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The Human Being in Disasters: A Research Perspective

By Charles E. Fritz and Harry B. Williams

Abstract: Many groups and agencies have a vital need of accurate information on how people behave during disasters. This article presents information which seems to have particular pertinence for disaster preparedness, control, and amelioration. Among the subjects discussed are the problem of how to make disaster warnings effective, behavior during disasters and in the subsequent emergency period, the problem of people's flocking into the area, the need and difficulties of co-ordination and control of rescue and relief activities, the traumatic effects of disaster on its victims, and the sources of possible conflicts between rescue and relief agencies and their clients.—Ed.

SUDDEN disaster strikes a community. How do human beings act in such a situation? According to a pervasive popular conception, they panic, trampling each other and losing all sense of concern for their fellow human beings. After panic has subsided—so the image indicates—they turn to looting and exploitation, while the community is rent with conflict. Large numbers of people are left permanently deranged mentally. This grim picture, with its many thematic variations, is continually reinforced by novels, movies, radio and television programs, and journalistic accounts of disaster.(22) [1]

Those experienced in actual disasters are able to reject this picture as a product of ignorance, inaccurate observation, and fertile imagination. In more subtle form, however, stereotypes of this kind influence the thinking of disaster officials and experts and affect their plans and operations. This imagery, therefore, affects both the general public and persons who are responsible for protecting and helping the public in case of disaster.

[1] Numbers in parentheses refer to items in the list of references at the end of the article.

In 1950, a concerted effort to study human behavior in disasters in a systematic manner began. Since that time, there have been numerous opportunities to test the adequacy of these popular conceptions, as well as the more scientific hypotheses relevant to behavior under conditions of stress and crisis. As a result of nearly forty studies of both domestic and foreign peacetime disasters, there is now emerging a clearer, more fundamental understanding of both the typical human responses to disaster and the recurrent human problems of disaster planning and management.(5)(24)

This article will report and analyze some of the more salient general findings of these peacetime disaster studies. In making a selection from the total range of findings contained in the many research studies currently available, we have been guided by a twofold emphasis: First, since much of the current thinking about disaster behavior is based upon observations of the unusual, the dramatic, and the abnormal, we hope to supply a corrective by emphasizing the more general, typical, and recurrent forms of behavior found in disasters. Second, since there are many

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groups and agencies which have a current vital need for accurate information on human actions in disaster, we have selected those findings which seem to have particular pertinence for disaster preparedness, control, and amelioration.

DISASTER WARNINGS

The possibility of warning is conditioned by the extent to which the different types of disaster can be predicted reliably. Even with reliable knowledge about a probable danger, however, it is difficult effectively to warn a large population which cannot directly perceive the danger of a disaster. First, there is the question of whether the warning should be issued or not; next, if the answer is affirmative, of how it should be given. (2) The official who makes these decisions worries about what people will do if he has warned them and the disaster does not occur; conversely, he worries about what will happen if he does not warn them and the disaster does occur. In addition, warnings are sometimes withheld because officials fear that people will "panic" if warned, but the relatively extensive evidence now available from studies of warning situations gives no support to this last fear.(1)(7)(13)(21)

An effective warning message must be clear and specific. If it is vague or ambiguous, if it leaves the individual with as many choices of action as he had before, it will almost certainly be ineffective.(14) Warning messages must be transmitted accurately through channels which will reach the entire public. Care also must be taken to ensure that the population to be warned does not receive additional information which contradicts or distorts the intended warning message.

