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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

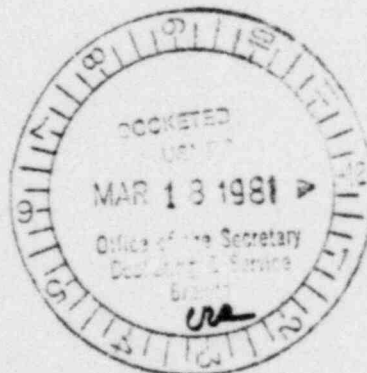
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 )  
METROPOLITAN EDISON COMPANY )  
 )  
(Three Mile Island Nuclear )  
Station, Unit No. 1) )

Docket No. 50-289  
(Restart)



LICENSEE'S TESTIMONY OF RUSSELL R. DYNES  
ON THE PRINCIPLES OF PLANNING FOR EMERGENCIES



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OUTLINE

The purpose of this testimony is to present an overview of the process of emergency planning, by identifying those important principles which should guide any developer of emergency plans.

## TESTIMONY

My name is Dr. Russell R. Dynes. I am the current Executive Officer of the American Sociological Association, in Washington, D.C. I received a Bachelor of Arts degree in Sociology/Psychology in 1948, and a Master of Arts degree in Sociology in 1950, both from The University of Tennessee. In 1954, I received a Ph.D. degree in Sociology from The Ohio State University. I taught at the university level virtually constantly from 1948 through 1972. In 1964, I became the Co-Director of the Disaster Research Center at The Ohio State University. I held that position until 1977. I also served as the Chair of the Department of Sociology at The Ohio State University, from 1974 through 1977, when I accepted my current position at the American Sociological Association. I am a member of the American Academy of Political and Social Sciences, the North Central Sociological Association, and the International Sociological Association.

I have lectured and published extensively in a wide range of fields of sociology, with a special emphasis on emergency planning and preparedness. I sat as a member of the Advisory Committee on Emergency Housing of the National Academy of Sciences/National Research Council (NAS/NRC) in 1972, and chaired that organization's Committee on International Disaster Assistance from 1976 to 1979. I also served as the NAS/NRC liaison to the International Disaster Assistance Panel of the United Nations Association. I acted as a consultant to the

Federal Disaster Assistance Administration of the Department of Housing and Urban Development, and served as a senior consultant on the Federal Emergency Preparedness and Response Study of the President's Reorganization Project, from 1977 through 1978. In 1979, I was appointed head of the Task Force on Emergency Response and Preparedness of The President's Commission on The Accident at Three Mile Island. More recently, I was retained as a consultant to the Federal Emergency Management Agency on Cuban Refugee Camp Consolidation.

At Licensee's request, I have briefly reviewed the revised emergency plans prepared by the Commonwealth of Pennsylvania and the five risk counties of Dauphin, York, Lancaster, Cumberland and Lebanon for responding to a radiological emergency at the Three Mile Island Nuclear Station, Unit 1 ("TMI-1"). In addition, I have briefly reviewed "Criteria for Preparation and Evaluation of Radiological Emergency Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1 (Rev. 1, Nov., 1980). Based on my limited acquaintance with this material, the purpose of my testimony is not to compare the plans against the criteria document and reach some conclusion as to adequacy based on that comparison. Rather, my testimony presents an overview of the emergency planning process by identifying those important principles which should guide any developer of emergency plans.

NUREG-0654 is organized into 16 planning standards, with multiple evaluation criteria for each standard. It is readily

apparent that not all evaluation criteria are of equal importance. In fact, it is to be expected that no emergency plan will literally satisfy every criterion. Depending on local conditions, divergent views as to appropriate concepts of operations, and historically developed solutions to particular emergency planning issues, I would be very surprised if state and local governments developed plans precisely in the mold anticipated by NUREG-0654.

