> planning relief and rehabilitation programs, embracing essential community and government functions; (5) determining effective means of securing active cooperation of people in promoting civil emergency planning measures throughout the nation.

There is no mention of civilian disasters anywhere in this 25-page summary of past and present social sciences research conducted by the then Office of Civil and Defense Mobilization and the Office of Civil Defense, Department of the Army.

Thus, in the first decade or so of disaster studies in the United States, the federal agencies supporting the research were primarily interested in wartime and/or military applications. There was no noticeable interest in civilian disasters per se; their study was undertaken to see what would be learned that could be extrapolated to a wartime or military setting. Such explicit statements as were made about the extrapolation almost always stressed that concern was with how the American population could be better prepared to withstand attacks from enemy sources. This position is well stated in remarks by the first head of the National Academy of Sciences group:

> Social science has been presented with several great challenges since World War II. Understanding the problems of technologic assistance to underdeveloped countries is one of these. Understanding psycho-cultural warfare and the true nature of subversion is another. A third great challenge is to develop a scientific understanding of the human effects and problems of disasters, both present and potential. One reason why this should be so is clear: American cities can now be attacked with the weapons which have led to dubbing our time the "age of mega-deaths." Such a prospect presents staggering problems--ranging from how to foster the most adaptive possible responses by threatened or stricken populations and how to care for millions of casualties and homeless persons, to the prospect of large-scale social, economic, and demographic reorganizations, if our urban complexes are gutted. Fundamentally, it has become necessary to know how Americans react to disaster and how they deal with it (Williams 1954; p. 5).

To the extent that the sponsoring agencies had any implicit disciplinary leanings, they were psychiatric, psychological or at best social psychological, rather than sociological. As for the implicit model of behavior under stress they operated with, it appeared to be one of personal breakdowns in disasters. The agencies also assumed that the purported problems which emerged in disasters were to be found in individuals, and the solution to such problems rested mostly in the imposition of directive social control (the command and control model which still prevails in certain disaster oriented circles today--for a discussion of this perspective see Dynes 1983)

It is possible to find some occasional references among funding agencies to an "offensive" rather than "defensive" use of extrapolations from peacetime to wartime situations. Thus, in one agency memo it is said:

> Not only do we need to know how to protect our soldiers and populace against the psychological ravages of an attack using chemical agents; in addition, we must know how to exploit to the utmost the psychological effects of toxic agents when used against an enemy.

Nonetheless, it is very important to stress that we are unaware of any instance in the past up to the present of where funding agencies have attempted to spell out the "offensive" possibilities. We have never encountered even an indirect reference to such possibilities in the disaster research literature per se. In fact, such use of research would be radically at variance with the ideological liberal or left tendencies of the large majority of American social scientists, especially sociologists. Nevertheless, all scientific knowledge can be put to "good" and "bad" purposes and it would be foolish to deny that disaster research could not also be used both ways. While this possibility does not seem to have affected researchers involved in studies of natural and technological disasters, the possibility has discouraged some students of collective stress situations from studying "terrorism." Although it is not our position, it is possible that some researchers may also be reluctant to expanding the disaster area to include "war" phenomena for the same reason.

SOME IMPORTANT CONSEQUENCES OF THE APPLIED FOCUS

There were major consequences in the work done in the disaster area which resulted from the applied orientation of the sponsoring agencies. It is important to note that as a whole whatever influences there were from the research sponsor, they were indirect, not direct. This is true despite the fact that most of the funding for the research was of a contract, rather than grant nature, which might imply much directional and substantive control and supervision by the sponsoring groups and their officials. However, our conclusion from all the data we have examined is that there was very little effort made to direct what should be studied and/or how it should be studied.

