International Journal of Mass Emergencies and Disasters
November 1987, Vol. 5, No. 3, pp 285-310

DISASTER STUDIES: AN ANALYSIS OF THE SOCIAL HISTORICAL FACTORS AFFECTING THE DEVELOPMENT OF RESEARCH IN THE AREA*

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Almost nothing has been written about the social historical emergence and development of social and behavioral research on disasters. This paper provides a description and a sociology of scientific knowledge analysis of the factors affecting the initiation of studies in the area in the United States. First, we note how disaster research on group and behavioral aspects of disasters had their roots, almost exclusively, in rather narrowly focused applied questions or practical concerns. Second, we point out how this led to certain kinds of selective emphases in terms of what and how the research was undertaken in the pioneering days, but with substantive consequences which we still see operative today.

Very little has been written about the history of social science disaster research, the factors which have influenced the emergence of this field of study, and the ensuing theoretical and methodological consequences for scientific work on the human and group aspects of disasters (for passing observations, see, Fritz 1968; Quarantelli 1972; Quarantel-

* This article is primarily drawn from a manuscript prepared for the Symposium of Social Structure and Disaster: Conception and Measurement held at the College of William and Mary, Williamsburg, Virginia, May 16, 1986. We especially want to thank Charles Fritz for his extensive comments on the earliest draft of the paper, but of course, all statements and assertions made are our own and do not necessarily reflect his views or positions. This article is visualized as a companion piece to another one entitled, "Disaster Studies: An Analysis of the Consequences of the Historical Use of a Sociological Approach in the Development of Research in the Area," which will be published in 1989 in this journal.

li and Dynes 1977; Quarantelli and Wenger 1985; and Drabek 1986). In fact, apart from some of my earlier writings (Quarantelli, 1981) in response to about the only systematic effort ever made to examine some of the conditions involved in the development of the area (Kreps 1981), almost no one else has written at length or in depth on the topic. The field is only a little more than three decades old which is not much but long enough both to allow and warrant an examination of the problem.

In a meeting in 1986 that focused on the relationships between basic and applied sociological research and disaster studies, we made four major points. First, we noted that disaster studies on behavioral and group aspects had their initial roots, almost exclusively, in rather narrowly focused applied questions or practical concerns. Second, we pointed out this led to certain kinds of selective emphases in terms of what and how the research was undertaken, with substantive consequences which we still see operative today. Third, we observed that nonetheless a basic sociological orientation and sociological ideas implicitly permeated much of the early research work and many of the answers that were offered. Fourth and last, we argued that the research approach initiated with a mixture of applied concerns and basic sociological questions, and continued now for about 35 years, has had primarily positive functional consequences on the development of the field of study of disasters.

In this article we elaborate only on the first two major points; points three and four are discussed in a related article (Quarantelli forthcoming). We essentially take a sociology of science approach to the problem, especially as has been developed in an offshoot of that orientation, namely the sociology of scientific knowledge (for the difference between the two see Tibbetts 1986). This kind of approach to the production of knowledge assumes that the social context of research activities is equally as important if not more so than empirical data in influencing the growth of a field of study (see e.g., O'Neill 1981). This is at variance with the ideal but non-realistic notion that research findings or empirical observations are the prime movers in theory, model building or other scientific development (see e.g., Mannheim 1936; Kaplan 1964; Kuhn 1970; Johnson 1975). As such we try to emphasize the social factors or conditions operative in the early days of disaster research. Another consequence of this view is a downplaying of individual researchers. Thus,

while an historical time frame is used to organize our remarks, this article is not meant to be a social history of the pioneering disaster researchers. Particular persons are named only if necessary for clarification of the exposition of the social factors affecting the development of the field of disaster research. The research not the researchers is our concern.

Our focus here is almost exclusively on the emergence of social science studies undertaken in the United States on natural and technological disasters. Thus we do not examine the initiation of work in the natural hazards area particularly the research on risk perceptions of floodplains (e.g., White 1964), a line of study out of this subfield of geography which partly converged with disaster studies in the early 1970s. Neither do we deal with accident research which later became partly embodied in risk analysis studies which in turn also came in part to converge with disaster research in the early 1980s. Nor do we look at the parallel pioneering effort in Canada in the very early 1950s (see Tyhurst 1950) and the independently initiated work in the very early 1960s in France (e.g., Chandessais 1966) and in Japan (see Okabe and Hirose 1985 for a short history of research in Japan since the 1960s). Without in any way denying the importance of these activities which we shall not discuss, we focus exclusively on the origins of what clearly is the historical core of what in the last three decades has developed and is known as the social science field of disaster research today. In fact, one of our major purposes is to indicate the historical links between certain early studies we shall discuss and contemporary social science studies of disasters. The other intellectual stirrings we have just mentioned either are not in our view as directly important on the mainstream work or had their influence later than the early development we shall examine.