The task in evaluating such plans is not merely to count criteria satisfied and conclude on the basis of this numerical exercise that a given plan is, or is not, adequate. Instead, the fundamental elements of any good emergency plan must be identified, and a determination made whether the plan provides a sufficient response to each of the identified elements. These elements include matters such as: organization and manpower, accident assessment, accident notification, and emergency response. Although somewhat complex and overlapping, the 16 planning standards identified in NUREG-0654 adequately set forth the fundamental elements of a good radiological emergency response plan.

The remainder of my testimony addresses the context within which these 16 planning standards should be applied. In the evaluation of emergency planning, such standards are sometimes misapplied because the planning process itself is misunderstood. Specific aspects of planning can be evaluated in terms of a set of principles which include the following:

1. Planning is a process, rather than a product.

For most purposes, planning is not action with a definite end; it is a continuous process whereby persons develop procedures for future situations. The development of a written plan at a specific time is only one part of the total planning process.

2. Planning is partly an educational activity.

Involved persons and groups must know the outline features of the emergency plan if they are to work. The planner must learn about actual problems and possible solutions. The planner must convey to those likely to become involved what can be generally expected and what roles they will play. Too often, planning is seen only in the narrow sense of completing written plans. It is more useful to think of planning in the broader sense of educating oneself and others about anticipated events and problems, and the most efficient and effective responses in an emergency.

3. Planning should focus on principles, not details.

In developing written plans, there is a tendency to elaborate them with specific details. Emergency plans should focus on principles, not concrete details. There are several reasons for this. First, it is impossible to anticipate everything. Second, situations are constantly changing and specifics quickly become outdated. Third,

too many details leave the impression that everything is of equal value, when clearly that is not the case. Finally, a complex and detailed plan is forbidding to potential users and may be ignored. While emergency planning cannot totally ignore details, particularly at the organizational level, it always should focus on general principles and in that sense the aim should be to produce simple, rather than complex, written plans.

4. Planning attempts to reduce the unknowns in a problematical situation. While in some instances planning is oriented to prevention, most planning is oriented toward altering or modifying what will happen. Plans can indicate the range of problems that might occur and possible solutions to them. Thus, planning reduces the uncertainty of emergencies; it does not prevent them from happening. It is unwise to assume that everything can be anticipated or that all of the unknown can be accurately predicted.

5. Planning should be based on what is likely to happen, not on the worst scenario. Often, the initial inclination is to premise planning on the worst possible case; the human imagination is scarcely limited in developing such worst cases. However, it is best to plan for likely cases. It is thus better, for example, to plan for an evacuation suitable to a likely scenario than to

plan a massive evacuation based on an unlikely scenario. Sound plans for likely cases serve as the basis for actions on a larger scale, if necessary.

6. Planning aims at evoking appropriate actions.

Sometimes, planning is seen as primarily a mechanism of expediting response to an emergency. That can be an error result. A major objective of planning, however, is appropriateness of response rather than speed of response. As an example, it is generally more important to obtain valid information as to what has happened than to take immediate action. Reacting to the immediate situation is rarely the most effective and efficient response. Thus, one objective of planning should be to delay impulsive reactions as well as to evoke appropriate actions.

7. Planning for emergencies should be based on the patterns of everyday routines. Planning for emergencies often anticipates new dramatic, unfamiliar situations. Emergencies, however, are generally characterized by the continuation of old routines and habits. Rather than trying to change and redirect such habits, it is better to count on them as the basis for emergency planning. For example, evacuation routes should utilize familiar and usual traffic patterns. Warnings should be based on a knowledge of usual listening habits and on the temporal locations of populations during a day. Emergency situ-



ations do not create incompetence and they generally have clear continuity to previous "normal" situations so that usual forms of action are still appropriate.

8. Planning must be based on knowledge. In order to develop plans for what is likely to happen, there is a need for accurate information. Planners sometimes operate on the basis of misconceptions about the responses of people in emergencies. For example, it is often incorrectly assumed that the immediate problems of emergencies include dealing with uncontrollable behavior and panic. Research over a wide variety of emergency situations indicates that this is not true. Such knowledge is important to planners because plans can only be designed and implemented if they are based on actual problems, not mythical ones, and on realistic solutions, not false ones.