The DRC's initial contract with OCD, for example, was the identical substantive proposal the Center had first submitted as a grant application to the National Science Foundation, except for the addition of objective #5. Informally, it was also understood that DRC should add a concluding chapter on possible extrapolations of its findings to wartime situations in the reports the Center would write about the behavior and problems of different kinds of emergency organizations in natural and technological disasters. The only administrative change in the shift from a grant to a contract proposal was that, at the suggestion of OCD, a substantial increase in both funds and duration of the project was requested and allowed.

At no time in the early days of the work did OCD attempt to dictate anything of a substantive nature. The only major problem that arose was OCD's refusal to allow the use of OCD funds for a DRC publication on the operations of the American Red Cross in disasters. The disallowance of publication stemmed from National Red Cross objections to publishing the Center's observations that Red Cross disaster operations were negatively viewed by other organizations and the public at large. For political reasons OCD did not want such a finding, which was well documented in the DRC work, to appear in a publication from research it was funding. The Center was eventually able to publish the study results under its own auspices (Adams 1970).

As far as we have been able to ascertain, all the other early studies by other groups which we have mentioned likewise were not subjected to any direct pressure or control. It may be that DRC and the other re-

searchers escaped direct control because the contract funding typically provided for the study of very broad topics such as "organizational functioning in disaster." Another possibility is that perhaps the lack of any knowledge about the subject matter on the part of the sponsoring groups provided freedom from direct control or supervision. Our judgement is that something more important was operative which allowed considerable freedom from sponsor control. It is that the sponsored research, at least in the early days, was primarily commissioned at the highest levels of the agencies for reasons other than seeking answers to practical problems (which however may have not been the point of view of lower level officials who actually negotiated the research agreements with academic researchers). It could be argued that disaster research was initiated (and the initiation came from the agencies and not social scientists) because of internal bureaucratic pressure for agencies to be current with the post World War II phenomena of social science research being on the agenda of many government groups. Whatever was involved, the sponsoring agencies, military for the most part, and contrary to certain images which developed in the late 1960's (see, e.g., documented accusation in Fisher 1972, p. 208), directly dictated very little if anything at all in the disaster research area.

However, while the applied orientation of the research sponsors did not lead to direct control or guidance in the research that was done, there were nonetheless, a number of indirect consequences. Let us mention just three of them. Any one of them alone has had in our view important effects on the work done in the last 35 years in the disaster area.

(1) The very conception of what constitutes a disaster was strongly influenced by the applied orientation. Thus both at NORC and DRC the prototype of a disaster was visualized, sometimes explicitly, as a major earthquake. In terms of possible extensive impact over a wide area, the sudden and unwarned occurrence of an earthquake was seen as being closest to a bombing attack on a community.

It is only possible to speculate, but we feel that substantive social science work on disasters would have developed remarkably differently in the last 30 years if, for example, such diffuse emergencies as famines or droughts or epidemics or even large scale riverine flooding has provided the prototype of what constituted a disaster. In the disaster research area we early implicitly accepted a conception of disaster as a

particular kind of event concentrated in time and space, and for various reasons have avoided until very recently, facing up to the serious problem of not being at all clear or certain about the core and parameters of what we are studying under the label of "disaster" (see, Quarantelli 1987). As will be discussed in a forthcoming article, we do not think we can advance significantly on further studies on disasters until we move forward on the conceptual problem.

In the collective behavior area, a subspecialty of sociology, the development of the field has been handicapped by taking a very concentrated happening in time and space--primarily a crowd--as the prototype of collective behavior even though most of collective behavior phenomena is diffuse in time and space (Aguirre and Quarantelli 1983). We have implicitly done the same thing in the disaster area. We have tended to think of disasters as concentrated space-time events, even though it might be argued that most collective stress situations (to use Barton's term, 1970) are usually much more diffuse in time and space. DRC always has had more problems in deciding in its field work whether to study a widespread riverine flood than a tornado, reflecting its implicit image of disasters.

