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BEHAVIOR IN AN EMERGENCY SHELTER: A FIELD STUDY OF 800 PERSONS  
STRANDED IN A HIGHWAY RESTAURANT DURING A HEAVY SNOWSTORM

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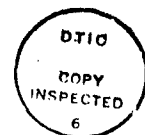
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The field work, analysis of data, and writing of this report were done by the following members of the Disaster Research Group: Charles E. Fritz, Assistant Director, Jeannette F. Rayner, Research Associate, and Samuel L. Guskin, Research Assistant.

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BEHAVIOR IN AN EMERGENCY SHELTER: A FIELD STUDY OF 800 PERSONS  
STRANDED IN A HIGHWAY RESTAURANT DURING A HEAVY SNOWSTORM.

SUMMARY

A severe snowstorm on March 19 and 20, 1958, forced approximately 800 travellers to take refuge in a restaurant on the Pennsylvania Turnpike and to remain there for a period of 24 to 36 hours.

The Disaster Research Group of the National Academy of Sciences-National Research Council was requested by FCDA to study this situation because of its resemblance to potential wartime shelter situations. Three members of the Disaster Research Group arrived on the scene of the incident one week following the event and interviewed eleven persons in a two-day period.

The findings of this study are summarized below:

1. There was a diversity of personal and social characteristics present among the persons who took shelter in the restaurant. Represented were people of both sexes, all ages, a wide range of social classes, different races and religions, and a great variety of occupational groups. There was an over-representation of young, healthy males, particularly truck drivers, and only about 50 of the 800 persons could be considered dependent. There appeared to be a sufficiently large number of people with the needed skills and knowledge to deal with the problems they faced during their period of isolation in the restaurant.

2. The pre-existing restaurant organization was not flexible enough to deal with the added problems resulting from the presence of 800 shelterees. Informal leadership and organization developed among the shelter group to deal with these special problems. Organization was initiated by a physician who then shared leadership responsibilities with two Air

Force Majors and two salesman. The instructions and suggestions given by the informal leaders seem to have been followed readily. There were more than enough volunteers to do the many tasks suggested by the leaders. The jobs that people assumed or were assigned included: planning and administration, external communications, internal communications, supply, rescue, cooking and serving, cleanup, care of dependents, medical care, safety, equipment maintenance, and religious functions. The division of labor seems to have been based on pre-existent skills. There was also a rough division of function with regard to space allotment. Separate areas were designated for specific functions or particular groups of people. The functional areas consisted of a first aid center, a play area for children, a smoking room, headquarters, and place from which public announcements could be made. Special areas were assigned to family units and single women, single men, and an ambulance patient and her relatives. There was further specialization in the use of equipment and supplies. Evidence indicates that the division of labor and function which developed was adequate to deal with the essential tasks of this shelter situation.

Many needs were recognized by the group beyond those of mere physical survival. Some of these are: physical comfort, cleanliness, and health; activity needs, emotional support and reassurance; information; isolation and privacy for certain persons; maintenance of social codes; special care for dependents; organization needs.

The development of organization seems to have been stimulated by the presence of interpersonal conflicts and tension over available food, space, and service. Organization seems to have been impeded by people's tendency to view the situation as a personal emergency rather than an emergency for the total group of shelterees; and also by the attempt, on the part of the acting management of the restaurant, to continue usual restaurant routines as long as possible.

3. There appears to have been considerable uncertainty about the length of time that the group would have to remain in the restaurant. There is some indication that there was an initial tendency to underestimate the length of stay. Estimates became more accurate when information from outside was brought in by helicopter.

4. A wide variety of communication needs were expressed in this situation. Members of the crowd spoke with one another, made personal phone calls, listened to announcements of the shelter leaders, and asked questions of the shelter leaders. Leaders got together for planning purposes, made phone calls to obtain information or request aid from outside agencies, announced rules to the crowd, announced information from outside to the crowd, and answered questions from the crowd. Three public telephones and two private telephones were available and seem to have been sufficient for the needs of the shelterees. The leaders apparently had no difficulty in establishing control over the private lines and persons lined up in a fairly orderly manner to use the public lines.

Conversation in the crowd seems to have been concerned with the question of when and how the group would get out. There were also some unfounded rumors circulating concerning a number of dead persons and some stranded children. These were investigated, found to be untrue, and this news was announced to the group.

The leaders were sensitive to people's need to be informed and made frequent announcements concerning the progress of outside agencies in getting the group out. Announcements of rules were often combined with this information.

5. Most of our respondents' descriptions of people's behavior in the restaurant emphasized the cooperativeness of people. Nevertheless, there were reports of considerable tension during the earlier hours of confinement and there was at least one disturbing incident

at a later time. Organization seems to have reduced the general level of tension.

There was no evidence pointing to a carryover of pre-existing prejudices and conflicts between racial, ethnic, and social status groups. If anything, such cleavages seem to have been mitigated by the situation. There was general cooperation with the leadership. Following the one minor incident reported, a group formed to deal with any future disturbances; but none occurred. Certain priorities were given to more needy persons such as mothers and children.

6. There seems to have been considerable tension concerning the supply of food although there was no serious shortage in this regard. This concern stemmed from a shortage of service (which led to competition for food) and also from a bread shortage (which seems to have signified a general shortage to people). The inventory of food was checked and announcements were made concerning the overall adequacy of the food supplies. Certain modifications in the serving procedure minimized the serving problem.

