

LILCO, October 12, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)	
)	
LONG ISLAND LIGHTING COMPANY)	Docket No. 50-322 (OL)
)	(Emergency Planning--
(Shoreham Nuclear Power Station,)	Phase I)
Unit 1))	

TESTIMONY OF MATTHEW C. CORDARO, RUSSELL R. DYNES,
DENNIS S. MILETI, AND JAMES RIVELLO
ON BEHALF OF THE LONG ISLAND LIGHTING COMPANY
ON PHASE I EMERGENCY PLANNING CONTENTION
5(A) -- ROLE CONFLICT

PURPOSE

The purpose of this testimony is to establish that an extensive history of evidence suggests that the functioning of emergency organizations is not hampered by the failure or delay of emergency workers in performing their jobs. In spite of role "strain," such workers perform effectively. While role abandonment may be theoretically possible, it is certainly rare and consequently is not a factor in reducing organizational effectiveness. In addition, training for emergency work and mechanisms reduces role strain and enhances the effective performance of emergency workers.

Attachments to this Testimony:

Attachment 5(A)-1	Professional Qualifications of Matthew C. Cordaro
Attachment 5(A)-2	Professional Qualifications of Russell R. Dynes
Attachment 5(A)-3	Professional Qualifications of Dennis S. Mileti
Attachment 5(A)-4	Professional Qualifications of James Rivello

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5(A) -- ROLE CONFLICT

Q1. Please state your names and business addresses.

A1. My name is Matthew C. Cordaro; my business address is
Long Island Lighting Company, 175 Old Country Road,
Hicksville, New York, 11801.

My name is Russell R. Dynes; my business address is
Department of Sociology, University of Delaware, Newark,
Delaware, 19711.

My name is Dennis S. Miletic; my business address is
Department of Sociology, Colorado State University, Fort
Collins, Colorado, 80523.

My name is James Rivello; my business address is Shoreham Nuclear Power Station, P. O. Box 618, Wading River, New York, 11792.

Q2. Please state your professional qualifications.

A2. [Cordaro] I am Vice President, Engineering, for LILCO. My professional qualifications are attached to this testimony (Attachment 5(A)-1). I am sitting with this panel to provide the LILCO management perspective regarding Emergency Planning, and to answer any questions pertinent to management. My role in Emergency Planning is to ensure that the needs and requirements of Emergency Planning are being provided, and that the technical direction and content of Emergency Planning are being conveyed to corporate management.

[Dynes] I am Professor and Chairman, Department of Sociology, University of Delaware. My professional qualifications are attached to this testimony (Attachment 5(A)-2). My familiarity with the issues surrounding role conflict stems from a knowledge of the research literature of emergencies plus my own research experience.

[Mileti] I am Associate Professor of Sociology. My professional qualifications are attached to this

testimony (Attachment 5(A)-3). My familiarity with the issues surrounding role conflict stems from knowledge of the theoretical and empirical literatures in the emergency behavior area, and from some of my own research experience.

[Rivello] I am Plant Manager of the Shoreham Nuclear Power Station. My professional qualifications are attached to this testimony (Attachment 5(A)-4). My familiarity with the issue surrounding role conflict stems from my work experience as Plant Manager of Shoreham.

Q3. Are you familiar with Suffolk County Contention EP 5(A)?

A3. [All Witnesses] Yes.

Q4. What does Contention EP 5(A) say?

A4. [All Witnesses] Contention EP 5(A) reads as follows:

It does not appear that LILCO has addressed or analyzed the possibility that offsite personnel and/or onsite augmenting personnel expected to report to the Shoreham site for emergency duty, would fail to report (or report in a timely manner) because of conflicting family (or other) duties that would arise in the event of a radiological emergency.

Q5. How does this contention relate to the other Phase I emergency planning contentions?

- A5. [All Witnesses] The physical ability of offsite personnel, such as ambulance drivers, to report to Shoreham is addressed in contention EP 2(B). The augmentation of the onsite organization by personnel located offsite at the commencement of an emergency is addressed in Contention EP 7(B).
- Q6. Simply stated, what is the thrust of contention EP 5(A)?
- A6. [All Witnesses] During an emergency at Shoreham, additional LILCO personnel from offsite may be called to the site to augment existing LILCO personnel. (See LILCO testimony on contention EP 7(B) for details.) Also, certain emergency service personnel, such as policemen, firemen, and ambulance personnel, may be called on to respond at the site. As best as can be discerned, contention EP 5(A) questions whether LILCO has considered the possibility that these persons located offsite would delay or fail altogether to report onsite for their duties. The County appears to be contending in EP 5(A) that delays or failures may result due to a phenomenon, believed to occur in emergency or disaster occurrences, that sociologists have come to label as "role conflict."
- Q7. What is "role conflict"?

A7. [Dynes, Mileti] The notion of role conflict is a concept within the social sciences based on the following ideas. Individuals in society play many different roles -- that is, they have certain rights and obligations in particular social relationships. Because each person plays many different roles, there is the possibility that the rights and obligations of one role can be consistent, reinforcing, irrelevant, or conflictual with the rights and obligations of another. While the idea of role "conflict" is frequently cited, it is often used uncritically, as an either/or matter. "Conflict" implies equally weighted contradictory alternatives -- a condition that is rarely, if ever, found in social life. A much more adequate term would be role "strain," which denotes felt difficulty in fulfilling role obligations.

Role "strain" is preferable since it describes more accurately conditions that people experience in all of social life, not just those of emergencies. Thus, dealing with role "strain" is something with which people cope in most social situations and is a permanent feature of social life. Before turning to a further consideration of role "strain", it might be useful to examine the initial ways in which the concept of role "conflict" was used in relation to emergencies.

An illustration of role conflict is often drawn from a widely-quoted article by Lewis Killian, "The Significance of Multiple Group Membership in Disaster," American Journal of Sociology, January 1952, pp. 309-319. Killian's article was one of the first major publications on "disaster" which had widespread distribution among social scientists, and seemingly provided an unusually vivid illustration for the "consequences" of role conflict. As a result, it has been used repeatedly in explanation of the concept in introductory textbooks, and has recently been used as a hypothesized "problem" for emergency planning, since it asserts that emergency workers might initially be "paralyzed" by family obligations.

What was intended as an illustration of a concept has now been distorted into the status of a universal truth, primarily by those who have never read the article carefully. Without attempting to critique the paper, there are several points of clarification necessary. Killian illustrated several different potential "role conflict" situations. Several of these were situations in which the people had no definite responsibility in the emergency social system (that is, the mobilization of community resources to deal with an emergency). Those examples stood for the simple proposition that, if

people have no definite "role," they will be unclear as to what they should do. Since these people had no specific disaster responsibilities, it is difficult to know what their "family" obligations prevented them from doing. Significantly, however, in the illustrations Killian used (which were case studies), those who did have occupational roles relevant to the disaster performed them and even expressed concern that they could not do more. These expressions of "doubt" did not prevent them from performing their usual occupational obligations. In addition, Killian, while seeming to present cases of potential conflict, pointed out that none of this had any real effect on the operation of the emergency social system. This suggests a more accurate reading of Killian's original article might be that while people will express anxiety about potential conflicting obligations in emergencies, they will perform those roles that are more immediately relevant to the emergency social system.

- Q8. Is it possible that some of the offsite emergency workers will experience a strain, and if so, will it cause the emergency workers not to proceed with their job, or to delay unduly their response?

A8. [Dynes, Mileti] It is quite possible that emergency workers might experience role strain, but this does not mean they would abandon their emergency role. This conclusion is suggested by long and extensive research conducted in the actual behavior of persons who have had definite organizational responsibility in emergencies.

[Dynes] Over the years, the Disaster Research Center at Ohio State University has conducted interviews with personnel in emergency organizations affected by a variety of emergency situations. While many of these interviews have concentrated on officials in top or key positions in the emergency social system, a considerable number have also been conducted with middle and lower level employees. In other words, the interviews included not just police chiefs but sergeants and patrolmen; not just physicians, but nurses and attendants; not just heads of public works departments, but supervisors and crew members. The number of such interviews now constitutes over 6000. I have been unable to determine an example of non-reporting, or of leaving one's emergency responsibility. Nor have I found any instance where the functioning of an emergency organization was undercut by personnel not reporting to duty. Indeed, what often occurs is that there is an oversupply of personnel, which requires effective

procedures to assure the efficient use of available personnel.

Q9. What are LILCO's plans for effective use of personnel in emergencies?

A9. [Cordaro, Rivello] To best use responding personnel, our Emergency Plan clearly stipulates the type and number of personnel initially requested to respond. LILCO does not allow, or expect, personnel to report to work on their own initiative. Being a 24-hour a day, 7 day per week operation, our personnel are very "shift conscious," and appreciate the frequent need for shift relief.

Familiarity with emergency responses is a regular part of employment with LILCO in view of the nature of our business (e.g., equipment malfunctions, hurricanes, ice storms, etc.). Our emergencies generally cover time periods in excess of 12 or 16 hours, and thus general practices are strongly entrenched to ensure that employees respond, and that personnel are used efficiently.

Q10. What is an example of the role conflict problem that contention EP 5(A) seems to involve?

- A10. [Dynes, Mileti] Most of the examples used to illustrate role conflict are based on classic stereotypes of family life that are, in actuality, very untypical.

The classic stereotype postulates the following hypothetical situation: an employed (and competent) male whose place of employment is separated from the location of his unemployed (and incompetent) wife, who is with their small (and anxious) children. This location is in potential danger. This isolated family segment is presumed to lack alternative sources of immediately available support, such as kin or neighbors. Further, it is presumed that there will be a lack of communication lines, thus making it impossible to obtain knowledge about the "safety" of the rest of the family. Finally, it is presumed that the employee-husband has vague and perhaps inconsequential emergency responsibility. From this mix of assumptions, one might prophesize that in such a situation, the strong, competent husband might leave his post and go home to take care of his family, or delay doing anything, until he somehow was personally assured that they were being taken care of. If the person did leave or delay, the organization would lose an employee, albeit one who lacked organizational commitment and perhaps adaptability. That "loss," however, is unlikely to be

particularly significant to the operation of the organization. He also might come back in a few minutes to assume his role.

Moreover, there are several other factors that make the previous case described more hypothetical than real. The family with the employed male and non-employed wife with small children at home constitutes only about 13 percent of American families. (1980 Census.) These figures suggest that the family system visualized in the classic role "conflict" example is an atypical living arrangement.

In addition, the lack of evidence of persons abandoning emergency roles over a wide range of emergency events suggests that in emergencies, there are certain structural changes in the community which reduce role "strain."

Role obligations are based on values and, during "normal" times, people expend effort on achieving many different values, some potentially contradictory. An emergency changes that dramatically. Some values become clearly more important than others.

This is what has been called the development of an "emergency consensus." In that consensus, protection

for threatened people has the highest priority. Conversely, other traditional values -- for example, making money and enjoying leisure activities -- are drastically affected. This shift, consequently, also simplifies the role obligations of people -- some of their roles become more important while others are not important at all. Thus, much additional role strain is obviated, and the "released" energies of people can be concentrated on the critical tasks of the emergency. This suggests that those with emergency roles will fulfill them, rather than ignoring them to fulfill family obligations. These value priorities then simplify, rather than aggravate, role strain for community members. In particular, the emergency consensus enhances the responsibility of those in emergency organizations.