People are reluctant to accept and act upon warnings of those dangers which they do not directly perceive as immediate and personal. Marysville and Yuba City, California, were flooded during December 1955:

> In spite of intensive mass media coverage, Weather Bureau forecasts of flood danger were either ignored or actually not received by substantial portions of those interviewed in the disaster areas. Furthermore, thirty-nine percent of those who remembered receiving such reports indicated that they did not fully believe them.(1)

The investigators found the following reasons, also supported by other studies, for disbelief and reluctance to act upon flood warnings:

> Lack of past experience with disasters, the delusion of personal invulnerability [the feeling that "it won't get me"], the inability to adopt a new frame of reference so as to expect unusual events, dependency upon protecting authorities, and the willingness to seize upon reassuring communications or to deny or disregard communications predicting disaster. . . .(1)

Reluctance to abandon property and personal possessions is also a common factor weighing against evacuation of threatened areas.

This brief rehearsal of the difficulties of warning is not intended to mean that effective warning is impossible. Effective warning of an impending tornado, for example, is credited with saving the lives of many school children in San Angelo, Texas.(16) The difficulties are real and well documented, however, and we stress them in order to call attention to the need for further research and to emphasize the importance of human factors in planning warning systems.

SURVIVAL BEHAVIOR

When people have no prior warning, the recognition of danger is frequently delayed. One reason is the commonly noted tendency of persons to associate disaster signs with familiar or normal events. In tornadoes, for example, the roar produced by the high winds of the

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vortex is often interpreted as the sound of a train passing nearby. In events involving carbon monoxide or other toxic agents, people often attribute their physical symptoms to chronic ailments or predisaster experiences which might account for their disturbances. Particularly in cases where people are unfamiliar with the disaster agent or cannot directly perceive it, this tendency may continue until it is too late to take adequate protective action.(11)(15)

When danger is recognized as imminent and personal, people seek safety by flight, by taking shelter, or by combating the disaster agent. When a tornado funnel is sighted or the house begins to shake or water comes over the dikes, the behavior of people is generally adaptive; they usually take action aimed to protect themselves and others, rather than "freezing up" or engaging in irrational acts which increase the danger. These actions, of course, are not always effective in protecting them against danger. In the first place, the situation usually permits only a limited choice of actions; in the second place, many people, having had no disaster training or previous experience, do not know which of the available courses of action would be most effective.(13)(15)

One method of survival is flight. "Flight" does not necessarily mean "panic," or uncontrolled flight. It is more often orderly and controlled, with people continuing to think of others and continuing to use critical judgment. Often it is the only rational choice individuals or groups can make if they wish to live.[2] The period of threat, however, is the time when there is the greatest likelihood of panic.(11) Panic is most likely to occur when (*a*) people perceive an immediate, severe danger, (*b*) they believe there is only one or at best a limited number of escape routes from the danger, (*c*) they believe those escape routes are closing (not closed) so that escape must be made quickly, and (*d*) there is a lack of communication to keep them informed of the situation.(6)(17)(18)

During the actual impact of the disaster agent, people try to stay alive and protect their immediate associates. Even during hectic, violent impacts many people continue to act, when they can, with reference to other people in the immediate environment, particularly loved ones. Mothers try to protect their children; fathers their wives and children. The extreme importance of the family group in disaster is revealed in the periods of threat and impact, and it continues throughout the disaster.

Actual behavior during impact is largely determined by the nature of the situation as the individual assesses it. Thus during a brief, violent impact one holds on to things and people, seeks cover from flying objects or collapsing walls, tries to shield children, and so forth. People isolated by floodwaters, after reaching a place out of the water's reach, must await rescue (or in some cases devise further means of escape, such as rafts). If isolation continues long enough, they must combat as best they can the rigors of exposure, hunger, and other deprivations. The chief survival problem in an epidemic or toxicological episode is to keep oneself and one's loved ones as much as possible from contact with the dangerous element.(8)

BEHAVIOR IN THE POST-IMPACT EMERGENCY

Although most persons may be temporarily stunned, confused, and some-

[2] The cultural stereotype which equates flight with cowardice and absence of flight with bravery tends to obscure the fact that flight can be a rational, adaptive form of behavior. The thought is well expressed in the old Chinese saying: "Of the thirty-six ways to escape danger, running away is best." Cf. Carlton Culmsee, "Tight Little Island off China," *New York Times Magazine,* August 19, 1956, p. 66.