In summary, planning for emergencies should be based on certain general principles, rather than focused on specific details. Preoccupation with details, particularly those which attempt to make dramatic shifts in traditional habit patterns of organizations and individuals, will not only hinder emergency response but may create more problems than the emergency agent itself. Planning should focus on thinking ahead as to how community resources, both material and human, can be utilized most effectively in responding to a likely situation in the future. Such resources already exist in the

community and cannot be created by some future demand. Thus, planning must be based on the idea of anticipating the ways in which existing resources can be mobilized to confront "old problems" in a new form during an emergency.

RUSSELL R. DYNES

Business Address:

American Sociological Association  
1722 N Street, N.W.  
Washington, D.C. 20036

Education:

A.B., The University of Tennessee,  
1948.  
M.A., The University of Tennessee,  
1950.  
Ph.D., The Ohio State University,  
1954.

Administrative  
Positions:

Executive Officer, American  
Sociological Association, 1977-  
Present.

Chair, Department of  
Sociology, The Ohio State  
University, 1974-77.

Co-Director, Disaster Research  
Center, The Ohio State  
University, 1964-77.

Academic  
Positions:

Fulbright Professor, Center for  
Advanced Study in Sociology,  
University of Delhi, December  
1971-March 1972.

Professor, The Ohio State University,  
1965-77.

Fulbright Professor, Ain Shams  
University and Arab States Center  
for Education in Community  
Development, United Arab Republic,  
1964-65.

Associate Professor, The Ohio  
State University, 1960-65.

Visiting Professor, Capital University,  
Summer 1958.



Assistant Professor, The Ohio State University, 1956-60.

Instructor, The Ohio State University, 1952-56.

Graduate Assistant, Assistant Instructor, The Ohio State University, 1951-52.

Graduate Assistant and Instructor, The University of Tennessee, 1948-50.

Research  
Experience:

Principal Investigator, Various Projects related to the Activities of the American Sociological Association, NSF, NIE, FIPSE, Lilly, 1977-Present.

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

Co-Principal Investigator, "Development of Baseline Information of Mental Health Disaster Assistance/Crisis Intervention Needs and Resources," National Institute of Mental Health, 1976-77.

Co-Principal Investigator, "Delivery of Mental Health Services in Disaster," National Institute of Mental Health, 1976-79.

Co-Principal Investigator, "Delivery of Emergency Medical Services in Disaster," Bureau of Health Services Research, Health Resources Administration, National Institutes of Health, Department of Health, Education, and Welfare, 1975-77.

Co-Principal Investigator, "Organizational Communication and Decision Making in Disaster," Advanced Projects Research Agency, 1974-75.

Co-Principal Investigator, "Delivery of Mental Health Services in the X... a Disaster," State of Ohio Department of Mental Health and Mental Retardation, 1974-75.

Co-Principal Investigator, "Police Behavior in a College Riot," Law Enforcement Assistance Administration, 1970-71.

Co-Principal Investigator, "Organizational Functioning in Disaster," Office of Civil Defense, Department of Defense, 1963-77.

Co-Principal Investigator, "Organizational Response to Major Community Crises," National Institute of Mental Health, 1968-74.

Co-Principal Investigator, "Cross Cultural Studies of Disaster," Mershon Social Science Foundation, 1968-71.

Co-Principal Investigator, "Laboratory Simulation Studies of Organizational Behavior Under Stress," The Ohio State University Research Foundation, sponsored by the Office of Aerospace Research, Air Force, 1963-69.

Co-Director, Disaster Research Center, The Ohio State University, 1963-77.

Conference and  
Workshop Participation:

Participant, Workshop, Fire Safety and Disaster Preparation, Intergovernmental Science, Engineering and Technology Panel, American Association for the Advancement of Science, March, 1979.

Participant, Workshop, Functions and Effects, Emergency Preparedness, National Governors Association, Washington, DC, May 25-26, 1978.

Participant, Workshop on Issues and Options in Disaster Management, Office of Technology Assessment, Washington, DC, March, 1978.