Consequently, those individuals who work for organizations that have emergency responsibility have clear expectations for their appropriate behavior in such situations. Knowing this prior to an emergency allows an employee to make family contingency plans. (For example, that the same child-care arrangements will be continued; that non-involved relatives or neighbors will assume responsibility; that wives are competent to deal with the situation, etc.) In addition, those

members of emergency organizations are more likely to have accurate knowledge of the scope of the risk, and therefore are more likely to assess the probability of "danger" to separated family members. Also, they are more likely to have the means to up-date information concerning risk to separated family members.

It generally has been found that a major factor explaining why individuals fulfill their role obligations, in spite of great personal danger, is because of the cohesiveness of the work group. A person maintains his or her responsibilities because he or she does not wish to let others down. In situations where the emergency role takes on added importance, it is reasonable to suggest that this sense of obligation to the group is also strengthened. In addition, since part of the traditional image of husband and father includes the obligation to perform adequately the necessary work-related emergency roles, the traditional role should be reinforcing rather than conflictual.

[Cordaro, Rivello] LILCO personnel, and their families, are familiar with emergency responses as a regular part of employment. The comradery among such personnel and families has developed to the point where we address each others' possible family needs.

[Dynes, Mileti] For those individuals with emergency responsibility who are called to respond from off-site, other factors tend to reinforce the fulfillment of their emergency role. That these individuals have emergency responsibility as part of the work role creates clear direction for their behavior. In addition, that they have responsibilities to their co-workers is also clear. Not being there would make it difficult for others. Assuming they are home with their "family" when called upon to respond, they are able to implement their worked-out contingency plan, and have the opportunity to make adjustments to the general plan to fit the specific situation. In other words, the male has the opportunity to play the strong husband and father role, and then to extend those obligations in the context of the emergency organization responsibilities. Again, that person, because of his organizational ties, is likely to have more adequate information about the nature of the problem and the nature of risk, and has pre-planned action for both his occupational and family roles.

The classic stereotypes of role "conflict" also postulate the importance of speed and the potential effects of loss of personnel. In most emergency situations, the value of speed is highly exaggerated. The more important factor is to be efficient in dealing

with real problems rather than being fast at solving irrelevant problems. The same concept is applicable in emergencies. In addition, there is the implicit notion that somehow there will be problems created by the loss of personnel. This has not been evident in other emergency situations. Most regular emergency organizations, such as police and fire, usually operate in three shifts, so at any one time it is possible to mobilize about 2-1/2 times the necessary personnel. In addition, in shift work, extending the work time from 8 to 12 hours provides an extra "half-person."

Too, the notion that needed emergency work is not done because of the absence of critical personnel has been generally found to be false. In emergencies with a focused disaster agent such as an explosion, search and rescue efforts are usually done by those already on the scene. They do not wait for physicians, etc. Usually by the time that physicians get to the site, all of the victims are on the way to a location where proper medical care can be obtained -- such as a hospital. Work does not wait for people to report. It goes on anyway.

The more serious potentialities of role strain, then, can be mitigated by the organizational and occupational assignment of emergency responsibility. In other words, having clear responsibility increases the probability, and usually ensures, that individuals will perform those responsibilities. This is evidenced by the high performance levels exhibited in emergencies by members of police and fire departments, public works departments, highway departments, emergency medical personnel, hospital personnel, and other workers with clear emergency responsibility.

[All witnesses] Such performance levels are ensured by training. Training provides the context for those individuals to preplan activities that allow them to implement their emergency roles, such as providing back-up and supplementary options for continuing family responsibility.

In addition, the strong compliance that is exhibited by those playing emergency roles is facilitated by their "release" from role obligations in other social groups. An emergency presents a social situation where role priorities are clear -- that one's primary responsibility is to one's emergency obligations. Consequently, a person generally is not criticized for

not "performing" other role obligations, but is credited with performing effectively in the roles that have the highest priority at the time. In addition, since other roles within the community are less important and, in some instances, irrelevant to the emergency, this releases considerable "labor" potential that can be used for activities which reinforce emergency work. Work in production and for service organizations can be delayed or suspended so that persons released from these obligations can pick up needed emergency tasks, such as providing supplementary family care. The very definition of an emergency provides a clarification of priorities in role behavior.

[Dynes, Miletic] One final note. Often, subsequent to an emergency, there will be stories about cases where individuals did not fulfill their emergency roles. (Some of these rumors are likely to be reported in hearings as fact.) It is highly unlikely that such anecdotes are based in empirical reality, but the retelling makes them a part of the post-emergency "reality." Such stories, in the absence of evidence, are perhaps best seen as constituting moral tales, rather than as reflections of reality. They represent, as a part of the verbal tradition, the lore that emergency responsibility is important and that the

consequences of lack of attention to it has unfortunate results. Thus, such stories tend to reinforce role obligations for the future rather than describe examples of failures in past behavior. The certainty with which people defend such stories gives clues to the moral nature of their purpose.

Q11. Would your answer be any different for offsite LILCO augmenting personnel?

A11. [All witnesses] No. People are often faced with competing demands during non-emergency times. Competing demands during an emergency can be minimized by these workers in several different ways. These personnel will have had emergency plan training sessions to prepare them to report onsite promptly in an emergency to pre-determined locations. The LILCO augmenting personnel are informed about the nature of radiological emergencies. They are familiar with procedures to be used in the event of an emergency requiring their presence onsite. These workers are also in a position to utilize the various communications networks available to them to ascertain details on the emergency, as well as to assure themselves of the well-being of their family.

Q12. Do you have any reason to believe that LILCO has not considered the possibility that offsite emergency service personnel would delay or fail to respond onsite in the event of a radiological emergency?

A12. [All witnesses] No.

Q13. Do you have any reason to believe there is any lack of reasonable assurance that onsite assistance from these offsite personnel will be forthcoming in the event of a radiological emergency?

A13. [All witnesses] No.

A14. Do you believe it is necessary, for a good emergency plan, to have conducted a poll of the attitudes of how people might respond in the event of a radiological emergency?

A14. [Dynes, Mileti] No, it is not necessary, for several reasons. First, polls are premised on the notion that statements about current attitudes can be used to predict actual future behavior. This is a problematic assumption. Most social scientists would suggest that attitudes are an imperfect predictor of behavior. Asking a person to make a "cold" judgment about how one might hypothetically react in a complex situation, and giving them a few seconds to answer, is not a good prediction of future behavior.

Behavior in an emergency is a social process, not a function of individual attitudes (husbands talk to wives, neighbors, employees, etc.; wives talk to husbands, neighbors, etc.). In that process, which is social in nature, notions as to appropriate ways to act emerge. It is easy to say "I'm not going to respond," or anything else, since responding is troublesome -- it takes energy. But faced with a threat (confirmed by the social process) and defined appropriate action (assuming one's post), the trouble is worth it, and the action takes place.

Second, the factors that influence human response to emergencies are relatively well-known and accepted as valid by most scientists in this area. These factors can be addressed in an emergency plan to help achieve good response when the plan is put into operation. An attitude or opinion profile would not appreciably help address those factors in the plan or upgrade good organizational response were the plan ever activated.

Third, a plan is primarily comprised of the actions of organizations, not individual persons. The plan does not depend on "public" opinion; it depends on organizational functioning to do the work and give public information.

Fourth, the purpose of polls would presumably be to obtain information and avoid unfounded assumptions. Far from relying on any lack of information or untested assumptions, LILCO's emergency planning efforts in reference to role "conflict" rest upon the substantial evidence of how emergency workers have dealt in previous natural and so-called "technological" disasters. That evidence clearly establishes that most emergency workers can be relied upon to do their jobs promptly and effectively when duty calls, and that role "conflict" does not hinder overall group performance.

In general, then, a poll is unnecessary (1) because it is not a valid and reliable instrument for predicting future behavior, (2) because it would not upgrade the list of factors a plan should address, (3) because a plan is mostly based on the actions of organizations, and (4) because past experience suggests that emergency workers perform their assignments.

This is not to say, however, that a "survey" might not make important contributions to emergency planning. For example, a survey could be used to identify people who are willing to perform volunteer emergency work. The people identified by the survey could then be given an emergency role and trained.

Q15. Please summarize your testimony.

A15. [All witnesses] An extensive history of evidence suggests that the functioning of emergency organizations is not hampered by the failure or delay of emergency workers in performing their jobs. In spite of role "strain," such workers perform effectively. While role abandonment may be theoretically possible, it is certainly rare, and consequently is not a factor in reducing organizational effectiveness. In addition, training for emergency work and mechanisms reduces role strain and enhances the effective performance of emergency workers.

PROFESSIONAL QUALIFICATIONS

MATTHEW C. CORDARO

Vice President of Engineering

LONG ISLAND LIGHTING COMPANY

My name is Matthew C. Cordaro. My business address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York 11801. I am currently Vice President of Engineering and have held this position since the spring of 1978. As Vice President of Engineering, I am responsible for all of LILCO's engineering activities. This includes responsibility in the areas of facility planning and engineering for nuclear and fossil electric generating plants, as well as electric and gas transmission and distribution systems. In addition, I am responsible for assessing the environmental impacts of all LILCO operations.

I received my Bachelor of Science degree in Engineering Science from C. W. Post College in 1965. I received my Master of Science degree in Nuclear Engineering from New York University in 1967. I received my Doctorate in Applied Nuclear Physics from the Cooper Union School of Engineering and Science in 1970. I was awarded the Atomic Energy Commission Special Fellowship in Nuclear Science and Engineering.

My past professional affiliations include a position as Guest Research Associate at Brookhaven National Laboratory, Adjunct Associate Professor of Nuclear Engineering at Polytechnic Institute of New York and Adjunct Assistant Professor at C. W. Post College.

I joined LILCO in 1966 and from 1966 to 1970 I held the positions of Assistant Engineer (1966), Associate Engineer (1967), Nuclear Physicist (1968) and Senior Environmental Engineer (1970). In these earliest positions with LILCO I was involved as a principal in all phases of nuclear power plant design, licensing and fuel management. I was also a lead witness for the Company in Federal and State licensing proceedings for the Shoreham and Jamesport Nuclear Power Stations.

In 1972 I assumed the position of Manager of Environmental Engineering. In this capacity I was responsible for the environmental impact of all LILCO operations. This position involved the supervision, administration and direction of all environmental programs aimed at demonstrating compliance with applicable standards.

I am a member of a number of related professional organizations including: the Board of Directors, Adelphi University's Center on Energy Studies; and the Council of Overseers, C. W. Post College. Other related professional

affiliations are: the Technical Resources Advisory Council to the New York State Department of Environmental Conservation; the New York Power Pool Environmental Committee; Advisory Task Forces and Committees of the Atomic Industrial Forum; the Long Island Association of Commerce and Industry Environmental Committee; the Advisory Board to Environmental Technology Seminar; the Environment and Energy Committee of the Edison Electric Institute; and the HSA Environmental Task Force. I have also been a member of the Research Planning Advisory Committee for the New England River Basins Commission Study of Long Island Sound, the Marine Advisory Council to the New York State Sea Grants Seminar, and the Nassau-Suffolk Health Systems Agency (HSA), Suffolk County Council.

In addition, I am a member of the American Nuclear Society, the Health Physics Society and the Environmental Technology Seminar.

My most recent publications include a paper on methodology for power plant site selection, papers presented at the World Energy Conference on space heating alternatives and power plant cooling systems, a paper related to power plant waste heat utilization, and a paper on the transportation of nuclear wastes. I have also published journal articles in the fields of environmental science and nuclear science, as well as

numerous studies and reports related to the environmental effects of energy production.

I recently testified before Congressional Committees on Nuclear Waste Transport and the Economics and Environmental Impacts of Coal Utilization.

