denisov quoted earlier, but it is also similar to many recent criticisms from Western social scientists. So many book reviews, especially in the social sciences, were critical of the writings of Lorenz and Ardrey on this topic that they were gathered together by the anthropologist Ashley Montagu under the title, *Man and Aggression* (1973). At the 1980 ethics symposium of the Aggression Society the issue was eloquently addressed by Santiago Genoves, an anthropologist, who warned that in these types of presentations biological explanations are often given almost exclusive weight at the expense of cultural factors. "We must be careful," he warned, "lest our popularizations be used to justify institutions of violence. Rather than explaining aggression, we may find ourselves be used to justify it." It is particularly appropriate that social scientists have been concerned with recent popularizations of "the myth of the beast in man," since the myth, as described by Durant, denies the importance of cultural and historical factors in human violence.

A PROPOSAL FOR MORE COLLECTIVE DISCUSSION AND ACTION

Whether or not we wish to face it, the fact is that aggression research is a political issue significantly related to contemporary history. Funding agencies, explicitly or implicitly, treat it as a political issue. The motives of scientists, conscious or without consciousness,

are influenced by their personal values which are, at least in part, political. Critics of the misuse of aggression research are often overtly political. And, perhaps most important of all, aggression research is relevant to the myths and ideologies of our times which are powerful forces upon the course of history.

There is a great need for more explicit discussion of the ethical and political aspects of aggression research within our scientific societies. This need was emphasized time and again by the speakers at the recent symposium of the Aggression Society. None of us have been able to gain a complete and final answer to these questions by ourselves, and we need the collective wisdom of our colleagues, not only those who are engaged in similar research from similar backgrounds, but also those who have studied human behaviour from all points of view. This means that we need historians, sociologists, philosophers and anthropologists, as well as biologists and psychologists. We need the points of view and insights of scientists not only from Europe and North America, but also from Socialist countries, from developing countries and from various religious and cultural traditions. The issues are, indeed, cultural and historical as well as biological.

There may also be a need for external actions as well as internal discussions by scientific societies. This does not mean that the societies should be transformed into political action organizations. On the contrary, they should remain organizations that embrace all of the scientists doing research in the field without regard to their personal values or ideologies. But, at the same time, scientists, when they can reach collective decisions, have the right and, perhaps, the responsibility, to speak out on certain issues. For example, in his presidential address to the International Society for Research on Aggression, Barnett (1979) warned about the effects of publicity given to Social Darwinism in recent years: "The popularizers have almost unchallenged access to the media. Whatever we, as political beings, believe about man and society, it is essential to repudiate such views as representing scientific findings."

What kind of actions might a scientific society take? There are at least three types, corresponding to three types of relationships of scientists to the political process: those relating to governmental agencies; those to the mass media; and those to citizens action groups. These relationships are all illustrated in the example of the Surgeon General's Committee on Television and Social Behaviour, as described in historical detail by Cater and Strickland (1975).

In their relationship to government agencies, scientists may consider themselves as one of many forces acting in the democratic process. No matter how rational their arguments may seem, if they speak as individuals they do not have as much political force as they do if they speak as an organization. For example, in the case of the Surgeon General's Committee, despite the apparent desires of Senator Pastore, who originally requested the formation of the committee, the Surgeon General yielded to industry pressure and allowed the industry to veto participation by many of the most prominent scientists in the field because their previously published results had been critical of industry practices (Science, 1970, Cater and Strickland, 1975). Although there were protests from individual scientists, and, eventually, some protests from a few scientific organizations, these protests apparently came too little and too late to reverse the vetos. It seems likely that if the scientists had been members of organizations that were ready and willing to take rapid collective action in their support, the veto decision could have been reversed and the committee reconstituted.

The relations of scientists to the mass media are also complex. In the case of the findings of the Surgeon General's Committee, the U.S.A. television networks themselves ignored the committee and its findings (Cater and Strickland, 1975, p. 114), although the Canadian Broadcasting Corporation gave it extensive coverage. Published media related to the television industry, such as TV Guide, ridiculed the findings (Efron, 1972). The New York Times, perhaps in consultation with the network industry (Cater and Strickland, 1975, p. 80), set the tone of media coverage by publishing a "leaked" advance story under the headline, "TV Violence Held Unharmful to Youth", which was the opposite of the committee's conclusions. On the other hand, certain media gave much more accurate and probing publicity, e.g. Newsweek (March 6, 1972, p. 55). From this account, it might follow that scientists, through their organizations, should establish working relationships with a wide spectrum of the press on a regular, ongoing basis. This would ensure that no one segment of the press, reflecting a bias such as that of the television industry, could distort the accurate and timely reporting of scientific findings. Such a relationship should involve collective opinions of societies; time and energy impose limits upon the other alternative, that of a vast network of individual relationships between journalists and individual scientists.