It is interesting to note the comment of the major researcher in the University of Maryland pioneering field studies. In a little known article he raises an interesting speculative question as to the kind of disasters American disaster researchers came to focus on in their work. He wrote:

> As has been suggested, American urgency about disaster study grows out of our uncertainty about how we will act if war is ever brought directly into our continent: modern war, especially atomic war. Our anxiety over our own prospective performance is, I think, demonstrated by the spotty and perhaps guilt-motivated concentration on disasters approximating atomic explosion. (If we had dropped nerve gas or a virulent toxin on Japan, what would our focus of study be now?) (Powell 1954b, p. 61)

However, it should be noted contrary to what we have heard said at meetings, the disasters which were studied by the pioneering field teams included others than those involving only natural disaster agents. All three of the field team operations studied explosions, fires, crashes, and

other concentrated in time and space human created occurrences. Neither the Academy work or the early DRC work included only natural disaster agents. It is true that relatively few non-natural disaster situations were studied, but this was more a function of what occurred during the course of the research periods involved than a deliberate focus only on natural disasters. A more recent argument (e.g., Couch and Kroll-Smith 1985) that disaster researchers have neglected chronic or slow moving as over against sudden disasters, is a much more valid criticism.

Our overall point is that we have tended to accept the notion of disaster as a concentrated time and space occurrence. This view, a constraining one on what should be researched, was developed at the time of the origin of study in the area. This conception of disaster was to a great extent implicitly and indirectly produced by the applied wartime orientation of the early research sponsors.

(2) The early focus on the emergency time period and on the emergency response in disasters is also, we think, a partial result of the early applied orientation. If war or a military situation is thought of as the generating context, it follows that emphasis in research will be on reaction, not prevention. That the field of geography came to focus on mitigation measures and such issues as land use as part of natural hazard research problems (and the difference in focus on something called "disasters" and on something called "natural hazards" is neither an accidental or unimportant matter in our view) far before sociologists addressed such matters, may be partly a function of disciplinary differences. But we suspect it also has something to do with who initially sponsored studies by sociologists on disasters and by geographers on natural hazards. The major research program in natural hazards initiated in the late 1960's by three geographers was supported by a grant from the National Science Foundation and included studies of such matters as coastal erosion, frost and high wind, humid area drought, urban snow hazard, and water quality (see White, Kates and Burton 1969). These topics would not have interested the military supporters of the initial work in the disaster area.

The almost complete neglect by the early disaster researchers of the longer run post-impact recovery activities can also be partly attributed to the interests of the funding agencies. DRC did do some longitudinal studies of organizational long run recoveries from disasters, but they had

to be done independent of OCD support (e.g. Anderson 1969). It is not that there was any objection to such studies; in fact, some OCD funding was used to obtain the relevant field data, but there simply was little interest in the results. This matter, of course, is also not independent of the funding cycles and inabilities of most governmental bureaucracies to commit themselves to support for more than one fiscal year at a time. Studies of recovery would usually have to go considerably beyond one post-impact year.

(3) The related emphasis in early studies, and to this day on planning for instead of managing disasters, we also believe is an indirect consequence of the applied orientation of the early funding agencies. The early disaster researchers assumed that they needed better knowledge of what happened in disasters so that better planning for disasters could be instituted. To a considerable extent we believe this reflected the similar bias in perspective of the military or national civil defense sponsoring agencies, who spend a great deal of time, effort and resources on planning for events with low probabilities for occurrence. Management of the military in wars or of civil defense responses in disasters is not a frequent occurrence.

There is a difference between disaster planning and disaster management, a crucial distinction still little appreciated even though it took us only 30 years to grasp its significance (Quarantelli 1985). The latter does not follow automatically from the former in the same sense as that good tactics do not follow directly from a good strategy. Management, of course deals with actual happenings, and good managing is what is needed for efficient and effective response and recovery, and, while it does not and cannot replace planning, it probably needs an equivalent emphasis. Such an emphasis was not present in the early days of disaster research and it was unlikely to be to the extent researchers reflected the bias of their supporting funding sources. The emphasis on planning also partly reflects a "command and control" model for handling emergency time problems. While disaster researchers extremely early criticized "command and control" conceptions of disaster response (e.g., Fritz 1961), none of them essentially challenged the primacy and almost exclusive focus on planning instead of managing.