PROFESSIONAL QUALIFICATIONS

RUSSELL R. DYNES

Chair, Department of Sociology

UNIVERSITY OF DELAWARE

My name is Russell R. Dynes and my business address is the Department of Sociology, University of Delaware, Newark, Delaware 19711. I presently hold the position of Chair and Professor, Department of Sociology.

I received my A.B. and my Master of Arts degree from the University of Tennessee in 1948 and 1950, respectively. I was awarded my Doctorate degree in 1954 from the Ohio State University.

From 1948 to 1950 I was a Graduate Assistant and Instructor at the University of Tennessee. I was then a Graduate Assistant and Assistant Instructor at the Ohio State University from 1951 to 1952 and, subsequently, an Instructor there from 1952 to 1956. From 1956 to 1960, still at Ohio State, I held the position of Assistant Professor. In the summer of 1958 I served as a Visiting Professor at Capital University. I then returned to Ohio State where I was an Associate Professor from 1960 to 1965. In 1964 I was employed by the Air Shams University and Arab States Center for

Education in Community Development in the United Arab Republic as a Fulbright Professor. I served in this capacity for one year. Once again I returned to the Ohio State University where I was a Professor from 1965 to 1977. From December of 1971 through March of 1972 I was again a Fulbright Professor. During this time I was employed by the Center for Advanced Study in Sociology, University of Delhi.

I have held several administrative positions including: Co-Director of the Disaster Research Center at the Ohio State University from 1964 to 1977; Chair, Department of Sociology, also at Ohio State, from 1974 to 1977; and Executive Officer of the American Sociological Association from 1977 to 1982.

From 1964 to 1965 I received a Fulbright Award and was a Senior Lecturer in the United Arab Republic. In 1969 I was awarded the Alpha Kappa Delta Graduate Teaching Award. I again received a Fulbright Award as a Senior Lecturer in India from 1971 to 1972. I received an Honorary Faculty Membership and an Honorary Lifetime Faculty Award from the Defense Civil Preparedness Agency Staff College in 1973 and 1974, respectively. In 1976 I became an honorary member of Phi Kappa Phi. In addition, I am an Honorary Member of the International Disaster Institute in London.

From 1949 to 1950 I served as Project Director of the Cooperative Study between the University of Tennessee and the Tennessee Department of Welfare. I was Co-Director of the

Study of Industrial Migrants in the Ohio Atomic Area, sponsored by the National Council of Churches of Christ in America, from 1954 to 1955. From 1955 to 1956 I held the position of Project Director for the School Community Development Study entitled, "Educational Changes in a Transitional Community," sponsored by the Kellogg Foundation, the Ohio State University. As a Research Associate at the School of Aviation Medicine, Air University, Randolph Field, Texas, from 1953 to 1957 I was involved in research concerning the "Relationship Between Sociological Background Factors and the Psychiatric Fitness of Air Force Personnel."

I then held the position from 1957 to 1959, of Project Supervisor of the Wellsville Project, Community and Regional Planning and Development, Engineering Experiment Station, at the Ohio State University. In 1956, I was Faculty Supervisor of the Social Science Research Council Undergraduate Research Stipend. From 1955 to 1960 I supervised several projects sponsored by the Graduate School of Ohio State. Also at Ohio State, from 1963 to 1977, I served as Co-Director of the Disaster Research Center. In this same time period, from 1963 to 1969, I was the co-principal investigator of a study entitled, "Laboratory Simulation Studies of Organizational Behavior Under Stress." This study was conducted at the Ohio State University Research Foundation, sponsored by the Office of Aerospace Research, Air Force.

From 1965 to 1966 I was a Fellow at the American Research Center in Egypt. Subsequently, from 1967 to 1971, I was the Principal Investigator of a study conducted by the Office of Water Resources Research, Department of Interior, entitled, "Community Reaction to Water Resource Problems in Relation to Planning." I simultaneously served from 1966 to 1968 as the Principal Investigator of a study conducted by the College of Commerce and Administration Grant entitled, "Restudy of a Transitional Community."

I served as Co-Principal Investigator of a variety of studies, including: from 1968 to 1971, a study conducted by the Mershon Social Science Foundation entitled, "Cross Cultural Studies of Disaster"; from 1968 to 1974, a study sponsored by the National Institute of Mental Health entitled, "Organizational Response to Major Community Crises"; from 1963 to 1977, a Department of Defense study entitled, "Organizational Functioning in Disaster," conducted by the Office of Civil Defense; from 1970 to 1971 I studied "Police Behavior in a College Riot" for the Law Enforcement Assistance Administration; from 1974 to 1975, I was involved in two different studies, "Delivery of Mental Health Services in the Xenia Disaster," for the State of Ohio Department of Mental Health and Mental Retardation and "Organizational Communication and Decision Making in Disaster," for the Advanced Projects Research Agency; I then spent two years, from 1975 to 1977, as

the co-principal investigator of a study entitled, "Delivery of Emergency Medical Services in Disaster," sponsored by the Bureau of Health Services Research, Health Resources Administration, National Institute of Health, Department of Health, Education and Welfare; in addition, I was involved in two studies for the National Institute of Mental Health entitled, "Development of Baseline Information of Mental Health Disaster Assistance/Crises Intervention Needs and Resources," and "Delivery of Mental Health Services in Disaster," from 1976 to 1977 and 1976 to 1979, respectively. Finally, I have served as the principal investigator of various projects related to the activities of the American Sociological Association, NSF, NIE, FIPSE, and Lilly since 1977.

Since 1956 I have participated in a number of professionally related workshops and conferences, including: the Conference on Social Theory, Emory University, 1956; a Seminar on "Interpretations of Religion in Sociological Theory," University of North Carolina, 1959; Workshop on Crisis Research, sponsored by the University of Pittsburgh and the System Development Corporation, Newport Beach, California, December, 1976; Workshop on Sociological Aspects of Water Resources Research, Utah State University, May, 1968; Caribbean Regional Seminar on Pre-Disaster Preparedness, Port-of-Spain, Trinidad, June, 1968; IIIeme Seminaire Sur La Planification Des Secours En Cas De Catastrophes Naturelles,

Port-au-Prince, Haiti: June, 1970; "Methodological Issues in Comparative Research," Institute of Comparative Sociology, Indiana University, Bloomington, Indiana, April, 1971; Seminar on Organizational and Community Responses to Disasters, sponsored by the National Science Foundation and Japan Society for Promotion of Science, Columbus, Ohio, September, 1972; NIMH Continuing Education Seminar in Emergency Mental Health Services, Washington, D.C., June 22-24, 1973; Invitational Conference, "The Assessment of Social Impacts of Oil Spills," The Institute on Man and Science, Rensselaerville, New York, September 25-28, 1973; International Conference of Disaster Researchers, sponsored by the Centre d'Etudes Psychosociologiques des Sinistres et de leur Prevention, Paris, France, September 5-6, 1974; Second National Conference on Reduction of Natural Hazards, University of Colorado, Boulder, Colorado, June 22-25, 1975; Third National Conference, June 30-July 2, 1976; First National Social Scientists Conference, U.S. Army Corps of Engineers, Memphis, Tennessee, September 20-24, 1976; Workshop on Issues and Options in Disaster Management, Office of Technology Assessment, Washington, D.C., March, 1978; Workshop, Functions and Effects, Emergency Preparedness, National Governors Association, Washington, D.C., May 25-26, 1978; Workshop, Fire Safety and Disaster Preparation, Intergovernmental Science, Engineering and Technology Panel, American Association for the Advancement of

Science, March, 1979; and Conference, Social and Economic Effects of Earthquakes and Planning to Mitigate their Impacts, Yugoslav Association of Self-Managed Communities for the Interest for Scientific Research and U.S. National Science Foundation, Lake Bled, July, 1981.

In addition, I served as Delegate to the International Consultation on the Sociology of Religion, Georgetown University, September, 1962; Principal Lecturer, Seminar on the Sociological Aspects of Collective Stress, sponsored by Patina University, A. N. Sinha Institute and the U.S. Educational Foundation in India, Patna, Bihar, India, March, 1972; participant and consultant, "Interorganizational and Interagency Relations in Major Disasters," National Emergency Planning Establishment, Government of Canada, Arnprior, Ontario, October 22-24, 1974; Seminar Leader, "Civil Military Relations in Crises," Foreign Area Officers Course, Army Civil Affairs School, Fort Bragg, North Carolina, December 17-18, 1975; and Organizer, Workshop on Directions in Applied Sociology, American Sociological Association, Washington, D.C., December, 1981.

I have also had numerous occasions to appear as a lecturer at conferences, workshops and symposiums, including the following: National Center for Social and Criminological Research, Cairo, U.A.R.; American University in Cairo, UNESCO Arab States Center, Sirs-el-layyan, U.A.R.; Canadian Emergency

Measures Organization, Arnprior, Ontario; Temple University Medical School MEND Symposium; Office of Civil Defense Staff College, Battle Creek, Michigan; National Association of State Defense Directors; Symposium on Law Enforcement Science and Technology; American Hospital Association; U.S. Department of State; Canadian Department of Health and Welfare; Centre d'Etudes Psychosociologiques des Sinistres et de leur Prevention, Paris, Frnce; School of Aviation Medicine, San Antonio, Texas; Institute of Disaster Preparedness, University of Southern California; Institute of Government, University of Georgia; Seminar on Church Response to U.S. Disasters and Emergencies, Church World Service, Pittsburgh and Denver; Region II, VIII, Defense Civil Preparedness Agency, Olney, Maryland, Portland, Oregon; U.S. Civil Defense Council, Region I; University of Michigan; University of Nebraska-Omaha; University of Akron; University of Delaware; Central States Faculty Conferences, Oberlin College and Purdue University; Danforth Conference, Lake Forest College; Auburn University; Kentucky Wesleyan University; University of Tennessee; University of Cincinnati; Kent State University; University of Toledo; Wooster College; Utah State University; Cornell University; Pennsylvania State University; Washington University at St. Louis; Air Force Academy; Denison University; University of Illinois; Ghandi Peace Foundation; Rajasthan University; Jawaharal Nehru University; Poona University;

Mysore University; University of Kerala; Madras University; Osmania University; Panjab University; Tribhuvan University, Nepal; Government Men's College, Lahore, Pakistan; University of North Carolina-Greensboro; Old Dominion University; Wichita State University; Oak Ridge Laboratories; University of Notre Dame; University of Tennessee-Martin.

My professional affiliations include memberships in the following: American Academy of Political and Social Sciences; American Association of University Professors, Elected Board Member, 1970-71; Ohio State University; American Sociological Association (ASA), Chair; Ad hoc Committee advising on participation of sociologists in Fulbright-Hays Programs (in conjunction with the Committee on International Exchange of Persons), 1968; ASA, Member, Committee on the Development of World Sociology, two terms Co-Chair, Liaison with National and International Organization; ASA, Committee on Committees, 1975, Elected 1974; ASA, Member, Committee on Regional Affairs, 1974-77; International Sociological Association participation at Evian, France, 1966; Varna, Bulgaria, 1970; Toronto, Canada, 1974; Uppsala, Sweden, 1978; Mexico City, Mexico, 1982; North Central Sociological Association (NCSA), Program Chair, 1958; NCSA Vice-President, 1970-71; NCSA President Elect, 1971-72; NCSA President, 1972-73; NCSA Representative to American Sociological Association, 1974; Ohio Council on Family Relations, Program Chair, 1957 and Executive Committee,

1965-68; Religious Research Association, Program Chair, 1968 and Associate Editor, 1968-77; and Society for the Scientific Study of Religion, Treasurer, Elected 1976-79.