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what disoriented after impact, they usually regain sufficient self-control within a brief time to extricate themselves, if they are physically able, and assist family members, kin, neighbors, and friends.(10)(15)

People in the impact zone cannot be expected to act as efficiently and discerningly as they normally do, but if they are isolated for periods of an hour or more, they will accomplish many of the immediate and pressing rescue and relief tasks before the arrival of outside aid. In a study of the White County, Arkansas, tornado, for example, the National Opinion Research Center found that during the first half hour after impact, 32 per cent of all persons in the impact area engaged in search for the missing, 11 per cent took an active role in the rescue activity, and 35 per cent performed emergency relief functions. During the following six hours, 28 per cent engaged in search for the missing, 22 per cent in rescue work, and 46 per cent in emergency relief.(15)

These and similar findings refute the notion that psychological disturbances render the population of the stricken area completely dependent and helpless. It should not be inferred, however, that the victim population can handle all the essential rescue, relief, and control tasks by itself or that it can handle them as efficiently as an organized outside force. Much of the relief activity by the victim population, as well as the informal aid from peripheral areas, is sporadic, unsystematic, and inefficient. It tends to be "grooved" along the channels of intimacy and friendship, so that many of the more general community needs are neglected or overlooked.

Where the stricken area is not isolated by physical circumstances or lack of communication, the victim population is soon joined by volunteer helpers from neighboring areas. It has been estimated that in the Flint-Beecher tornado disaster of June 1953 the victim population and volunteer helpers evacuated two thirds to three fourths of the casualties to hospitals within two hours following the disaster.(20) One participant later stated:

> In spite of all that can be said, pro and con by outsiders, they must realize that the first one and one-half hours of this disaster was practically in the hands of the immediate neighbors . . . the problem of moving bodies and saving lives was in their hands. (20)

To an outside observer the initial behavior of persons in a disaster-struck area is likely to appear completely irrational, chaotic, and confused. In the physical devastation surrounding him, the observer sees what appears to be aimless, random, uncontrolled, or conflicting activity on the part of the survivors. People are running or driving vehicles in opposite directions, oftentimes passing each other without acknowledgment or seeming awareness. Some persons are moving out of the impact area, many others are moving into it. Others are "standing around," apparently just looking or talking with each other. Here and there small groups of people are digging in debris, comforting the injured, or attempting to retrieve their scattered belongings. Behavior is so heterogeneous that it defies description in terms of a few simple categories.

It is this lack of uniformity in action that often leads the outside observer to the erroneous conclusion that the population has "panicked." What the outside observer is witnessing is not panic, but social disorganization—unco-ordinated activity on a general, community level. It is important to recognize that this social disorganization does not necessarily indicate individual irrationality or personal disorganization. Many individuals and small groups are working within the disaster area with purpose and some degree of organization. How-

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ever, they are likely to be focused on discrete, limited tasks and to appear oblivious to the more general needs for assistance. The central problem of disaster management is to broaden the focus of attention and re-establish general, co-ordinated action for this mass of individual and small group actions. (15)

CONVERGENCE BEHAVIOR

One of the central problems of disaster co-ordination and control derives not from the victim population itself, but from the informal, spontaneous, "convergence action" of persons residing outside the disaster area.(12) Contrary to the popular image of behavior in disasters, movement *toward* the disaster area usually is both quantitatively and qualitatively more significant than flight or evacuation from the scene of destruction. Within minutes following most domestic disasters, thousands of persons begin to converge on the disaster area and on first aid stations, hospitals, relief, and communications centers in the disaster environs. Simultaneous with this physical movement of persons, incoming messages of anxious inquiry and offers of help from all parts of the nation and foreign countries begin to overload existing telephone, telegraph, and other communications and information facilities and centers. Shortly following, tons of unsolicited equipment and supplies of clothing, food, bedding, and other material begin arriving in the disaster area or in nearby relief centers. Although the initial convergence derives from areas contiguous or proximate to the disaster site, the process continues for days and weeks following the disaster as wave upon wave of persons from successively distant points send messages and supplies or personally travel to the disaster area.