Many of the statements we make such as about the intellectual orientations or positions taken by many of the early researchers have been derived from personal involvement and observations, informal conversations, and a series of interviews for an oral history record we have initiated with the pioneers of disaster studies. As such they are impossible to reference directly although in time the oral history interviews being archived at the Disaster Research Center (DRC) library will become available for scholarly use. Similarly, many of the never publicly circulated documents which we cite, such as research proposals, organization-

al memos, field questionnaires, etc. are very fugitive with many of the only known copies in existence being in the personal possession of the author. These typed and written historical records are being slowly deposited in the archival collection of DRC and will also become accessible to interested scholars. It should be assumed that a non-referenced material (quotations, minutes of meetings, etc.) in the article is drawn either from these kinds of personal sources and/or non-printed records.

THE APPLIED ORIENTATION OF THE EARLIEST STUDIES

The earliest disaster research in the social science area was almost exclusively supported by U.S.A. military organizations with very practical concerns about wartime situations. Who were the initial research sponsors and what were their interests? For our purposes, we can look at this from the perspective of the three roughly sequential sets of organized research activities from about 1950 to 1965.

The Pioneering Field Teams

Unknown to many current disaster researchers, there were three different pioneering field team operations. The one that became famous in disaster circles was at the National Opinion Research Center (NORC) at the University of Chicago between 1950-1954. Its research was commissioned and supported by the Chemical Corps Medical Laboratories of the Army Chemical Center in Maryland.

Military personnel from this chemical center had looked at Donora, Pennsylvania, where in October, 1948, a combination of chemical fumes and a temperature inversion created a concentration of sulfur dioxide. Approximately 43 percent of the local population became ill and 25 persons died over the duration of several days. It was observed that some inhabitants of the area who had not been directly exposed apparently showed the same kind of symptoms as had victims who had been directly exposed. Seeking an explanation of this observation, the chemical center in 1949 approached NORC to do a retrospective study of the Donora episode. In joint discussions, this was eventually rejected as not worthwhile since any field work would have been done too far after the occurrence of the episode.

However, further contact between NORC and the Army Chemical Center led the latter to support a project by NORC on the study of natural and industrial disasters. As stated in the research proposal, "it is felt that empirical study of peacetime disasters will yield knowledge applicable to the understanding and control, not only of peacetime disasters, but also of those which may be anticipated in the event of another war." Elsewhere in the proposal, it is said that "careful selection of the natural or industrial disasters to be studied can furnish an approximation of the conditions to be expected in a war disaster." It was acknowledged that there are certain differences between war disaster and peacetime disasters, especially that in the latter, unlike the former, people's adherence to the cause for which the war is being fought will make them willing to make sacrifices on its behalf. Nevertheless, the proposal comes back a number of times to the idea that one could learn about the probable wartime behavior of a population from studying how they responded to natural and industrial disasters.

The Army Chemical Corps never had an opportunity to use its chemical weapons during World War II. Thus, its interest in the disaster area could be interpreted as an attempt by the organization to carve out a new future role for itself. Possibly more important was simply the widespread impression in the American military that the civilian population of the U.S.A. had never experienced a major external bombing raid and, therefore, there was consequent concern that civilians would react badly to future wartime attack that might involve the dropping of atomic bombs. That the U.S. Strategic Bombing Surveys (1947) done for the Air Force showed that civilian populations in Germany and Japan held up remarkably well under sustained bombing attacks was either unknown or ignored.

That primary interest was in the wartime implications can also be seen in two other aspects of the proposal. One is the emphasis on social control. The other is the implicit notion that the basic problems in disasters are to be found in the reactions of people to danger, loss and deprivation. Thus, it is observed that there is a need for "the reduction and control of panic reactions," that minimum elements in effective disaster control include "the securing of conformity to emergency regulations," that morale is "the key to disaster control; without it the cooperation and conformity needed from the public will not be

forthcoming," and so on. Likewise, the research design focused on individual victims and the field instruments to be developed were aimed at answering five general questions:

1. Which elements in a disaster are most frightening or disrupting to people and how can these threats be met?
2. What techniques are effective in reducing or controlling fear?
3. What types of people are susceptible to panic and what types can be counted on for leadership in an emergency?
4. What aggressions and resentments are likely to emerge among victims of a disaster and how can these be prevented from disrupting the work of disaster control?
5. What types of organized effort work effectively and which do not?