I have also presented papers and/or chaired sessions of various annual meetings of: American Sociological Association, International Sociological Association, Religious Research Association, Ohio Council on Family Relations, Society for the Scientific Study of Religion, American Society of Criminology, American Water Resources Association, Society for the Study of Social Problems, Southwestern Sociological Society, Pacific Sociological Society, Southern Sociological Society, International Congress of Learned Societies in the Field of Religion, North Central Sociological Association.

My undergraduate teaching experience included courses such as Introductory Sociology, Social Problems, Family, Race and Ethnic Relations, Community, Stratification, Religious Institutions, American Society, Comparative Social Organization, and Senior Seminar. The graduate courses I taught comprised Structural Sociology, Seminar in Sociology of Religion, Seminar in Stratification, Qualitative Methods, and Pro-Seminar. In addition, I served as Advisor for about 20 completed Doctorate degrees and Dissertation and General Examinations Committees for about 40 Doctorate degrees. I was also Major Advisor for several Master of Arts degrees and for several Undergraduate Honors Program and Theses.

My professional activities include the following:

Danforth Associate, 1958-, Co-Chair, Ohio Conference, 1963.

Member, Mayor's Faculty Advisory Committee, 1967-68.

Member, Sociology Advisory Committee, Committee on International Exchange of Persons (reviews awards under Fulbright-Hays Program).

Member, Developmental Task Force, Social Science Committee, University Council on Water Resources Research, 1970.

Consultant, Stanford Research Institute, 1971.

Convener, Board of External Examiners, University of Madras, India.

Board of Adjudicators, Graduate School, University of Kerala, India.

National Academy of Sciences/National Research Council

Member, Advisory Committee on Emergency Housing, Building Research Advisory Board, 1972.

Chair, Committee on International Disaster Assistance, Commission on Sociotechnical Systems, 1976-79

Publications of the Committee:

The U.S. Government Foreign Disaster Assistance Program (Washington: National Academy of Sciences, 1978, 168 pp.).

The Role of Technology in International Disaster Assistance (Washington: National Academy of Sciences, 1978, 102 pp.).

Assessing International Disaster Needs (Washington: National Academy of Sciences, 1978).

Liaison Member, International Disaster Assistance Panel, United Nations Association of the United States of America (for NAS/NRC).

Executive Committee, Academic Freedom Clearinghouse,
ACLU, New York

Executive Committee, Council of Secretaries, American
Council of Learned Societies, 1980-1982

Executive Committee, National Humanities Alliance,
1981-1982

Chair, Executive Committee, Consortium of Social
Science Associations, 1981-1982

Executive Committee, AAAS Consortium of Affiliates for
International Programs

Board of Directors, Fulbright Alumni Association,
1980-83

Chair, NATO Fellowship Committee, Committee on
International Exchange of Scholars, 1980

Consultant - Departmental Reviews - Wooster College,
Denison University, Cleveland State University,
Virginia Commonwealth University, University of Texas -
San Antonio

Consultant - Stanford Research Institute, "Technology
Assessment of Earthquake Prediction,"
1974-76

- President's Reorganization Project,
"Federal Emergency Preparedness and
Response Study," 1977-78
- Federal Disaster Assistance
Administration, Housing and Urban
Development
- "Cuban Refugee Camp Consolidation,"
Federal Emergency Management Agency,
1980.
- Home Heating Emergencies, Community
Services Administration
- Shaw, Pittman, Potts and Trowbridge,
Washington

Head, Task Force on Emergency Response and
Preparedness, The President's Commission on the
Accident at Three Mile Island, 1979

Over the years, I have edited a variety of materials.
My background in editing has included the following:

Editor, The Ohio Valley Sociologist, 1958-63.

Editor, Newsletter, Ohio Council of Family Relations,
1960-64.

Editor, Special Issue, "On the Sociology of Religion,"
Sociological Focus, Volume 2, No. 1, 1968. (also
Editor's Introduction, pp. 1-2).

Editor, Consultant on social problems concepts,
Dictionary of Modern Sociology, Littlefield, Adams and
Co., 1969, Thomas F. Hoult, ed.

Co-Editor, Special Issue, "Organizational and Group
Responses to Community Disaster," American Behavioral
Scientist, Volume 13, No. 3 (January-February), 1970

Co-Editor, Special Issue, "Dynamics of Organizational
Involvement and Change in Civil Disturbances," American
Behavioral Scientist, Volume 16, No. 3
(January-February), 1973.

Associate Editor, Review of Religious Research,
1968-77.

Co-Editor, Disaster Research Center Series, 1964-1977.

Reviewer for a number of journals ranging from Journal
of Scientific Study of Religion to Science.

Editor, ASA Footnotes, 1977-1982.

A list of my publications, incorporating books, chap-
ters, monographs, reports, and articles, includes:

Publications:

Books:

1964 Social Problems: Dissensus and Deviation in an
Industrial Society. New York: Oxford
University Press. 594 pp. (Co-author).

- 1969 Deviance: Studies in the Process of Stigmatization and Societal Reaction. New York: Oxford University Press. (Co-author).
- 1970 Organized Behavior in Disaster. Lexington: D.C. Heath. 236 pp. (Republished 1976).
- 1975 Social Movements, Violence and Change: The May Movement in Curacao. Columbus: The Ohio State University Press. (Co-author).
- 1975 Deviance: Definition, Management and Treatment, New York: Oxford University Press. (Co-author).
- 1982 Sociology in Applied Settings, (tentative title) (Howard Freeman, Russell R. Dynes, Peter Rossi, William Foote Whyte, eds).

Chapters, Monographs, and Reports:

- 1951 Homes for the Homeless in Tennessee. Knoxville: The University of Tennessee. Publication of the Bureau of Sociological Research, The University of Tennessee Record Extension Series, Volume 27, No. 4, 67 pp. (with William E. Cole).
- 1954 "The Urban Class System" and "The Urban Religions." Pp. 115-141 and 191-209 in William E. Cole (ed.), Dynamic Urban Sociology. Harrisburg: Stackpole Press.
- 1955 Mobile Industrial Workers and the Church: A Study of People on the Move in Ohio's Atomic Area. National Council of Churches, Division of Home Missions. 31 pp.
- 1956 Consequences of Population Mobility for School and Community Change. Columbus: School-Community Development Study, The Ohio State University. 132 pp.
- 1957 Social Factors Related to Adaptability of Air Force Pilot Trainees. Columbus: Research Foundation, The Ohio State University. 176 pp. (with Alfred Clarke and John Cuber).
- 1959 "The Relation of Community Characteristics to Religious Organization and Behavior." Pp. 253-268 in Marvin Sussman (ed.), Community Structure and Analysis. New York: Thomas Y. Crowell Co.

- 1960 "The Inner City Church." Pp. 15-18 in John Lane Williams (ed.), Our Mission to the City. Report of Methodist Inner City Conference.
- 1964 "Some Preliminary Observations in Organizational Responses in the Emergency Period after the Niigata, Japan Earthquake of June 16, 1964." Research Report #11, Disaster Research Center, 49 pp. (with J. E. Haas and E. L. Quarantelli). (Republished in entirety in Japanese by Japanese Government.
- 1964 "Some Preliminary Observations of the Response of Community Organizations Involved in the Emergency period of the Alaskan Earthquake." Working Paper #2, Disaster Research Center, 28 pp. (with J. E. Haas and E. L. Quarantelli).
- 1966 Observations on Social Change. Sirs-el-layyan, UAR: Arab States Center for Education for Community Development. 44 pp. (in English and Arabic).
- 1967 Acceptance of Change, Part I. Sirs-el-layyan, UAR: Arab States Center for Education for Community Development. 29 pp. (with Louis K. Meleika).
- 1968 The Functioning of Established Organizations in Community Disasters. Report Series No. 1. Columbus: Disaster Research Center. 52 pp. (with George Warheit).
- 1968 "Operational Problems of Organizations in Disasters." Pp. 151-176 in 1967 Emergency Operations Symposium. Santa Monica: System Development Corporation.
- 1969 Community Priorities in the Anchorage, Alaska Earthquake, 1964. Monograph Series No. 4. Columbus: Disaster Research Center. 173 pp. (with Daniel Yutzy, major author and William Anderson).
- 1969 The Functioning of Expanding Organizations in Community Disasters. Report Series No. 2. Columbus: Disaster Research Center. 82 pp.
- 1969 Organized Behavior in Disaster: Analysis and Conceptualization. Columbus: Disaster Research Center. 254 pp. (Republished 1970. Lexington: D.C. Heath).

- 1970 "Different Types of Organizations in Disaster Response and Their Operational Problems." In Robert Brictson (ed.), Emergency Operations. Los Angeles: Tinnon-Brown. (with E. L. Quarantelli).
- 1970 Disruption on the Campuses of Ohio Colleges and Universities, Spring, 1970. Report prepared for the Ohio Council of Churches and Ohio Board United Ministries in Higher Education. 119 pp. (with E. L. Quarantelli). (Several sections of this have been reprinted elsewhere.)
- 1971 "Community Conflict: An Explanation of Its Absence in Natural Disaster." Pp. 220-204 in Clagett G. Smith (ed.), Conflict Resolution: Contributions of the Behavioral Sciences. Notre Dame: University of Notre Dame Press. (with E. L. Quarantelli).
- 1971 Environment Crises. Columbus: Water Resources Center, The Ohio State University. Jan. 91 pp. (with Dennis Wenger).
- 1971 A Model of Community Problem Solving and Selected Empirical Applications. Columbus: Water Resources Center, The Ohio State University. Dec. 153 pp. (with Dennis Wenger).
- 1972 "Cross Cultural Perspective on Disaster." Pp. 235-257 in Proceedings of the Japan-United States Disaster Research Seminar: Organizational and Community Responses to Disaster. Columbus: Disaster Research Center.
- 1972 A Perspective on Disaster Planning. Report Series No. 11. Columbus: Disaster Research Center. 94 pp. (with E. L. Quarantelli and Gary Kreps).
- 1972 "Police Department Planning for Civil Disturbances: Organizational Factors Involved in Changes." Pp. 76-88 in F. Adler and G. O. W. Mueller (eds.), Politics, Crime and the International Scene: An Inter-American Focus. Hato Rey, PR: North South Press. (with M. Brooks and E. L. Quarantelli).
- 1972 Police Perspectives and Behavior in a Campus Disturbance. Columbus: Disaster Research Center. May 166 pp. (with E. L.

Quarantelli and James L. Ross).

- 1974 "Organizations as Victims in American Mass Racial Disturbances: A Reexamination." Pp. 121-142 in E. C. Vivano and Israel Drapkin (eds.), Victimology. Volume 4. Lexington: D. C. Heath. (with E. L. Quarantelli).
- 1974 "Police Perspectives and Behavior in a Campus Disturbance." In Donal MacNamara and Marc Riedel (eds.), Police: Perspectives, Problems and Prospectives. New York: Praeger. (with E. L. Quarantelli and James L. Ross).
- 1974 The Role of Local Civil Defense in Disaster Planning. Report Series No. 16. Columbus: Disaster Research Center. 105 pp. (with E. L. Quarantelli).
- 1975 The Delivery of Mental Health Services in the Xenia Tornado. Columbus: Disaster Research Center. 280 pp. (with E. L. Quarantelli and others).
- 1975 "Rapport sur les activities du Disaster Research Center." Pp. 23-44 in Les Comportements Associes Aux Catastrophes. (Table Ronde de Centre National de la Recherche Scientifique) Paris: Institut International de Feu. (in French and English) (with E. L. Quarantelli).
- 1976 "Emergency Disaster Plans for Vocational Schools." Pp. 151-161 in Developing the Leadership Potential of Urban Vocational Education Administrators. 1976 National Leadership Seminar for Administrators of Vocational Education in April. (with E. L. Quarantelli).
- 1976 "The Family and Community Context of Individual Reactions to Disaster." Pp. 231-245 in H. J. Parad, H. L. P. Resnick, and Libbie Parad (eds.), Emergency and Disaster Management. Bowie: Charles Press Publishers. (with E. L. Quarantelli).
- 1976 May Organizational Communications and Decision Making in Crises. Columbus: Disaster Research Center. 58 pp. (with E. L. Quarantelli).