Seminar Leader, "Civil Military Relations in Crises," Foreign Area Officers Course, Army Civil Affairs School, Fort Bragg, North Carolina, December 17-18, 1975.

- Participant, Third National Conference on Reduction of Natural Hazards, University of Colorado, Boulder, Colorado, June 30-July 2, 1976.
- Participant, Second National Conference, June 22-25, 1975.
- Participant, Consultant. "Interorganizational and Interagency Relations in Major Disasters," National Emergency Planning Establishment, Government of Canada, Arnprior, Ontario, October 22-24, 1974.
- Participant, International Conference of Disaster Researchers, Sponsored by the Centre d'Etudes Psychosociologique des Sinistres et de leur Prevention, Paris, France, September 5-6, 1974.
- Participant, Invitational Conference, "The Assessment of Social Impacts of Oil Spills," The Institute on Man and Science, Rensselaerville, New York, September 25-28, 1973.
- Participant, NIMH Continuing Education Seminar in Emergency Mental Health Services, Washington, DC, June 22-24, 1973.
- Participant, Seminar on Organizational and Community Responses to Disasters, Sponsored by National Science Foundation and Japan Society for Promotion of Science, Columbus, Ohio, September, 1972.
- Principal Lecturer, Seminar on the Sociological Aspects of Collective Stress, Sponsored by Patna University, A. N. Sinha Institute and the U.S. Educational Foundation in India, Patna. Bihar, India, March, 1972.
- Participant, Illeme Seminaire Sur La Planification Des Secours En Cas De Catastrophes Naturelles, Port-au-Prince, Haiti, June, 1970.

Participant, Caribbean Regional Seminar  
on Pre-Disaster Preparedness,  
Port-of-Spain, Trinidad, June, 1968.

Participant, Workshop on Crisis Research,  
Sponsored by the University of  
Pittsburgh and the System Development  
Corporation, Newport Beach,  
California, December, 1966.

Honors and  
Professional  
Affiliations:

American Academy of Political and Social  
Sciences

American Association of University Professors:  
Elected Board Member, 1970-71,  
Ohio State University

American Sociological Association  
Chair, Ad hoc Committee advising  
on participation of sociologists  
in Fulbright-Hays Programs (in  
conjunction with the Committee  
on International Exchange of  
Persons), 1968.

Member, Committee on the  
Development of World  
Sociology, two terms Co-Chair,  
Liaison with National and  
International Organization.

Chair, Committee on Committees, 1975  
Elected, 1974.

Member, Committee on Regional  
Affairs, 1974-77.

International Sociological Association  
Participation at Evian, France, 1966;  
Varna, Bulgaria, 1970; Toronto,  
Canada, 1974; Uppsala, Sweden, 1978.

North Central Sociological Association  
Program Chair, 1958  
Vice-President, 1970-71  
President-Elect, 1971-72  
President, 1972-73  
Representative to American  
Sociological Association,  
1974-Present.

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.

Phi Kappa Phi, 1976.

Honorary Lifetime Faculty Award, Defense  
Civil Preparedness Agency Staff  
College, 1974.

Honorary Faculty Membership, Defense  
Civil Preparedness Agency Staff  
College, 1973.

Fulbright Award, Senior Lecturer, India,  
1971-72.

Graduate Teaching Award, Alpha Kappa  
Delta, 1969.

Fulbright Award, Senior Lecturer, United  
Arab Republic, 1964-65.

Related Professional  
Activities:

Chair, NATO Fellowship Committee,  
Committee on International Exchange  
of Persons.

Elected to National Board of Directors,  
Fulbright Alumni Association, 1980-83.

Consultant, Federal Emergency Management  
Agency on Cuban Refugee Camp  
Consolidation, August 1980.

Member, Council of Secretaries, American  
Council of Learned Societies.



Consultant, Federal Disaster Assistance Administration, Housing and Urban Development.

Senior Consultant, Federal Emergency Preparedness and Response Study, President's Reorganization Project, Washington, 1977-78.