Finally, the possibility of more direct relationships between scientific organizations and citizen's action groups should be considered. This is particularly important in the case of scientific findings with direct impact upon society, such as the research on the effects of television violence,

Following the Surgeon General's report on television violence, the most effective impact came from citizen's action groups. Despite the fact that the results of the report were scientifically clear and the committee demanded a reduction in the portrayal of violence on television, the federal government took little action and the television industry did not make any major voluntary changes (Cater and Strickland, 1975). Instead; the cause was taken up by groups such as Action for Children's Television, which grew; to a membership of 11,000, many of them mothers, and exerted pressure upon federal regulatory agencies. Business Week (May 29, 1978) described their president and founder as a: "50 year old mother of two who packs more wallop than Spiderman", and conceded that the organization "is playing a significant role in upgrading children's TV.". Perhaps the most effective action was that of the National Congress of Parents and Teachers (P.T.A.) with 6.5 million members. The pressure that they brought to bear on the television industry culminated with a- threat to boycott violent programmes and the products of their sponsors if the industry did not reduce violent programming (New York Times, August 22, 1977). By the spring of 1977, these groups, along with religious organizations and other national organizations had made a significant impact and forced a decrease in the portrayal of violence on television (New York Times, March 17, 1977), Scientific organizations apparently played little role in this effort, with the possible exception of the American Medical Association who polled its members on the ill effects of television violence (New York Times, June 20, 1977) and give some legitimacy to the national protests (New York Times, March 17, 1977).

Scientists should consider the possibility that more direct relationships with organizations such as A.C.T. and the P.T A. would have added to the relevance and effectiveness of their actions to stem television violence. Citizens groups cannot be expected to read and evaluate the scientific literature and, unless they obtain direct advice

and consultation from scientists, they must rely upon mass media coverage of scientific information. This, as we have noted, is problematic at best, and it leaves the initiative totally in the hands of the citizens groups or individual scientists. One can, of course, leave it up to individual scientists, but this is far less efficient and effective than the collective action of scientific organizations. Organizations can poll their membership for ideas, for volunteers to consult with citizens groups, and for members to testify in conjunction with these groups before hearings of federal agencies, mass media discussions, etc.

The use and misuse of aggression research may never be as dramatic and as critical as those of nuclear physics which spawned a massive political awakening in the sciences after the dropping of the atomic bomb (Smith, 1965), but the issues are similar in kind if not in degree. Like nuclear physics, aggression research has become inextricably involved in the historical political fabric of our times. Conduct of the research raises ethical issues that cannot be dismissed, but which are of increasing concern to many people. Aggression research is on the front lines of the sciences that are under attack from "anti-scientific" attitudes of significant segments of the public. It is being seriously considered by military planners, is funded by secret military budgets, and raises anxiety in those of us who are concerned about the possible consequences of militarism in our times. And aggression research is central to critical ideological debates and struggles not only within scientific societies, but also across the borders of different political systems, within the mass media, and in the consciousness of the people who will construct the next stages of our history.

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AUTHOR BIOGRAPHY

David Adams grew up in the Ozark hills of Southern Missouri (U.S.A.) and was educated in comparative and physiological psychology at Yale University, where he received his doctorate in 1967. His thesis, completed with John P. Flynn, demonstrated that certain neurones in the

midbrain central grey of the cat are active if, and only if, the cat is engaged in defensive fighting. He has worked in a number of international laboratories. In Milan, Italy, he conducted research on cardiovascular physiology with Alberto Zanchetti and colleagues. In Moscow, U.S.S.R., he conducted work on brain mechanisms of conditioning in rabbits with K.V. Sudakov and colleagues. In Tbilisi, Georgian SSR, he worked on single neurone activity during the sleep-wakefulness cycle with Tengiz Oniani and others. Since 1970 he has taught at Wesleyan University in Connecticut and has collaborated with his students and with Harry Sinnamon in the neurophysiological and ethological analysis of social behaviour in the rat. Another collaboration at Wesleyan with Alice Gold has led to a number of publications on human sexual behaviour. Other ongoing projects include a comparative analysis of the mechanisms of vertebrate locomotion and an analysis of the relation between metabolic factors and brain size in vertebrates. He is also engaged in the formulation of a general theory of the mechanisms of social behaviour in mammals. He is active in committees of several scientific societies that are concerned with the ethical and political significance of scientific research, publication and teaching.