- 1977 "Crises and Disaster Research." In Annual Review of Sociology. Volume 3. Palo Alto: Annual Reviews Inc. (with E. L. Quarantelli).
- 1978 "Interorganizational Relations in Communities Under Stress." Pp. 50-64 in E. L. Quarantelli (ed.), Disaster: Theory and Research. London: Sage Studies in Sociology.
- 1979 "Helping Behavior in Large Scale Disasters." In Jacqueline MacCauley and David Horton Smith (eds.), Handbook of Informal Participation. San Francisco: Jossey-Bass. (with E. L. Quarantelli).
- "Disasters and Emergency Medical Services." In Proceedings of First International Symposium on Emergency Medical Services (forthcoming).
- 1979 Report of the Emergency Preparedness and Response Task Force, Staff Report to the President's Commission on the Accident at Three Mile Island, Washington, U.S. Government Printing Office, 168 pp.
- 1981 "The Contributions of the Social Sciences to the Evaluation of Emergency Preparedness and Response" in D. Sills, C. Wolff and E. Shelanski, (eds.) The Accident at Three Mile Island: The Human Dimension, Boulder, Westview Press.
- 1981 "Biography of a Colleague" in R. Huff and I. Barak-Glantz (eds.) The Mad, The Bad and The Different, Lexington, Lexington Books (with Alfred Clarke).
- 1982 "Models of Emergency Planning: Contributions From the Social Sciences" in Proceedings of the Third International Conference: Social and Economic Effects of Earthquakes and Planning to Mitigate Their Effects. (forthcoming).
- 1982 "Perspectives on Applied Educational Programs" in Freeman et al., Sociology in Applied Settings, (with Irwin Deutscher).

Articles:

- 1954 "Preference for Male and Female Children: Traditional or Affectional." Marriage and Family Living 16:128-130 (May). (with Simon Dinitz and Alfred Clark).
- 1954 "Toward the Sociology of Religion." Sociology and Social Research 38:227-232.
- 1955 "Church-Sect Typology and Socio-Economic Status." American Sociological Review 20:555-560.
- 1956 "Levels of Occupational Aspiration and Selected Aspiration and Selected Aspects of Family Affection." American Sociological Review 21:212-215.
- 1956 "Sectarianism, Ruralality and Migration." Rural Sociology 21:25-28 (March).
- 1957 "The Consequences of Sectarianism for Social Participation." Social Forces 5:331-334.
- 1957 "Correlates of Marital and Se Roles." The Graduate School Record, The Ohio State University 2:9-10 (December). (with Alfred Clarke and Simon Dinitz).
- 1959 "Levels of Aspiration and Family Affection: Religious Preference as a Variable." The Ohio Journal of Sciences 59:103 (March). (with Alfred Clarke and Simon Dinitz).
- 1963 "Student, Faculty and the Nature of the University." Faculty Forum, Volume 25, May.
- 1965 "The Religious Interpretation of Disaster." Topic 10:34-48 (Fall). (Washington, PA: Washington and Jefferson College) (with Daniel Yutzy).
- 1965 "Three Ladies of Sirs-el-layyan." Viewpoints (Washington: Friends of the Middle East), Volume 5, No. 9 (November).
- 1966 "Natural Disaster as a Social Science Field." National Review of the Social Sciences 3:85-94. (also summary in Arabic).

- 1966 Theoretical Problems in Disaster Research."
Bulletin of Business Research 41:7-9
(September).
- 1967 Administrative, Methodological and Theoretical
Problems of Disaster Research." Indian
Sociological Bulletin 4.4: 215-227 (July).
(with E. L. Quarantelli and J. E. Haas).
- 1967 "Impact of Disaster on Community Life." EMO
National Digest 7:10-13 (April).
- 1967 "Societal and Community Problems in Disaster."
EMO National Digest 7:16-18 (October).
- 1968 "The Church in Higher Education." Leader 10:1-6
(April).
- 1968 "Collective Stress and Its Relation to Water
Resource Planning." Proceeding of Workshop on
Sociological Aspects of Water Resources
Research, Utah State University.
- 1968 "Group Behavior Under Stress: A Required
Convergence of Organizational and Collective
Behavior Perspectives." Sociology and Social
Research 52:416-429. (with E. L. Quarantelli).
- 1968 "Looting in Civil Disorders: An Index of Social
Change." The American Behavioral Scientist,
Volume 2, March. (with E. L. Quarantelli).
- 1968 "Looting in Civil Disturbances and Disasters."
Trans-Action 5:9-14 (May). (with E. L.
Quarantelli).
- 1968 "Redefinitions of Property Norms in Community
Emergencies." International Journal of Legal
Research 3: 100-112 (December). (with E. L.
Quarantelli).
- 1968 "A Sociologist Looks at Water Resources
Research." Proceedings of the Water Resources
Colloquium. Institute for Research on Land and
Water Resources, Pennsylvania State University.
- 1969 "Dissensus and Consensus in Community
Emergencies: Patterns of Looting and Property
Norms." IL Politico, Revista di Science
Politiche 34:276-291. (with E. L. Quarantelli)
(includes an Italian summary).

- 1969 "Organizations in Disaster." EMO National Digest 9:12-13 (April-May). (with George Warheit).
- 1969 "Looting Patterns in Community Disasters and Disturbances." Proceedings of the Third National Symposium on Law Enforcement and Technology. Chicago: IIT Research Institute. pp. 323-327 (with E. L. Quarantelli).
- 1970 "Editors' Introduction." American Behavioral Scientist 13:325-330. (with E. L. Quarantelli).
- 1970 "Organization as Victim in Mass Civil Disturbances." Issues in Criminology 5:181-193 (Summer). (with E. L. Quarantelli).
- 1970 "Organizational Involvement and Changes in Community Structure in Disaster." American Behavioral Scientist 13:430-439.
- 1970 "Property Norms and Looting: Their Patterns in Community Crises." Phylon 31:168-182 (Summer). (with E. L. Quarantelli).
- 1971 "Factors in Community Perception of Water Resources Problems." Water Resources Bulletin 7:644-651. (with Dennis Wenger).
- 1972 "The Principle of Least Interest, Dating Behavior and Family Integration Settings." Journal of Marriage and Family 34:269-272. (with K. Eslinger and Alfred C. Clarke).
- 1972 "When Disaster Strikes (It Isn't Much Like What You've Heard About)." Psychology Today 5:66-70 (February). (with E. L. Quarantelli).
- 1973 "Editors' Introduction." American Behavioral Scientist 16:305-311. (with E. L. Quarantelli).
- 1973 "On Institutionalization of Sociology in the United States." Sociological Focus 6:i-xxvi (Summer).
- 1973 "Organizational and Political Transformation of a Social Movement: A Study of the 30th of May Movement in Curacao." Social Forces 51:330-341. (with William Anderson).

- 1973 "Postscripts to a Presidential Address." Footnotes 1:8 (November).
- 1974 "Counterrioters in Urban Disturbances: Opponents or Supporters of the Status-Quo?" Society 11:50-55 (March-April).
- 1974 "Police Perspectives and Behavior in a Campus Disturbance." Journal of Police Science and Administration 2:344-351. (with E. L. Quarantelli and James L. Ross).
- 1974 "Sociology as a Religious Movement: Thoughts on its Institutionalization in the United States." The American Sociologist 9:167-176 (November).
- 1974 "The Sociology of Religion of Charles Glock: Review Essay." Journal of Scientific Study of Religion 12:466-469.
- 1975 "The Comparative Study of Disaster: A Social Organizational Approach." Mass Emergencies 1:21-31.
- 1976 "Civil Disturbances and Social Change: A Comparative Analysis of the United States and Curacao." Urban Affairs Quarterly, September. (with William Anderson).
- 1976 "Community Conflict: Its Presence and Absence in Natural Disaster Situations." Mass Emergencies 1:139-152. (with E. L. Quarantelli).
- 1976 "The Impact of Devotionalism and Attendance on Ordinary and Emergency Helping Behavior." Journal of Scientific Study of Religion 15:47-59 (March). (with Lynn Nelson).
- 1977 "A Background Note on the Preliminary Findings and Impressions of the DRC Studies." Mass Emergencies 2:147-150).
- 1978 "Organizational Adaptation to Crises." Disasters, Volume 3, No. 1, March. London: International Disaster Institute. (with Benigno Aguirre).
- 1978 "Participation of Sociologists in the Fulbright Program", FOOTNOTES, November.

- 1980 "Sociology in China: Its Restoration and Future Role", FOOTNOTES, October.
- 1981 "The View From Inside", The American Sociologist, 16:97-101, May.

Reprints of Articles:

- 1957 No. 3 in J. Milton Yinger. Religion, Society and the Individual. New York: Macmillan.
- 1962 No. 4 in John F. Cuber and Peggy Harroff. Readings in Sociology. New York: Appleton Century. And in Bartlett H. Strudley. Society and Self: A Reader in Social Psychology. New York: Free Press.
- 1963 No. 9 in Grappling With Ideas. Menominie: Stout State College.
- 1966 No. 14 in Roles des Agences Familiales Dans Les Disasters. Ottawa: Ministere de la Sante-nationale et du Bien-etre.
- 1967 No. 3 in Dwight Dean and Donald Valdes. Experiments in Sociology. New York: Appleton Century. And in Marvin Shaw and Jack Wright. Scales for the Measurement of Attitudes. New York: McGraw-Hill.
- 1968 No. 4 in Robert Rankin and Ritchie Lowery. Sociology: A Science of Society. New York: Charles Scribners Sons.
- 1968 No. 20 in New Society (August 8th). And in Don Bowen and Louis Mascotti. Riots and Rebellion. Beverly Hills: Sage. And in Survival, Volume 4, No. 6 (December).
- 1968 No. 21 in Current (August).
- 1969 No. 3 in John Robinson and Phillip Shaver. Measures of Social Psychological Attitudes. Ann Arbor: Institute of Social Research.
- 1969 No. 20 in Simon Dinitz, et. al. Deviance. New York: Oxford University Press.