The last question was conceived primarily in terms of "good disaster leadership" and not in organizational terms. Some informal interviewing of community leaders was projected, but this was to be done for the purpose of uncovering "more expert and informal accounts of the disaster, and description and analysis of public reactions to it, and of the adequacy of control measures, all of which information will be of great value in interpreting and evaluating the popular reactions uncovered by the systematic interviewing."

As one who was involved in the NORC project almost from its inception, we can attest that the actual field work generally proceeded more or less as indicated in the proposal. The effort made was to study peacetime disasters which appeared to have the closest parallel to a wartime situation (that is, a population subjected to some kind of sudden and widespread attack). The intent of the work was to find out how social control could be exercised by the authorities, and the assumption was made that disaster problems were primarily social psychological in nature, e.g., resulted from the internal states of the victim. However,as we shall note later, the sociological orientation of most of the researchers at NORC employed on the disaster project led in the course of the work to certain subtle changes in emphases and observations and perhaps even findings.

The NORC team undertook eight field studies of disasters ranging from an earthquake in Bakersfield, California, to three consecutive airplane crashes in Elizabeth, New Jersey. The major work, however, was a very systematic population survey of 342 respondents (out of a strict probability sample of 362) in several towns and villages in north-east Arkansas hit by tornadoes in March 1952. Publications by project members from this study continued for some time after the end of the research (e.g., Bucher 1957; Fritz and Marks 1954; Quarantelli 1960; Schatzman 1960) although the final report itself was never put out in any regular published form (Marks et al. 1954).

An intended counterpart to the NORC work was that done at the University of Maryland in 1950-1954. This, too, was supported by the Army Chemical Corps and was aimed at studying in depth" the psychiatric aspects of disasters as was partly indicated by the fact that the project was administrated through the Psychiatric Institute at the University of Maryland. The stated purpose of the work, as described in the contract was:

> To study the psychological reactions and behavior of individuals and local population in disaster, for the purposes of developing methods for the prevention of panic, and for minimizing emotional and psychological failures.

In an Appendix to the research proposal under a heading of "Suggested Areas of Psychological Investigation" were listed:

A. Mass Population Behavior of Those Involved
   1. Herd Reaction
   2. Panic
   3. Emergence of Leaders
   4. Recommendations for Guidance and Control of Masses

Thus, even more so than in the NORC study, the University of Maryland work had a psychological emphasis and focused exclusively on individual victims. It is clear the findings were to be applied to a wartime civilian context. But like in the NORC work, and also partly perhaps because the projected multidisciplinary staff was never assembled, a somewhat

different and more social science oriented end project was undertaken than probably had been originally intended by the research sponsor.

The field workers with, or supervised by, the University of Maryland study, undertook field studies of eleven different episodes. Major disasters studied were tornadoes in Arkansas; Worcester, Massachusetts; and Waco, Texas, but other emergencies researched included a chlorine gas episode, a hospital fire, a methyl alcohol poisoning episode and one of the Elizabeth plane crashes. University of Maryland field workers overlapped with NORC teams in the Arkansas tornadoes and the Elizabeth plane crash. The final report on the project, produced in mimeographed form, was about the only publication to result from the Maryland work (see Powell 1954a).

Finally, the third field team operation was at the University of Oklahoma. This was undertaken in 1950-1952 under a subcontract from the Operations Research Office at Johns Hopkins University which was conducting a much larger study of the effects of atomic weapons on troops in the field. As part of that effort by the military to understand the psychological aspects of exposure of soldiers to such weapons, researchers in the Department of Sociology at The University of Oklahoma were asked to do several things: to analyze afteraction reports, to observe troops in the field exposed to an atom bomb test explosion in a Nevada exercise, and also to study civilian behavior in extreme situations such as natural and industrial disasters.