We do think it is illustrative of our point that in DRC's early days, a formal DRC proposal to study the operation and management of the

United States Office of Foreign Disaster Relief and an informal one to study the operation and management of the Office of Emergency Planning (OEP) were rejected out of hand. But DRC had little difficulty in obtaining funds to study community emergency planning. The matter, of course, is a complicated one, and even in the examples given, for a variety of reasons it might be understandable why research into local agencies might be seen as more acceptable than study of national organizations, apart from a preference for a focus on planning than on management. But we think the preference needs to be accounted for, and we think it partly has its roots in the early days of disaster research.

There were other indirect consequences for disaster research that, perhaps, stemmed as much from the fact that the sponsoring agencies were American as that they had an applied orientation. Thus, there was an almost necessary focus not only on the kinds of disasters which occur in American society (e.g., tornadoes rather than famines), but also on relatively small scale and minor impact disasters (compared with the massive casualties, losses and disruptions with occur in some disasters in Latin America, Asia, or Africa). Some of the funding agencies allowed and supported overseas studies by the first American researchers. The events studied, such as floods in Holland (e.g., the volumes by the Institute Voor Social Onderzoek Van Het Nederlandse Volk 1955), massive fires in Australia (e.g., Anderson and Whitman 1967), and a dam collapse in Italy (e.g. Dynes, Haas and Quarantelli 1964) seemed to be researched because of a perceived similarity or a parallel to potential wartime situations rather than because they might be a learning situation for a potential peacetime catastrophe in the United States. We leave aside that field studies outside of the country might also have been partly supported for totally nonscientific reasons--e.g., for agency officials to be able to boast in their own bureaucratic circles, they were supporting research halfway across the world of a disaster that was the focus of international mass media attention.

The general focus on American disasters also meant that only a certain kind of social structure was studied by the early disaster researchers (e.g., one with a decentralized authority structure, with relatively weak social class differences, and with highly developed social institutions, such as in the mass communication area). For instance, the almost total ignoring of social class as a factor in any way in disaster phenomena is

certainly partly attributable to the locus of study used (Taylor 1978). Similarly, disaster researchers tended to look at populations with certain sociocultural characteristics (e.g., norms regarding volunteering, beliefs as to governmental responsibilities, values with regard to private property, etc). From this, for example, probably has come some of the concern of American disaster researchers about the citizen's view of emergency organizations.

Our point of course is that certain topics have been either focused on or ignored in disaster studies and that this indirectly is related to the applied research funding pattern in American society. To the extent that agencies with strong applied orientations of a particular kind emerged as the research funders rather than governmental organizations supportive of basic research (it should be noted that the initial DRC proposal went to NSF not OCD), indirectly there is going to be a reflection of this in what is assumed, studied and reported on by researchers. The applied agencies did not directly dictate much of anything, but indirectly from the start they have implicitly provided much of the research agenda and, like all agendas, the one that initially sets the stage became the one that tended to be continued to be used.

ANOTHER IMPORTANT INFLUENCE

Although the applied orientation of sponsoring agencies looms large in our accounting for much of what has happened in the development of disaster studies, to leave it at this point would be to present an incomplete picture. Probably equally as important in the development of the area, is the fact that the early students in the area were primarily sociologists. To a considerable extent they imposed much more of a sociological perspective on how and what was studied than is realized by practically anyone. In our view, the applied orientation was married to basic sociological conceptions and ideas, although neither the research supporters nor the researchers were very aware of it at the time, and most still do not recognize the situation is the same today. However, the exposition of this point can not be provided here but will be elaborated upon in a succeeding article (Quarantelli forthcoming).

REFERENCES

Adams, David. 1970. "The Red Cross: Organizational Sources of Operational Problems." *American Behavioral Scientist* 13:392-403.