- 1969 No. 21 in Rodney Allen and Charles Adair. Violence and Riots in Urban America. Columbus: Charles Jones.
- 1969 No. 17 in Faculty Forum (March). And in The Christian (April).
- 1970 No. 21 in James Short, Jr. Modern Criminals. Chicago: Aldine. And in Bobbs Merrill Reprint Studies in Black History, BC 72.
- 1971 No. 20 in Nils Bateman and David Petersen (eds.). Targets for Change: Perspectives on an Active Sociology. Waltham: Xerox.
- 1971 No. 21 in H. Taylor Buckner. Deviance: Reality and Change. New York: Random House.
- 1971 No. 30 in James Geschwender. The Black Revolt. New York: Prentice-Hall.
- 1972 No. 4 in Robert Rankin and Ritchie Lowry. Sociology: Social Science and Social Concern. New York: Charles Scribners Sons. (also in paperback).
- 1972 No. 20 in A. Birenbaum and E. Sagarin. Social Problems: Private Troubles and Public Issues. New York: Scribners.
- 1972 No. 21 in James Conyers and Morris Medley. Sociology in the Seventies. New York: Wiley. And in Ralph Turner and Lewis Killian. Collective Behavior. New York: Prentice-Hall.
- 1972 No. 33 in Readers Digest (July).
- 1973 No. 28 in Walter Reckless. The Crime Problem. New York: Appleton Century.
- 1973 No. 33 in New Society (January 4th).
- 1973 No. 31 in Impact of Water Resources Development. New York: Environment Information Center.
- 1973 No. 32 in Women, A Random House Annual, 1972. New York: Random House.
- 1973 Pp. 4-10 of Social Problems in Clifford Bryan. Social Change, Conflict and Education: A Foundations Text and Reader. Columbus: Charles Merrill.

- 1973 No. 21 in James Short, Jr. (ed.), Law and Order: Modern Criminals. Transacton (2nd ed.).
- 1973 No. 21 in Peter Rossi (ed.), Ghetto Riots. Transacton (2nd ed.).
- 1974 No. 20 in Stuart Palmer (ed.), New Perspectives on Deviance. Chicago: Aldine.
- 1974 No. 28 in Emilio Vivano and Israel Drapkin (eds.), Victimology. Lexington: D. C. Heath.
- 1975 No. 30 in Simon Dinitz, et. al. Deviance: Definition, Management, Treatment. New York: Oxford University Press.
- 1975 No. 37 in Volume in honor of....
- 1975 No. 33 published as "Wenn Die Katastrophe Kommt: Wie Sich Dann Wirklich Verhalten, Psychology Heute, June.
- 1979 No. 21 in Robert L. Ellis and Marcia J. Lipetz, Essential Sociology, Glenview, Illinois, Scott Foresman and Co.
- 1982 No. 40 in Edward Tiryakian, The Phenomenon of Sociology, New York, Irvington Publishers.

PROFESSIONAL QUALIFICATIONS

DENNIS S. MILETI

Associate Professor

Department of Sociology

COLORADO STATE UNIVERSITY

My name is Dennis S. Mileti and my business address is Department of Sociology, Colorado State University, Fort Collins, Colorado 80523. I am presently a tenured Associate Professor at Colorado State specializing in those areas of study dealing with organizations, hazards, policy and methods. I have held this position since 1978. Prior to this appointment, from 1974 to 1978, I held the position of Assistant Professor. I was also an Instructor for one year in the Department of Sociology at the University of Colorado, Boulder, from 1971 to 1972. I have taught numerous undergraduate courses, including Introduction to Sociology, Complex Organizations, Sociology of Natural Hazards, Research Methods, Demographic Process, and Social Change. In addition, I have taught courses at the graduate level such as Advanced Quantitative Analysis, Research Methods I and II, Demography and Population, and Complex Organizations.

I have served on various Department/University committees, including: Department Self Evaluation Committee, 1982; Department Executive Committee, 1977-1980; Department Graduate Comprehensive Examination Committee, 1975-1980; Departmental Evaluation of Independent Study Courses, 1978; University Committee on Ethnic Studies, 1974-1976; and University Committee on Latin American Studies, 1974-1975.

I received my Bachelor of Arts degree in Sociology in 1968 from the University of California, Los Angeles. In 1971 I was awarded a Master of Arts degree in Sociology from California State University, Los Angeles. I completed my doctorate degree in Sociology in 1974 at the University of Colorado, Boulder.

In 1975 I was appointed Visiting Assistant Professor at the University of Southern California Graduate School of Public Administration. During this year I offered an Intensive Seminar Program sponsored by the University. From 1978 to 1979 I was an Invited Instructor for the Chautaugua Short Course Program sponsored by the American Association for the Advancement of Science. In 1981 I was appointed Policy Analyst for the Seismic Safety Commission by the State of California. During the year I served this appointment I was on leave from my university duties.

I am a member of the American Sociological Association; the Pacific Sociological Association; the Midwest Sociological

Society; the American Association for the Advancement of Science; the Earthquake Engineering Research Institute; the New York Academy of Sciences; and the American Academy of Political and Social Science. In addition, I have been a member of several committees since 1976, including:

1981-date	U.S. Geological Survey, Advisory Panel on the Earthquake Studies Program, U.S. Department of the Interior.
1981-1982	Pacific Sociological Association, Program Committee for the 1982 Annual Meetings in San Diego.
1981-date	Governor's Emergency Task Force on Earthquakes, Threat Assessment Committee, State of California, Sacramento.
1981-year	Governor's Emergency Task Force on Earthquakes, Disaster Reconstruction Committee, State of California, Sacramento.
1980-1981	Governor's Science and Technology Advisory Council, Committee on Uranium Mill Tailing Relocation, State of Colorado, Denver.
1979-year	American Association for the Advancement of Science, Committee on Intergovernmental Research and Development on Fire Safety and Disaster Preparedness, Washington, D.C.
1976-78	National Academy of Sciences, National Research Council, Commission on Sociotechnical Systems, Committee on Socioeconomic Effects of Earthquake Prediction, Washington, D.C.

I have also organized and presided over a number of sessions at professional meetings, including: Session on Disasters and Cataclysms: Can Sociology Help, Pacific

Sociological Association, San Diego: April 1982; Session on Collective Behavior, American Sociological Association, New York: August 1980; Session on Complex Organizations, Pacific Sociological Association, San Francisco: April, 1980; Session on Complex Organizations, West Social Science Association, Tempe: 1976.

Other symposiums, sessions and workshops in which I have been involved as both a participant and a discussant are: Session on Public Response to Earth Science Information, National Hazards Research Applications Workshop, Boulder: July, 1980; Session on Warning Systems, National Conference on Natural Hazards, Boulder: June, 1976; Session on Warning Systems, National Conference on Natural Hazards, Boulder: July, 1975; Sessions on Disaster Relief and Warning Systems, National Conference on Natural Hazards, Estes Park: June, 1973; Earthquake Prediction Warning Task Force Workshop, Southern California Earthquake Preparedness Project, Asilomar: December, 1981; Symposium on Earthquake Prediction, Preparedness and Human Response, San Fernando: June, 1976; Seminar on Disaster Research, Colorado State University, Fort Collins: February, 1975; Symposium on Complex Organizations: Research and Applications, Western Social Science Association, El Paso: April, 1974.

I serve as corresponding editor on Hazards and Disaster, Environmental Sociology, Newsletter of the Section on

Environmental Sociology of the American Sociological Association, 1981-date; and as guest editor, special issue on Environmental Stress, Threat and Social System Response, Mass Emergencies, in 1976.

My legislative testimony background includes testifying before: Senate Subcommittee on Science, Technology and Space in the matter of the Earthquake Hazards Reduction Act, Washington, D.C.: April, 1980; Nuclear Regulatory Commission in the matter of emergency planning at the Diablo Canyon nuclear reactor, San Luis Obispo: January, 1982; Nuclear Regulatory Commission in the matter of the impact of floating nuclear plants on tourist behavior, Bethesda: May, 1977 and July, 1978; California State Legislature in the matter of Senate Bill 1950 on liability of the State and Governor in an earthquake prediction, Sacramento: June, 1976.

Legislative and program reviews which I have written include: Final Regulations for floodplain management and protection of wetlands, Federal Emergency Management Agency, Federal Register 176(45): 59520-59538, 1980; and Earthquake Hazards Reduction Program, U.S. Geological Survey, 1982; Applied Research Evaluation, National Science Foundation, 1979, 1978.

In addition, I have written proposal, article and book reviews, including reviews of the following: Sociology Program, National Science Foundation, 1981; Civil and

Environmental Engineering Program and Earthquake Hazards Mitigation Program, National Science Foundation, 1981; Division of Program Focused Research, National Science Foundation, 1980; Division of International Programs, National Science Foundation, 1978; Division of Advanced Environmental Research and Technology, National Science Foundation, 1978, 1977, 1976; Sociology and Social Research, 1981, 1979, 1978, 1976; Social Forces, 1980; The Social Science Journal, 1981, 1980, 1979, 1978, 1977; Sociological Focus 1980; Human Relations, 1978, 1977; Mass Emergencies, 1978, 1976, 1975; Policy Analysis, 1978, The Sociological Quarterly, 1975; Whistle-Blowing: Loyalty and Dissent in the Corporation. Alan Westin (Ed.) New York: McGraw-Hill. Sociology: A Review of New Books (forthcoming) 1982; Aftermath: Communities After Natural Disasters by H. Paul Friesema et al. Beverly Hills: Sage Publications, 1979 and After the Clean-up: Long-range Effects of Natural Disasters by James Wright and Peter Rossi et al. Beverly Hills: Sage Publications, 1979. Journal of the American Planning Association (October): 484-485, 1980; and A Sociology of Organizations by J. Eldridge and A. Crombie. New York: International Publications, 1975. Contemporary Sociology 5(6): 784, 1976.

The following comprises a 1982 listing of my professional and academic publications:

The Three Mile Island Incident: A Study of Behavioral Indicators of Human Stress. Senior author with Donald Hartsough and Patti Madson. Washington, D.C.: Shaw, Pittman, Potts and Trowbridge.

"A bibliography for graduate research methods," pp. 249-255 in Russel Schutt, Alan Orenstein and Theodore C. Wagenaar (eds.) Research Methods Courses: Syllabi, Assignments and Projects. Washington, D.C.: American Sociological Association.

Organizational Behavior and Interorganizational Relations: Implications for Nuclear Power Plant Emergencies and Preparedness. Oak Ridge, Tennessee: Oak Ridge National Laboratories, 1982.

"Differentiation in organizations: a comment on Miller and Conaty," coauthor with David Gillespie, Social Forces 60(4):1172-1175, 1982.

"Hazards reduction work: the next era," Natural Hazards Observer VI (4):1-2, 1982. Reprinted in Earthquake Information Bulletin 14(2):60, 1982.

"Determinants of planning in organizations," coauthor with David Gillespie, Administrative Science Review X(3):21-32, 1980.

"Intra and interorganizational determinants of decentralization," senior author with Doug Timmer and David Gillespie, Pacific Sociological Review 25(2):163-183, 1982.

"Structure and process in the implementation of public policy," Political Science Review 21(1982): accepted and forthcoming.

Book Review, Unequal Care: A Case Study of Interorganizational Relations in Health Care by Murray Milner, Jr. New York: Columbia University Press, 1980. Social Forces 60(3):943-944, 1982.

"Technology and the study of organizations: an overview and appraisal," coauthor with David Gillespie, Academy of Management Journal 2(1):6-19, 1977. Reprinted in J. Kelly and U. U. Baba (eds.) Readings on How Managers Manage. Englewood Cliffs, New Jersey: Prentice-Hall, 1982.

Contributing Editor, Environmental Sociology,
Newsletter of the American Sociological Association's
Section on Environmental Sociology, 1981-date; column
on Natural Hazards and Disasters 28(Winter):6-8, 1981;
30(Summer):10-12, 1982.

"Earthquake prediction response: cultural comparisons
between Japan and the United States," International
Sociological Association, World Congress of Sociology,
Session on the Sociology of Disasters, Mexico City:
August, 1982.

"Earthquake prediction and warnings: the human equa-
tion," Conference on Hazards Research, Policy
Development, and Implementation Incentives: Focus on
Urban Earthquakes, Policy Research Center, University
of Redlands, Redlands, California: June, 1982.