All reports from this work were initially classified and not available to the general public for some years. Declassification of most of the written material (e.g., see, Logan et al. 1952) and discussions with the key researcher involved (the sociologist Lewis Killian) indicates that the findings of the research were intended almost exclusively for use by the Army with respect to the training of soldiers that might have to operate in a wartime setting where atom bombs had been used. In fact, in the final report on the work, it is said that "this is a study of the effects of catastrophe among civilian groups, with the ultimate aim of extrapolation to military situations." Focus of the field work, both among the military and civilians, was on social psychological and psychological aspects of behavior under extreme stress. However, as we will again note later, this exclusively sociologically manned field work produced more

theoretical results not part of the original research design with its very specific applied focus.

Civilian disaster situations systematically studied in the field included four tornadoes and a major fire in a college dormitory. By far the major study was a historical reconstruction done five years after the event of the Texas City ship explosion of 1947. The Oklahoma team overlapped in its field work with a NORC and a University of Maryland team in the third Elizabeth, New Jersey plane crash disaster.

The Work at the National Academy of Sciences and the Diffusion of the Research Focus

The pioneering field team operations were followed by the work done at the National Academy of Sciences, first under the label of the Committee on Disaster Studies (1951-1957), and later under the name of the Disaster Research Group (1957-1962). This work involved a variety of different activities ranging from a clearing house operation, to producing a publication series, and to supporting field studies by others outside of the Academy. A reading of the titles from the Disaster Study Series Publications gives a flavor of the multifaceted activities of this Committee and Group.

1. *Human Behavior in Extreme Situations: Survey of the Literature and Suggestions for Further Research*
2. *The Houston Fireworks Explosion*
3. *Tornado in Worcester: An Exploratory Study of Individual and Community Behavior in an Extreme Situation*
4. *Social Aspects of Wartime Evacuation of American Cities*
5. *The Child and His Family in Disaster: A Study of the 1953 Vicksburg Tornado*
6. *Emergency Medical Care in Disasters, A Summary of Recorded Experience*
7. *The Rio Grande Flood: A Comparative Study of Border Communities in Disaster*
8. *An Introduction of Methodological Problems of Field Studies in Disasters*

9. *Convergence Behavior in Disasters: A Problem in Social Control*
10. *The Effects of a Threatening Rumor on a Disaster-Stricken Community*
11. *The Schoolhouse Disasters: Family and Community as Determinants of a Child's Response to Disaster*
12. *Human Problems in the Utilization of Fallout Shelters*
13. *Individual and Group Behavior in a Coal Mine Disaster*
14. *The Occasion Instant: The Structure of Social Responses to Field Studies of Disaster Behavior: An Inventory*
15. *Unanticipated Air Raid Warnings*
16. *Behavioral Science and Civil Defense*
17. *Social Organization Under Stress: A Sociological Review of Disaster Studies*
18. *The Social and Psychological Consequences of a Natural Disaster: A Longitudinal Study of Hurricane Audrey*
19. *Before the Wind: A Study of the Response to Hurricane Carla*

In a sense we see here the beginnings of a diffusion of the social science research focus in the disaster area as various tasks relevant to the development of an area of study were initiated.

Funding for the work at the Academy came from several sources, but the Committee work was initially supported until 1955 by the Surgeon General Office of the Army, Navy, and Air Force, and in 1955-1957 by the National Institute of Mental Health and the Ford Foundation. The later Disaster Research Group work was exclusively financed by the Federal Civil Defense Administration and the Office of Civil and Defense Mobilization. It should be remembered that in the years involved here, prior to 1962, civil defense in this country was basically wartime oriented.

It seems fair to say that insofar as the research supporters were concerned, the major interest was of an applied and wartime nature. In fact, the Offices of the Surgeon Generals in its statement to the National Academy of Sciences had requested a program be initiated to conduct research and monitor scientific developments related to "problems that might result from disasters caused by enemy action." There was eventually a shift away from a direct military interest per se with the involve-

ment of the federal civil defense organizations in supporting the work of the Disaster Research Group, but the basic thrust remained the same insofar as research sponsorship was concerned. The leadership in the Committee and the Group during most of its existence at the Academy was social science oriented and this had important consequences both inside and outside the Academy as we will discuss later. Even after the key leaders (Harry Williams and Charles Fritz) had left, the first annual meeting of the Group's OCDM-NRC Advisory Committee on Behavioral Research had as its objective "to stimulate both within and outside of the Office of Civil and Defense Mobilization behavioral research that will contribute to the Nation's civil defense." Given the kind of leadership left in the last two years and this kind of goal, it is perhaps not by chance that disaster work in the National Academy of Sciences had stopped within two years.