In virtually every disaster studied, the informal convergence on the disaster area and the mass assault(20) on the problems posed by the disaster have seriously hampered the administration of organized rescue, medical, emergency relief, and rehabilitation programs. The movement of emergency vehicles is often blocked by severe traffic congestion; essential outgoing messages are frequently delayed as a result of the heavy volume of incoming inquiries and messages; and the tons of unsolicited goods, in large proportion comprised of unneeded and unusable materials, greatly contribute to traffic congestion and require personnel and facilities in handling and storage which could be used for more essential tasks and functions.

The misconception that a disaster-struck population automatically panics and flees wildly from the disaster area has tended to center attention on the victim population as the source of control problems. In reality, however, the victim population is much more cooperative and subject to control than persons who converge from the outside. The population affected by a disaster is not confined to the immediate geographical area of destruction, death, and injury but includes all persons who are related to or identified with persons and organizations in the stricken community. Even in isolated, single-community disasters, the converging people, messages, and supplies originate in many parts of the nation and in a number of foreign countries.(12) The effective unit of disaster management is usually national in scope and, therefore, requires national planning and control measures.

Effective control of the convergence process requires not only broadening the unit of disaster management but also recognition of the different motives of the convergers. The problem of convergence is often too narrowly conceived as a problem of blocking or restraining "sightseers," "looters," and other "un-

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authorized personnel." This type of thinking often derives from the erroneous notion that most people who converge on a disaster area from outside have exploitative motivations. The actual incidence of looting and other forms of exploitation found in peacetime disasters, however, is relatively insignificant when compared with actions motivated by anxiety over missing loved ones, sympathy for and desire to assist the stricken population, and the need to perceive and comprehend an unusual or unfamiliar event.(12)(15) Satisfaction of these needs depends upon adequate information, positive direction, and guidance rather than indiscriminate restraint.

CO-ORDINATION AND CONTROL

In the light of what has been reported above, it is evident why control and co-ordination of the rescue and relief effort are difficult to achieve. The amount of confusion in disasters is often overemphasized; nevertheless, it does exist. It has its roots in a number of factors: (*a*) the physical disorganization of the disaster-stricken area; (*b*) darkness, if the rescue and relief effort is conducted at night; (*c*) the effects of convergence behavior; (*d*) a great sense of urgency to act, to get something done to help the victims, which makes taking the time to communicate and co-ordinate decisions seem a luxury; (*e*) the fact that under stress it is difficult to exercise the more complex intellectual processes, such as looking ahead and thinking about the indirect consequences of a decision—except for the highly trained and experienced and those few individuals who become unusually efficient in crisis; (*f*) lack of workable, pre-existing plans on a community-wide basis;[3] (*g*) inadequate communication, partly because of the destruction of communication facilities, but more generally because of inadequate and improper use of these facilities; (*h*) ambiguity concerning what official or agency has the authority for certain decisions; (*i*) the absence of an agreed-upon, understood division of labor among different groups and agencies; (*j*) the occurrence sometimes (though not as frequently as rumors would often suggest) of disputes concerning authority, responsibilities, and jurisdictions; (*k*) the lack of systematic reconnaissance and other procedures for maintaining a central strategic overview of the problem; and (*l*) the lack of essential central co-ordinating mechanisms, such as means of co-ordinating requests for supplies.(9)(12)(16)(19)(20)

The brief discussion above must, of course, oversimplify a complex situation. The statement that lack of division of labor is a factor impeding co-ordination and control, for example, is not intended to imply that different groups and agencies cannot work efficiently and usefully on the same kinds of task. Nor do we intend to imply that the existence of disputes invariably disrupts the community or affects the services rendered to the victims. Nevertheless, the factors recited above often impede and sometimes confound disaster management; they are problems which must be taken into account if it is to be improved.