Aguirre, Benigno E. and E.L. Quarantelli. 1983. "Methodological, Ideological, and Conceptual-Theoretical Criticisms of the Field of Collective Behavior: A Critical Evaluation and Implications for Future Study." *Sociological Focus* 16:195-216.

Anderson, William. 1969. *Disaster and Organizational Change*. Book and Monograph Series #5. Columbus, Ohio: Disaster Research Center, The Ohio State University.

Anderson, William and Robert Whitman. 1967. *A Few Preliminary Observations on "Black Thursday": The February 9, 1967 Fires in Tasmania, Australia*. Research Report #19. Columbus, Ohio: Disaster Research Center, The Ohio State University.

Barton, Allen. 1970. *Community in Disaster*. Garden City, New York: Anchor.

Bucher, Rue. 1957. "Blame and Hostility in Disasters." *American Journal of Sociology* 62:467-475.

Chandessais, Charles. 1966. *La Catastrophe de Feyzin*. Paris: Centre D'Etudes Psychosociologiques Des Sinistres Et De Leur Prevention.

Couch, Stephen and J. Stephens Kroll-Smith. 1985. "The Chronic Technical Disaster: Toward a Social Scientific Perspective." Social Science Quarterly 66:564-575.

Drabek, Thomas E. 1970. *Laboratory Simulation of a Police Communication System Under Stress*. Columbus, Ohio: The Ohio State University.

_____. 1986. *Human System Responses to Disasters. An Inventory of Sociological Findings*. New York: Springer Verlag.

Drabek, Thomas E. and J. Eugene Haas. 1969. "Laboratory Simulation of Organizational Stress." *American Sociological Review* 34:223-238.

Dynes, Russell. 1983. "Problems in Emergency Planning." *Energy* 8:653-660.

Dynes, Russell, J.E. Haas and E.L. Quarantelli. 1964. *Some Preliminary Observations on Organizational Responses in the Emergency Period After the Niigata, Japan, Earthquake of June 16, 1964*. Research

Report #1. Columbus, Ohio: Disaster Research Center, The Ohio State University.

Fisher, Charles S. 1972. "Observing a Crowd: The Structure and Description of Protest Demonstrations." Pp. 187-211 in *Research on Deviance*, edited by Jack Douglas. New York: Random House.

Fritz, Charles E. 1961. "Disaster." Pp. 651-694 in *Contemporary Social Problems,* edited by Robert Merton and Robert Nisbet. New York: Harcourt.

_____. 1968. "Disasters." Pp. 202-207 in *International Encyclopedia of the Social Sciences*. Volume 3. New York: Macmillan.

Fritz, Charles E. and Eli Marks. 1954. "The NORC Studies of Human Behavior in Disaster." *Journal of Social Issues* 10(No.3):26-41.

Instituut Voor Social Onderzoek van Het Nederlandse Volk. 1955. *Studies in Holland Flood Disaster 1953*. Washington, D.C.: National Academy of Sciences.

Johnson, John. 1975. *Doing Field Research*. New York: Free Press.

Kaplan, Abraham. 1964. *The Conduct of Inquiry*. San Francisco: Chandler.

Kreps, Gary. 1981. "The Worth of the NAS-NRC (1952-1963) and DRC (1963-Present) Studies of Individual and Social Responses to Disasters." Pp. 91-121 in *Social Science and Natural Hazards*, edited by James D. Wright and Peter H. Rossi. Cambridge, Massachusetts: Abt Books.

Kuhn, Thomas. 1970. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.

Logan, Leonard, Lewis M. Killian and Wyatt Mars. 1952. "A Study of the Effects of Catastrophe on Social Disorganization." Chevey Chase, Maryland: Operations Research Office.

Mannheim, Karl. 1936. *Ideology and Utopia*. New York: Harcourt Brace.