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

Proposal Review, National Science Foundation, Canada Council.

President, Disaster Research Services, Inc.

Consultant, Wooster College, Denison University.

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

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).

The Role of Technology in International Disaster Assistance

(Washington: National Academy of Sciences, 1978).

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

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

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

Consultant, Stanford Research Institute,  
1971.

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

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

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

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

## Publications:

### Books:

- 1975 Deviance: Definition, Management and Treatment. New York: Oxford University Press. (Co-author).
- 1975 Social Movements, Violence and Change: The May Movement in Curacao. Columbus: The Ohio State University Press. (Co-author).
- 1970 Organized Behavior in Disaster. Lexington: D. C. Heath. 236 pp. (Republished 1976).
- 1969 Deviance: Studies in the Process of Stigmatization and Societal Reaction. New York: Oxford University Press. (Co-author).
- 1964 Social Problems: Dissensus and Deviation in an Industrial Society. New York: Oxford University Press. 594 pp. (Co-author).

### Chapters, Monographs, and Reports:

1. Invited Paper at Third International Conference: Social and Economic Aspects of Earthquakes and Planning to Mitigate Their Impacts, Lake Bled, Yugoslavia, June 1981 (Sponsored by Yugoslav Association of Self-Managed Communities of Interest for Scientific Research and the U.S. National Science Foundation).
2. "Disasters and Emergency Medical Services." In Proceedings of First International Symposium on Emergency Medical Services. Forthcoming.
3. 1981 "The Contributions of the Social Sciences to the Evaluation of Emergency Preparedness and Response" in The Accident at Three Mile Island: The Human Dimensions, D. Sills, C. Wolff and E. Shelanski, eds.), Boulder, Westview Press.
4. 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.

5. 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).
6. 1978 "Interorganizational Relations in Communities Under Stress." Pp. 50-64 in E. L. Quarantelli (ed.), Disasters: Theory and Research. London: Sage Studies in Sociology.
7. 1977 "Crises and Disaster Research." In Annual Review of Sociology. Volume 3. Palo Alto: Annual Reviews Inc. (with E. L. Quarantelli).
8. 1976 Organizational Communications and Decision Making in Crises. Columbus: Disaster Research Center. 58 pp. (with E. L. Quarantelli).
9. 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).
10. 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).
11. 1975 "Rapport sur les activites du Disaster Research Center." Pp. 23-44 in Les Comportements Associes Aux Catastrophes. (Table Ronde du Centre National de la Recherche Scientifique) Paris: Institut International du Feu. (in French and English) (with E. L. Quarantelli).
12. 1975 The Delivery of Mental Health Services in the Xenia Tornado. Columbus: Disaster Research Center. 280 pp. (with E. L. Quarantelli and others).
13. 1974 The Role of Local Civil Defense in Disaster Planning. Report Series No. 16. Columbus: Disaster Research Center. 105 pp. (with E. L. Quarantelli).

14. 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).
15. 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).
16. 1972 Police Perspectives and Behavior in a Campus Disturbance. Columbus: Disaster Research Center. 166 pp. (with E. L. Quarantelli and James L. Ross).
17. 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).
18. 1972 A Perspective on Disaster Planning. Report Series No. 11. Columbus: Disaster Research Center. 94 pp. (with E. L. Quarantelli and Gary Kreps).
19. 1972 "Cross Cultural Perspective on Disaster." Pp. 235-257 in Proceedings of Japan-United States Disaster Research Seminar: Organizational and Community Responses to Disaster. Columbus: Disaster Research Center.
20. 1971 Environment Crises. Columbus: Water Resources Center, The Ohio State University. 91 pp. (with Dennis Wenger).
21. 1971 "Community Conflict: An Explanation of Its Absence in Natural Disaster." In Clagett G. Smith (ed.), Conflict Resolution: Contributions of the Behavioral Sciences. Notre Dame: University of Notre Dame Press. (with E. L. Quarantelli).
22. 1970 "Different Types of Organizations in Disaster Response and Their Operational Problems."