The Establishment of the Disaster Research Center and Its Deepening of Work in the Disaster Area.

The Disaster Research Center was established at Ohio State University in the fall of 1963 (DRC moved to the University of Delaware in 1985). That year, the Office of Civil Defense (OCD) gave the Center a rather large contract ($200,000) to initiate field studies of organizational functioning in disasters. It was explicitly stated that the field work was to be on civilian or peacetime disasters. But OCD's interest, and this was informally communicated to DRC, was in extrapolations from peacetime emergencies to wartime crises. In the research proposal from DRC to OCD (which had been indirectly discussed before formal submission) the wartime interest was only specifically alluded to in objective E of the proposed work (the only objective added at the explicit request of OCD). The introductory statement about objectives read:

The General Proposal

It is proposed that there be established at The Ohio State University, a Disaster Research Center. The Center would focus on the study of organizations experiencing stress, particularly crisis situations. Generally speaking, the Center would have five major objectives:

A. To collate and synthesize findings obtained in prior studies of organizational behavior under stress.

B. To examine, both by field work and other means, pre-crisis organizational structures and procedures for meeting stress.
C. To establish a field research team to engage in immediate and follow-up studies of the operation of organizations in disaster settings, both domestic and foreign.
D. To develop, in coordination with a concurrent project, a program for field experiments and laboratory simulation studies or organizational behavior under stress.
E. To produce a series of publications on the basis of these four objectives, with special emphasis on recommendations concerning the effective emergency operations of organizations and other matters pertinent to civil defense planners.

It is not an accident that the fifth objective was only stated in this part of the proposal and, unlike the other four objectives which were discussed in great detail later, was not even alluded to anywhere else in the proposal. The wording essentially reflected the real interests of the sociologists who wrote the proposal.

Irrespective of how the proposal may have read, there was no question the study was being supported only because of what it might say about a wartime situation. In actual fact it could not have been otherwise. At that time, OCD as a federal agency, was actually prohibited from direct participation in planning and/or response to civilian emergencies; the civilian area was the province at the national level of the Office of Emergency Planning (OEP), which significantly enough was not supporting any studies of peacetime disasters.

A few months after obtaining the contract from OCD, DRC received a grant from the Air Force Office of Scientific Research (AFOSR) to undertake laboratory or experimental studies of organizations under stress (what is alluded to in objective D of the OCD contract). This research was primarily and clearly seen as having possible consequences for military organizations. The Air Force never expressed any interest in results that might be applicable to civilian agencies or peacetime disasters. How closely it was viewed as related to Air Force interests is perhaps indicated by the fact that the grant was terminated in about five years, not because the research results (see Quarantelli 1967; Quarantelli and Roth 1969; Drabek and Haas 1969; Drabek 1970) were judged

as invalid or uninteresting, but because the research as a whole was evaluated as not enough "mission oriented," that is, of very direct relevance for the operation of the Air Force.

DRC did continue to do research along the lines which had been initiated by the earlier pioneering field teams. The Center did build upon some, although not all, of the various disaster-related tasks originated in the research diffusion undertaken by the National Academy of Sciences. Namely, DRC initiated its own publication series and used the archives of the Academy Group to start creating a specialized social science disaster research library. It also, for the first time, deepened research in the disaster area by its continuous and concentrated studies on the planning and response, especially of emergency organizations at the local community level. It should be noted that most of these activities, for example, the publication series and the specialized library, were initiated by DRC. Directly, neither was supported by either funding or any material support from OCD or the AFOSR. Even the deepening of a research focus on organizations was also a DRC initiative, for along certain lines OCD seemed more interested in social psychological rather than social organizational problems. Put another way, many of the Center's activities were the result of the actions and decisions of the sociologists who directed DRC. The funding agencies at that time were almost exclusively concerned with the wartime or military organization extrapolations that could be made from peacetime or civilian groups. That overtly was their rationale for providing funding for disaster studies and they had no interest in directly supporting the Center in doing anything else. (It was about a decade before OCD began to exhibit a direct interest in peacetime disasters.)

The wartime orientation of OCD is illustrated in a statement covering the 1962 fiscal year (the year before DRC was established). It was written that insofar as OCD was concerned:

> The Social Sciences research program is responsible for (1) developing knowledge of the effects of war and tension upon society and its institutions; (2) determining the reactions of people to conditions before, during and after attack; (3) providing data for developing measures such as shelter, evacuation, and dispersion, for protecting the population; (4) developing data for