EMOTIONAL AND PSYCHOSOMATIC AFTEREFFECT

Most persons who directly experience a disaster or who are closely identified with the victim population suffer some form of emotional or psychosomatic

[3] Arrangements between pairs or groups of collateral agencies are frequent, and community-wide disaster plans sometimes exist on paper or in an embryonic stage of organization; but if plans are to be effective they must be understood and accepted by all those who have a part in them, including the general public, and they must be practiced.

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aftereffect in the early postdisaster period.(11)(15)(23) Despite the universality of such disturbances, however, they usually do not eventuate in heavy drains on psychiatric and medical facilities. Since so many symptoms arise out of such situational factors as fear for the safety of self and intimates, separation of family members, disruption of normal routines, and anxieties concerning the future, an effective "treatment" lies in the alleviation of the situations which produced them. The minimization of exposure to secondary traumatic stimuli, the rapid reuniting of families, the restoration of familial and occupational routines, rapid and efficient efforts at reconstruction and rehabilitation, and measures designed to protect the populace from future danger are positive measures that can be taken to prevent and ameliorate negative emotional and psychosomatic aftereffects.(15)(19) In a small proportion of cases, persons may need individual psychological or psychiatric help.[4]

SOCIAL SOLIDARITY

The net result of most disasters is a dramatic increase in social solidarity among the affected populace during the emergency and immediate postemergency periods. The sharing of a common threat to survival and the common suffering produced by the disaster tend to produce a breakdown of pre-existing social distinctions and a great outpouring of love, generosity, and altruism. During the first few days or weeks following a major community-wide disaster, persons tend to act toward one another spontaneously, sympathetically, and sentimentally, on the basis of common human needs rather than in terms of predisaster differences in social and economic status. This solidarity is of major significance in facilitating both personal and social recuperation. It helps persons to overcome the shock of severe personal injuries, losses, and deprivations and motivates volunteer participation in the numerous rescue, relief, and restoration tasks.

This local solidarity, however, also poses operational problems for outside relief and control agencies. If the informal mass assault has fulfilled a large share of the immediate emergency needs, as it usually does in domestic peacetime disasters, a strong in-group feeling of euphoria and pride of accomplishment tends to develop. If the actions of the outsiders do not coincide with the new sentiments and emergency norms that have arisen among the affected populace, the outsiders tend to be criticized and resented. Outside persons or agencies which adjust to the local sentiments of solidarity and enable the local populace to pursue their self-determined course of action, on the other hand, usually are accepted and accorded high praise.(9)(12)(15)(16)

If there is no recurrent or persistent threat to community survival after the various emergency tasks have been completed and restoration gets under way, the newly engendered social solidarity gradually disintegrates. As larger and larger numbers of people re-establish themselves and return to normal pursuits, the process of social differentiation returns and the standards of reference change from values of survival to values associated with continuity and stability. People begin thinking of the consequences of the disaster not in terms of the immediate present, as they have done during the emergency period, but in terms of the longer-range future; in terms of the effect on them-

[4] For a further discussion of psychological effects, see the article in this issue of THE ANNALS by Calvin S. Drayer, "Psychological Factors and Problems, Emergency and Long-Term."