"Public perceptions of seismic hazards," Seismological
Society of America, Symposium on the Decision Making
Process in Siting Critical Facilities, Anaheim,
California: April, 1982.

Presentation, "Natural hazards, disasters and public
policy," the Environmental Management Institute,
University of Southern California, Los Angeles: April,
1982.

Speech, "Myths of disaster response," Earthquake
Planning Conference for Business and Industry, Los
Angeles: May, 1982.

Participant, Earthquake Prediction Warning
Communications Workshop, Southern California Earthquake
Preparedness Project, State of California, Asilomar,
California: December, 1981.

Chairperson, Session on Earthquake Hazard Reduction: Is
the National Earthquake Hazard Reduction Program
Meeting Its Congressional Mandate. Seventh Annual
Workshop on Natural Hazards Research and Applications,
Boulder, Colorado: July, 1982.

Member, Review Panel for the Task Group on
Socioeconomic Aspects of Earthquakes, National Academy
of Sciences, National Research Council, Commission on
Sociotechnical Systems, Washington, D.C. 1982.

Member, Elections Committee, Pacific Sociological
Association, 1982-83.

Technostructures and Interorganizational Relations.
With David Gillespie. Lexington, Massachusetts:
Lexington Books, 1979.

Organizational Response to Changing Community Systems.
With David Gillespie and Ronald Perry. Kent, Ohio:
Kent State University Press, 1976.

MONOGRAPHS

Earthquake Prediction Response and Options for Public Policy. Senior author with Janice Hutton and John Sorensen. Boulder: Institute of Behavioral Science, 1981.

Analysis of Adoption and Implementation of Community Land Use Regulations for Floodplains. With Janice Hutvorn. San Francisco: Woodward-Clyde, 1979.

Fire Safety and Disaster Preparedness. With the Committee on Fire Safety and Disaster Preparedness. Washington, D.C.: American Association for the Advancement of Science, 1979.

A Program of Studies on the Socioeconomic Effects of Earthquake Prediction. With the Committee on Socioeconomic Effects of Earthquake Predictions. Washington, D.C.: National Academy of Sciences-National Research Council, 1978.

Human Systems in Extreme Environments: A Sociological Perspective. Senior author with Thomas Drabek and J. Eugene Haas. Boulder: Institute of Behavioral Science, 1975. Portions reprinted in Joseph Perry and Meredith Pugh, Collective Behavior: Response to Stress, 1978.

Natural Hazard Warning Systems in the United States. Boulder: Institute of Behavioral Science, 1975. Portions reprinted in Gerald Williams, Public Information Aspects of Warnings. Geneva: United Nations, 1978.

Disaster Relief and Rehabilitation in the United States: A Research Assessment. Boulder; Institute of Behavioral Science, 1975.

Earthquake and Tsunami Hazards in the United States. With Rogert Ayre and Patricia Trainer. Boulder: Institute of Behavioral Science, 1975.

Landslide Hazard in the United States: A Research Assessment. With John Sorensen and neil Erickson. Boulder: Institute of Behavioral Science, 1975.

Also listed are the bibliographies of journal articles, various other articles and comments, conference papers and reports which I have published:

JOURNAL ARTICLES

"Intra and interorganizational determinants of decentralization," senior author with Douglas Timmer and David Gillespie, Pacific Sociological Review (forthcoming) 1982.

"A review of research on public policy adoption," Public Administration Review (forthcoming) 1981.

"The multidimensionality of organization size," senior author with David Gillespie and Stan Eitzen, Sociology and Social Research 65(4): 400-414, 1981.

"Heterogeneous samples in organizational research," with David Gillespie, Sociological Methods and Research 9(3): 375-388, 1981.

"Human adjustment to the risk of environmental extremes," Sociology and Social research 64(3): 327-347, 1980.

"Organizational and technological interdependencies," senior author with David Gillespie, Journal of Contemporary Sociology 17(3-4): 132-158, 1980.

"Stress and transformation," with Ronald Perry and David Gillespie, Indian Journal of Sociology 21(2): 139-147, 1980.

"Structure and decision making in corporate organizations," senior author with David Gillespie and Stan Eitzen, Sociology and Social Research 63(4): 723-744, 1979.

"Action and contingency postulates in organization-environment relations," with David Gillespie, Human Relations 32(3): 261-271, 1979.

"Technology and organizations: deficiencies and lacunae," senior author with David Gillespie and Elizabeth Morrissey, Technology and Culture 19(1): 83-92, 1978.

"Organizational technology and environmental adaptation-manipulation," with David Gillespie, Scottish Journal of Sociology 2(2): 205-219, 1978.

"Size and structure in complex organizations," senior author with David Gillespie and J. Eugene Haas, Social Forces 56(1): 208-217, 1977.

"Technology and the study of organizations," with David Gillespie, Academy of Management Review 2(1): 6-19, 1977. Reprinted in Readings on How Managers Manage. Englewood Cliffs, New Jersey: Prentice-Hall, 1981.

"An integrated formalization of organization-environment interdependencies," senior author with David Gillespie, Human Relations 29(1): 80-100, 1976.

"Paradigmatic uses of the goal concept," with David Gillespie, Roy Lotz and Ronald Perry, International Review of History and Political Science 8(30): 1-14, 1976.

"A refined model of differentiation in organizations," with David Gillespie, Sociology and Social Research 60(3): 263-278, 1976.

"Attitudinal variables as estimates of behavior," with Ronald Perry, David Gillespie and Roy Lotz, European Journal of Social Psychology 6(1): 74-90, 1976.

"Organizational adaptations to changing cultural contingencies," with David Gillespie, Sociological Inquiry 46(2): 135-141, 1976.

"The analytic use of case study materials," senior author with Ronald Perry and David Gillespie, Sociological Inquiry 45(4): 72-50, 1975.

"Explaining evacuation symbolically: communication in crisis," senior author with E.M. Beck, Communication Research 2(1): 24-49, 1975.

"Organizational tensions, decentralization and member commitment," with David Gillespie, Ronald Perry and Roy Lotz, International Journal of Group Tensions 5(2): 26-37, 1975.

"Collective stress and community transformation," with Ronald Perry and David Gillespie, Human Relations 27(8): 767-788, 1974.

"Change ratios in age-specific percent contributions to fertility," Pacific Sociological Review 17(1): 3-26, 1974. First prize, student paper competition, Pacific Sociological Association, 1974.

"System stress and the persistence of emergent organizations," with David Gillespie and Ronald Perry, Sociological Inquiry 44(2): 111-119, 1974.

"An integrative approach to the study of organizational technology, structure and behavior," with David Gillespie, Current Sociology 23(1): 189-200, 1974.

"Nine demographic factors and their relationship toward abortion legalization," senior author with Larry Barnett, Social Biology 19(2): 43-50, 1972.

OTHER ARTICLES AND COMMENTS

"Organizational differentiation," with David Gillespie, Social Forces 61 (forthcoming) 1982.

"Sociological aspects of earthquake prediction," Earthquake Information Bulletin 11(3): 102-105, 1979.

"Correcting for the human factor in tornado warnings," senior author with Patricia Harvey, Disaster Preparedness 2(February): 5-9, 1978.

"Socioeconomic and political consequences of earthquake prediction," with J. Eugene Haas, Journal of the Physical Earth 25(4): 283-293, 1977. Revised and reprinted in California Geology 30(7): 147-157, 1977 and San Francisco 20(4): 60-68, 1978.

"Social scientists and applied research in the United States," The American Sociologist 11(4): 220-221, 1976.

"Individual and organizational response to threat," with J. Eugene Haas and Thomas Drabek, Mass Emergencies 1(4): 247, 1976.

"Earthquake prediction and other adjustments to earthquakes," with J. Eugene Haas, Bulletin of the New Zealand Society for Earthquake Engineering 9(4): 183-194, 1976.

"Response to research and national needs," Footnotes
2(October): 6, 1974.

CONFERENCE PAPERS

"Earthquake prediction response: cultural comparisons between Japan and the United States," International Sociological Association, Mexico City: August, 1982.

"Influencing corporate decisions on the use of microzonation information," Third International Conference on Microzonation, Seattle: June, 1982.

"Public perception of seismic hazards," Seismological Society of America, Anaheim: April, 1982.

"Perception of growth impacts in energy impacted communities," coauthor, Rural Sociological Society, Ithaca: August, 1980.

"Planning initiatives for seismic hazard mitigation," Conference on Social and Economic Impacts of Earthquakes on Critical Lifelines, American Society of Civil Engineers, San Francisco: May, 1980. Pp. 44-53 in J. Isenberg (Ed.) Social and Economic Impact of Earthquakes on Utility Lifelines. New York: American Society of Civil Engineers.

"Interorganizational and structural determinants of decision making," coauthor, Midwest Sociological Society, Session on Complex Organizations, Milwaukee: April, 1980.

"Community growth and impacts," coauthor, Western Social Science Association, Albuquerque: April, 1980.

"Human response to earthquake prediction," Conference on Earthquake Prediction Information, Status of Knowledge Session, Los Angeles: January, 1980. Pp. 36-56 in W. Hays (Ed.) Proceedings of the Conference on Earthquake Prediction Information. Menlo Park: U.S. Geological Survey.

"Perceptions of growth impacts in non-metropolitan Colorado," coauthor, Impacts Session, Conference on Regional Migration Trends, St. Louis: October, 1979.

"Resident perceptions in growth impacted western agricultural communities," senior author, Rural Sociological Society, Vermont: August 1979.

"The epiphenomenality of organizational size," coauthor, Midwest Sociological Society, Complex Organizations Session, Milwaukee: April, 1979.

"Social factors and response to earthquake prediction," senior author, International Symposium on Earthquake Prediction, UNESCO, Paris: April, 1979.

"Factors affecting earthquake warning system effectiveness," coauthor, International Symposium on Earthquake Prediction, UNESCO, Paris: April, 1979.

"Institutional management of risk information following earthquake predictions," coauthor, International Symposium on Earthquake Prediction, UNESCO, Paris: April, 1979.

"Social aspects of earthquakes," senior author, State of the Art Session. Pp. 179-192 in Proceedings of the Second International Conference on Microzonation. San Francisco: National Science Foundation, November, 1978.

"Organizational size, complexity and decision making," senior author, American Sociological Association, Organizations Session, San Francisco: September, 1978.

"Corporate size as work," coauthor, American Sociological Association, Organization of Work Session, San Francisco: September, 1978.

"Action postulates in organization-environment relations," senior author, Midwest Sociological Society, OrganizationEnvironment Session, Omaha: April, 1978.

"Size and organizational differentiation," coauthor, Pacific Sociological Association, Formal and Complex Organizations Session, Spokane: April, 1978.

"Correcting for the human factor in tornado warnings," senior author, American Meteorological Society, Conference on Severe Local Storms, Omaha: October, 1977.

"Organization and environment adaptation-manipulation," senior author, American Sociological Association, Organizational relations session, Chicago: September, 1977.

"The uses and abuses of scenarios in policy research," coauthor, American Sociological Association, Social Policy Session, Chicago: September, 1977.

"Organizational growth and managerial efficiency," coauthor, Pacific Sociological Association, Social Organization/Formal/Complex Session, Sacramento: April, 1977.

"Organizational manipulation and adaptation to complex environments," Midwest Sociological Society, Complex Organizations Session, Minneapolis: April, 1977.

"Size and structure in complex organizations," coauthor, American Sociological Association, Organizational Change Session, New York City: August, 1976.