In Robert Bricton (ed.), Emergency Operations.  
Los Angeles: Tinnon-Brown. (with E. L.  
Quarantelli).

23. 1969 Organized Behavior in Disaster: Analysis and Conceptualization. Columbus: Disaster Research Center. 254 pp. (Republished 1970. Lexington: D. C. Heath).
24. 1969 The Functioning of Expanding Organizations in Community Disasters. Report Series No. 2. Columbus: Disaster Research Center. 82 pp.
25. 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).
26. 1968 "Operational Problems of Organizations in Disasters." Pp. 151-176 in 1967 Emergency Operations Symposium. Santa Monica: System Development Corporation.
27. 1968 The Functioning of Established Organizations in Community Disasters. Report Series No. 1. Columbus: Disaster Research Center. 52 pp. (with George Warheit).
28. 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).
29. 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).
30. 1956 Consequences of Population Mobility for School and Community Change. Columbus: School-Community Development Study, The Ohio State University. 132 pp.

31. 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).

Articles:

1. 1978 "Organizational Adaptation to Crises."  
Disasters, Volume 3, No. 1, March.  
London: International Disaster Institute.  
(with Benigno Aguirre).
2. 1977 "A Background Note on the Preliminary  
Findings and Impressions of the DRC  
Studies." Mass Emergencies 2:147-150.
3. 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).
4. 1976 "Community Conflict: Its Presence and  
Absence in Natural Disaster Situations."  
Mass Emergencies 1:139-152. (with E. L.  
Quarantelli).
5. 1976 "Civil Disturbances and Social Change: A  
Comparative Analysis of the United States  
and Curacao." Urban Affairs Quarterly,  
September. (with William Anderson).
6. 1975 "The Comparative Study of Disaster: A  
Social Organizational Approach." Mass  
Emergencies 1:21-31.
7. 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).
8. 1974 "Counterrioters in Urban Disturbances:  
Opponents or Supporters of the Status-Quo?"  
Society 11:50-55 (March-April).
9. 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).

10. 1972 "When Disaster Strikes (It Isn't Much Like What You've Heard About)." Psychology Today 5:66-70 (February). (with E. L. Quarantelli).
11. 1970 "Property Norms and Looting: Their Patterns in Community Crises." Phylon 31:168-182 (Summer). (with E. L. Quarantelli).
12. 1970 "Organizational Involvement and Change in Community Structure in Disaster." American Behavioral Scientist 13:430-439.
13. 1970 "Organization as Victim in Mass Civil Disturbances." Issues in Criminology 5:181-193 (Summer). (with E. L. Quarantelli).
14. 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).
15. 1969 "Organizations in Disaster." EMO National Digest 9:12-13 (April-May). (with George Warheit).
16. 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).
17. 1968 "Redefinitions of Property Norms in Community Emergencies." International Journal of Legal Research 3: 100-112 (December). (with E. L. Quarantelli).
18. 1968 "Looting in Civil Disturbances and Disasters." Trans-Action 5:9-14 (May). (with E. L. Quarantelli).
19. 1968 "Looting in Civil Disorders: An Index of Social Change." The American Behavioral Scientist, Volume 2, March. (with E. L. Quarantelli).



20. 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).
21. 1968 "Collective Stress and Its Relation to Water Resource Planning." Proceedings of Workshop on Sociological Aspects of Water Resources Research, Utah State University.
22. 1967 "Societal and Community Problems in Disaster." EMO National Digest 7:16-18 (October).
23. 1967 "Impact of Disaster on Community Life." EMO National Digest 7:10-13 (April).
24. 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).
25. 1966 "Theoretical Problems in Disaster Research." Bulletin of Business Research 41:7-9 (September).
26. 1966 "Natural Disaster as a Social Science Field." National Review of the Social Sciences 3:85-94. (also summary in Arabic).

Editing:

Editor, ASA Footnotes, 1977-Present.

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

Co-Editor, Disaster Research Center Series.

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

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

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