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selves and their intimates rather than on the community as a whole. Property values and concern with material symbols of status reassert themselves. This return to the normal conditions of existence is likely to be uneven, varying in accordance with the extent of personal loss and property destruction. It is during this period, when persons begin comparing their losses and deprivations in terms of predisaster standards of value, that normal social conflicts and resentments may reappear. In some cases, though certainly not inevitably, pre-existing conflicts may be intensified by the disaster experience. (13)

The rapid shift in values from normal to emergency, from social differentiation to social homogeneity, and the uneven, selective return to normal standards often create difficulties for organizations which have standardized policies and procedures for administering disaster relief and rehabilitation aid. Many of the problems of disaster management result from the temporary lack of "fit" between the conceptions of need of the victim population and of the organizations attempting to administer to this population. As a consequence of these different conceptions, the activities of the organization and the needs of the clients get out of phase; incompatibility and even conflict may result. From an organizational viewpoint, solutions to this problem lie primarily in developing greater sensitivity to the prevailing climate of opinion among the victim population and greater capacity to make rapid adjustments to local situations.

HOSTILITY AND BLAME

Although it is true that conflicts often develop between different agencies and groups and old controversies within the community are sometimes reawakened in disaster, it is also true that other schisms are healed and new forms of co-operation arise. The commonly held stereotype that in the wake of disasters people inevitably and universally become hostile and irritable, engage in irrational aggressive acts against authorities, or heap blame for the disaster on innocent victims finds little support in systematic research findings. (3) (12) (15)

People, of course, do attempt to assess the causative factors in disaster, the remedial action needed to prevent recurrence, and the groups or agencies responsible for this remedial action. The outcome of this assessment process, however, is not necessarily the focalization of blame, resentment, or hostility on fortuitous or irrational targets. In one city where three airplane crashes occurred within a period of two months, it was found that many persons were attempting to determine responsibility for the crashes, but only a minority of them resented those whom they held responsible. (3) (15) The process of blame assessment is essentially a future-oriented response to disaster; agents who are blamed are not blamed for the disaster just past but for the disaster that may occur in the future. If the responsible authorities are sensitive to the public fear of recurrent danger and deprivation and communicate to the populace that they are genuinely concerned with the problem and are doing everything in their power to take effective measures to provide future protection, the problem of blame assessment can be minimized. In disasters which are defined as purely accidental and nonrecurrent or those in which there is clearly nothing that responsible individuals or agencies can do to remedy the situation, blame assessment is not likely to occur. (3) (15)

An erroneous impression of widespread faultfinding and search for a

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scapegoat is often fostered by a few vociferous persons in the community who try to use the disaster to secure power, status, prestige, or other rewards for themselves or for special interest groups. These "issue makers" oftentimes utilize newspaper editorials, feature articles, letters to the editor, and other media of mass communication to express themselves, thereby creating a misleading picture of the generality and representativeness of their viewpoints. In many cases, hostile outbursts by local public officials and representatives of local professional and voluntary associations are inspired by what they interpret as unwarranted outside encroachments of authority, attempts to usurp power and dictate policy, or an attempt to claim credit for success of the relief work.(20) Although they usually do not have widespread public support for their viewpoints, they create issues on which the public is expected to take a stand.(15) They therefore pose the possibility of engendering disruptive conflicts which may hinder the effective administration of relief and rehabilitation programs. Outside agencies, in particular, must be sensitive to this problem and anticipate it in their disaster plans.

CONCLUSION

The possibility of maladaptive, disruptive, or antisocial behavior should not be overlooked in planning for disaster management. Disaster agencies are likely to fall into error, however, if they focus primary attention upon the popular stereotypes of disaster behavior and overlook the more common and recurrent forms of behavior reported in this article. Most of the human problems of disaster originate in the lack of co-ordination among the great mass of people, small groups, and official disaster agencies, each of which is viewing and attempting to meet the needs of the disaster in terms of its own perspective and capabilities. When communities or groups have no practiced plans of action which fit into an organized, overall disaster plan, behavior tends to be too segmental, too limited in scope, and too much dominated by the immediate present to provide efficiently for the more general, continuing human needs posed by a disaster. The challenge for future planning lies in the development of realistic plans for organizing, training, integrating, and co-ordinating the actions of both the general populace and the formal disaster agencies.

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