Marks, Eli, et al. 1954. *Human Reactions in Disaster Situations*. Chicago, Illinois: National Opinion Research Center, University of Chicago.

Okabe, K. and H. Hirose. 1985. "The General Trend of Sociobehavioral Studies in Japan." *International Journal of Mass Emergencies and Disasters* 3:7-19.

O'Neill, John. 1981. "The Literary Production of Natural and Social Sciences Inquiry." *Canadian Journal of Sociology* 6:105-120.

Powell, John. 1954a. *An Introduction to the Natural History of Disaster.* Baltimore, Maryland: Psychiatry Institute, University of Maryland.

_____. 1954b. "Gaps and Goals in Disaster Research." *Journal of Social Issues* 10:61-65.

Quarantelli, E.L. 1960. "Images of Withdrawal Behavior in Disasters: Some Basic Misconceptions." *Social Problems* 9:68-79.

_____. 1967. *The Disaster Research Center Simulation Studies of Organized Behavior Under Stress.* Final Project Report #6. Columbus, Ohio: Disaster Research Center, The Ohio State University.

_____. 1972. "Study and Research in the United States." Pp. 17-26 in *Proceedings of Organizational and Community Responses to Disasters.* Book and Monograph #8. Columbus, Ohio: Disaster Research Center, The Ohio State University.

_____. 1981. "A Response to the Description and Evaluation of the DRC Work in the Disaster Area." Pp. 122-135 in *Social Science and Natural Hazards*, edited by James D. Wright and Peter M. Rossi. Cambridge, Massachusetts: Abt Books.

_____. 1985. *Organizational Behavior in Disaster and Implications for Disaster Planning.* Newark, Delaware: Disaster Research Center, University of Delaware.

_____. 1987. "What Should We Study? Questions and Suggestions for Researchers About the Concept of Disasters." *International Journal of Mass Emergencies and Disasters* 5:7-32.

_____. Forthcoming. "Disaster Studies: An Analysis of the Consequences of the Historical Use of a Sociological Approach in the Development of Research in the Area." *International Journal of Mass Emergencies and Disasters.*

Quarantelli, E.L. and Russell R. Dynes. 1977. "Response to Social Crisis and Disaster." *Annual Review of Sociology* 2:23-49.

Quarantelli, E.L. and Robert Roth. 1969. *Simulation Studies of Communication Behavior Under Stress: Phase One and Two.* Final Project Report #7. Newark Delaware: Disaster Research Center, University of Delaware.

Quarantelli, E.L. and Dennis Wenger. 1985. "Disasters: An Entry for an Italian Dictionary of Sociology." Preliminary Paper #97. Newark, Delaware: Disaster Research Center, University of Delaware.

Schatzman, Leonard. 1960. "A Sequence of Pattern Disaster and Its Consequences for Community." Ph.D. Dissertation. Bloomington, Indiana: Indiana University.

Taylor, Verta. 1978. "Future Directions for Study." Pp. 251-280 in *Disasters: Theory and Research*, edited by E.L. Quarantelli. London: Sage.

Tibbetts, Paul. 1986. "The Sociology of Scientific Knowledge: The Constructivest Theses and Relativism." *Philosophy of the Social Sciences* 16:39-57.

Tyhurst, J.S. 1950. "Individual Reactions to Community Disaster." *American Journal of Psychiatry* 107:764-769.

U.S. Strategic Bombing Survey. 1947. *The Effects of Strategic Bombing on German Morale*. Washington, D.C.: U.S. Government Printing Office.

White, Gilbert. 1964. *Choice of Adjustment of Floods*. Chicago, Illinois: Department of Geography, University of Chicago.

White, Gilbert, Robert Kates and Ian Burton. 1969. *Collaborative Research on Natural Hazards Progress Report*. Chicago, Illinois: Natural Hazards Research Program, Department of Geography, University of Chicago.

Williams, Harry. 1954. "Fewer Disasters, Better Studies." *Journal of Social Issues*. 10:5-11.