"Learning theory and disaster warning response," Society for the Study of Social Problems, Issues in Environmental Analysis Session, New York City: August, 1976.

"Consequences of earthquake prediction on other adjustments to earthquakes," coauthor, Australian Academy of Science Symposium, Canberra, Australia: May, 1976.

"A methodology for future collective events," senior author, Midwest Sociological Society, Collective Behavior Session, St. Louis: April, 1976.

"Operations technology and organizational structure," coauthor, Midwest Sociological Society, Formal Organizations Session, St. Louis: April, 1976.

"Consensus perspectives for organization-environment relations," senior author, Pacific Sociological Association, Organizations Session, San Diego: March, 1976.

"Assessing the consequences of earthquake prediction," coauthor, American Association for the Advancement of Science, Social Risk Session, Boston: February, 1976.

"Technological uncertainty in organization-environment relations," American Sociological Association, Formal Organizations Session, San Francisco: August, 1975.

"A resolution of inconsistencies between size, complexity and the administrative component in organizations," senior author, Midwest Sociological Society, Formal Organizations Session, Chicago: April, 1975.

"Technology and the study of organizations," senior author, Pacific Sociological Association, Formal

Organizations Session, Victoria, British Columbia:
April, 1975.

"An interaction model for organization-environment relations," senior author, Midwest Sociological Society, Interorganizational Session, Omaha: April, 1975.

"A formalization of organization-environment dependencies," senior author, Pacific Sociological Association, Formal Organizations Session, San Jose: March, 1974.

"Value and role issues for the involved social scientist," coauthor, Pacific Sociological Association, San Jose: March, 1974.

"Drowning: a communications disease," American Sociological Association, Mass Communication and Public Opinion Session, New York City: August, 1973.

"Response to impending system stress," American Sociological Association, What Do We Know Session on Human Behavior and Disaster, New York City: August, 1973.

"A Paradigm and sociology of knowledge for theories of natural law," Midwest Sociological Society, Theory Session, Milwaukee: April, 1973.

"Response to hazard warnings," Organizational and Community Response to Disaster Seminar, Disaster Research Center, Ohio State University, Columbus: July, 1972.

REPORTS

Public Policy Research in Post Earthquake Investigations. Sacramento: State of California, Seismic Safety Commission (forthcoming) 1982.

Role of the Seismic Safety Commission in Research. Sacramento: State of California, Seismic Safety Commission (forthcoming) 1982.

The Three Mile Island Incident and Restart: Stress, Impacts and Mitigation. Senior author with Donald Hartsough. Washington, D.C.: Shaw, Pittman, Potts and Trowbridge (forthcoming) 1982.

Earthquake Prediction-Warning Response for Emergency Organizations to the Prediction Terminology. Senior

author with Arthur Svenson. Van Nuys: Southern California Earthquake Preparedness Project, 1981.

Impacts of Population Growth in Agricultural Colorado Communities. With Frank Santopolo. Fort Collins: Colorado State University Experiment Station, 1980.

Socioeconomic Impact of Earthquake Prediction on Government, Business and Community. With J. Eugene Haas. Boulder: Institute of Behavioral Science, 1976.

Interorganizational Relations and Community Service Delivery Systems. Senior author with David Gillespie. Boulder: Center for Action Research, 1976.

Since 1972 I have been awarded numerous research grants and contracts, including:

1981-date	Principal Investigator, "Nuclear Hazard Warnings and Emergency Evacuation Preparedness," contract for Pacific Gas and Electric Company.
1980-1981	Principal Investigator, "Power and Networks in Local Land Use Policy Decisions," Colorado State University Experiment Station.
1979-date	Principal Investigator, "Behavioral Aspects of the Three Mile Island Incident and Restart," contract for General Public Utilities and Metropolitan Edison.
1977-1980	Principal Investigator, "Impacts of Migration on Non-metropolitan Areas in the West," U.S. Department of Agriculture Regional Project, Colorado State University Experiment Station.
1977-1979	Principal Investigator, "Adoption and Organizational Implementation of Policy for Community Land Use Regulations," multidisciplinary grant from the National Science Foundation.
1975-1977	Coprincipal Investigator, "Socioeconomic, Political and Organizational Response to Earthquake

Prediction," multidisciplinary grant from the National Science Foundation.

1972-1974 Research Sociologist, "Assessment of Research on Natural Hazards," multidisciplinary grant from the National Science Foundation.

From 1975 to 1981 I was engaged as a speaker and guest lecturer on numerous occasions. The following comprises a list of those occasions and the subjects upon which I spoke:

SPEECHES AND GUEST LECTURES

"Social causes of earthquake prediction-warning response: implications for the design of California's warning system and information dissemination," Southern California Earthquake Preparedness Project, Van Nuys: October, 1981.

"An assessment of research on natural hazards: what have we learned and what problems demand further attention," Natural Hazards Research Applications Workshop, Boulder: July, 1981.

"Disaster reconstruction: patterns to guide planning," Governor's Emergency Task Force on Earthquakes, Committee on Long Range Recovery and Reconstruction, Sacramento: July, 1981.

"Socio-cultural dimensions of earthquake risk," Governor's Emergency Task Force on Earthquakes, General Assembly, Sacramento: May, 1981.

"Interorganizational relations and service delivery systems," Health Sciences Center, University of Colorado, Denver: October, 1980.

"Social response to earthquake prediction: local policy issues," Southern California Emergency Services Association, Montebello: February, 1980.

"Human response to weather-borne hazard warnings," Department of Atmospheric Science, Colorado State University: October, 1979.

"Natural hazards, disasters and social research," Department of Sociology, University of Denver: December, 1980, 1979.

"Measuring implementation of public policy for flood-plain land use controls," Natural Hazards Research Applications Workshop, Boulder: August, 1978.

"Socioeconomic effects of earthquake prediction and state policy," Conference on State Policy for Earthquake Prediction Technology, Boulder: November, 1977. Pp. in Proceedings of the National Conference on Earthquakes and Related Hazards. Lexington, Kentucky: Council of State Governments, 1978.

"Population, resources and policy for social change," College of Natural Resources, Colorado State University: September, 1977; February, 1978; February, 1980.

"The behavior of government and corporate organizations in an earthquake prediction," American Society for Public Administration, Colorado Chapter, Denver: April, 1976; California State Seminar on Emergency Preparedness and Earthquake Prediction, Palm Springs: June, 1976; Emergency Preparedness Commission for the County and Cities of Los Angeles, Montebello: February, 1976.

"The social organization of hazard warning systems," Engineering Foundation Conference on Decision Making for Natural Hazards, Pacific Grove, California: March, 1976.

"Social impact of earthquake prediction: implications for policy," California Water and Power Earthquake Engineering Forum, San Francisco: April, 1975; Governor's Conference Room, Capitol Building, Sacramento: May, 1975; General Assembly of the International Union of Geodesy and Geophysics, Grenoble, France: September, 1975; Center for Community Studies, Tokyo: September, 1975; Mayor's Conference Room, Los Angeles City Hall: October, 1975.

PROFESSIONAL QUALIFICATIONS

JAMES RIVELLO

Plant Manager

LONG ISLAND LIGHTING COMPANY

My name is James Rivello. My business address is Long Island Lighting Company, Shoreham Nuclear Power Station, P. O. Box 628, Wading River, New York 11792. I am Plant Manager of the Shoreham Nuclear Power Station and have held this position since 1978. I am responsible for managing all plant activities in a manner which provides efficient overall plant operation and ensures the generation of the maximum amount of electric power at the highest plant efficiency, reliability, and availability. This objective must be achieved at the most economical cost consistent with prudent management. I am also responsible for ensuring that all plant activities are conducted in compliance with plant technical specifications, licenses, QA, nuclear safety, radiation control, health physics, environmental, security, and other factors. Plant operations must meet Nuclear Regulatory Commission (NRC), Federal, State, and Company Requirements, with the minimum radiation exposure to the general public and employees. I delegate responsibility to four subordinate Engineers. Each of these Engineers is responsible

for a particular facet of the plant operations requiring specialized knowledge and ability, and for coordinating their activities with those of the other Engineers to create a responsive and cohesive plant organization. I represent the Shoreham Plant in engineering, construction and testing activities as well as technical licensing efforts with federal, state and local regulatory groups. I formulate all policies to operate the nuclear plant within the requirements specified in the Technical Specifications, FSAR, Title 10 Code of Federal Regulations and other industry standards and guidelines. In the event of an accident I am Emergency Director of the Plant. I also chair both the Review of Operations Committee, which approves the performance of all safety related aspects of the plant, and the Joint Test Group during the Preoperational Phase to overview the Startup Staff Test Program.

I graduated from Manhattan College in 1963 with a Bachelor of Mechanical Engineering degree. I completed two years of the Nuclear Engineering Masters Program at Long Island University C. W. Post Campus (1967-69). In 1973 I completed specialized nuclear courses at the University of Michigan. I have also completed courses conducted by the General Electric Company in BWR Technology (August 1973) and BWR Simulator and have received Senior Reactor Operator Certification (December 1973).

Before assuming my present position, I was Startup Manager for the Shoreham Station (1974-1978). I developed the Startup Program, the Implementing Manual, and the Checkout and Initial Operations Test Program. My responsibility was to coordinate engineering, construction, and plant staff activities as they relate to system completion regarding design, construction, documentation of testing and compatibility of generated data in the respective organizations. I directly managed six Engineers, including the S&W lead Advisory Engineer, the General Electric Company Site Operations Manager, and four Lead Startup Engineers.

From December 1973 to November 1974 I was assigned to Commonwealth Edison Company's Dresden Nuclear Station as a Technical Staff Engineer (five months) and Project Engineer (six months). As a Technical Staff Engineer, one of my major duties was coordination of a refueling outage of D-3, not including basic maintenance work. I worked directly for the Lead Nuclear Engineer and Assistant Plant Manager. I participated in post refueling outage startup testing which included neutron monitoring overlap tests, flux shaping safety relief valve capacity tests, etc. I also provided substantial input to planning for the refueling outage of D-2 as a result of my past experience on D-3. I performed all activities of Technical Staff Engineer from unusual event reports (abnormal occurrences) to major and minor modification safety evaluations, engineering,

procurement, and operational testing (e.g., off-gas system installation and startup, SBLC and HPCI surveillance tests, shutdown margin tests, fuel sipping, RC pump "freeze plug" repair, integrated leak rate test, jet pump calibration, refueling jib crane replacement, control rod friction testing, nuclear materials safeguards program, hydraulic snubber inspections, torus level instrumentation replacement, etc.).

As a Project Engineer, I was directly responsible for the final construction schedule and initial operations testing of a major high conductivity drain waste concentration/evaporation system. I conducted and evaluated all tests on this system and recommended and implemented changes and met the EPA in-service date. I coordinated operator training on system operations and ran the system for one month under heavy demand conditions. Throughout this assignment, I performed many substantial projects for the onsite review committee and special nuclear systems testing and evaluations including, for example, evaluation of off-gas system explosions and installation of new Safety Relief Valves (Target Rock).

From April 1971 to May of 1973 I was Chief Engineer (Assistant Plant Manager) of a multi-unit 400 MW fossil fueled station. From June 1963 to May 1971 I held supervisory positions in four different fossil fueled stations, following the normal progression of Associate Engineer (entry level for engineers), Plant Engineer, Operating Engineer, Maintenance and I&C Engineer.

I am a member of the New England Nuclear Superintendents Association, the Edison Electric Institute Nuclear Operations Committee, and the American Nuclear Society.