7. There seems to have been no basic change or degradation of moral codes.

8. Physical design aspects of the restaurant which facilitated its use as a shelter are: adequate cooking facilities, well-designed toilet facilities, acoustical ceiling tile, division into separate rooms, adequate external communications channels, and interior decoration. Limitations of the physical design include: not enough space per person, inadequate sleeping facilities, inadequate facilities and supplies for the care of dependent and ill persons, inadequate supplies and services for the normal requirements of personal health and cleanliness, and no public address system.

9. Suggestions for operation of future shelter situations were made by respondents. These included simplification of both service and preparation of food, provision of adequate leadership, and keeping people occupied and informed.

10. In evaluating the findings of this study, it should be kept in mind that our data are most adequate when we are dealing with the facilities and supplies of the shelter and when we are dealing with the concerns and activities of the shelter leadership. We have very little reliable information concerning the expectations, behavior, or personal characteristics of the many individuals who composed the shelter group.

To remedy this kind of inadequacy in field data, it is suggested that in future studies of similar phenomena, a research team be flown into the shelter situation as soon as possible, i.e., during the emergency period.

11. Finally, even if there were complete and accurate data concerning all aspects of this particular emergency shelter situation, it would have to be noted that the findings are limited to this particular event. Much more study must be done on shelter-related phenomena before stable generalizations can be made concerning shelter living.



## BEHAVIOR IN AN EMERGENCY SHELTER: A FIELD STUDY OF 800 PERSONS STRANDED IN A HIGHWAY RESTAURANT DURING A HEAVY SNOWSTORM

### THE EVENT

On March 19 and 20, 1958, the Northeastern section of the United States unexpectedly experienced a severe snowstorm which disrupted communication, transportation, and electrical power networks. The eastern part of Pennsylvania was hit particularly hard by the storm.

One result of the storm was the halting of traffic on the Pennsylvania Turnpike near Morgantown, Pennsylvania, sometime during the night of Wednesday, March 19, and the early hours of the following morning. Autos, trucks, and buses were stuck in the snow along a twenty-mile stretch of this heavily travelled highway. Most of the travellers remained in their vehicles until morning when they began to seek food and shelter in nearby homes and restaurants. About 800 people took refuge in a Howard Johnson restaurant on Thursday. Very few of these people were able to leave before Friday afternoon when the road was cleared sufficiently for large-scale evacuation.

### RATIONALE FOR THE STUDY

The Disaster Research Group of the National Academy of Sciences-National Research Council is presently involved in the study of human behavior in wartime shelter situations. The Federal Civil Defense Administration requested that the Group study the events which occurred in the overcrowded restaurant during the snowstorm because of their resemblance to potential wartime shelter situations. In this event, a large, rather heterogeneous group of strangers was isolated for 24 to 36 hours in overcrowded quarters with limited facilities. The properties of this situation which are felt to be relevant to problems

of wartime shelter living are listed below:

1. A large number of people took refuge in the same place.
2. These people were unprepared for the emergency.
3. There was a diversity of social and personal characteristics represented in the group of refugees.
4. The refugees were not previously acquainted with one another.
5. Conditions of crowding existed.
6. There were inadequacies in some critical facilities and supplies.
7. The situation occurred unexpectedly.

Certain other characteristics likely to occur in nuclear attack shelter situations were present in only a limited sense in this case. These are:

8. Uncertainty concerning the length of stay in the shelter.
9. Danger of exposure forcing people to remain in the shelter.
10. Complete dependence on resources within the shelter since outside relief forces are also immobilized by the same agent causing the isolation of the shelter group.

This particular combination of conditions might not occur in any particular war-time shelter<sup>1</sup>, nor even in a large proportion of shelters, particularly if a shelter program is well planned. However, each of these problems is likely to occur to some degree in most shelters. For this reason, it appears valuable to study the events in the restaurant for whatever understanding it might give us concerning problems of shelter living.

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1. In nuclear warfare, such a combination of conditions might pertain to a shelter located in a highly mobile area of a large city and designed for a smaller number of persons or a different category of people than actually took refuge there. Under these circumstances, there would be shortages of facilities and supplies as well as crowding, heterogeneity of people, and so on.

## THE RESEARCH PROCEDURE

This field study was performed by three members of the Disaster Research Group on March 26 and 27, 1958, one week following the event studied. On March 26, five persons were interviewed at the scene of the incident. All were employees of the restaurant or adjacent gasoline station, and had been involved in the shelter situation. They were the manager of the restaurant, his assistant manager, a waitress, a kitchen worker, and the manager of the gasoline station. On March 27, interviews were obtained at offices or homes in Lancaster, Marietta, and Middletown, Pennsylvania. The persons interviewed were: a physician, who had been active in organizing the shelter group; his wife, who had also been active in the shelter situation; three Air Force helicopter pilots, who had been active in rescue activities and also in leadership activities; and one newspaper reporter who had been flown in to the scene by helicopter. This limitation in the number and kind of persons interviewed was made necessary by the fact that almost all of the 800 stranded persons were en route elsewhere at the time they were forced to take shelter and they scattered immediately following evacuation.

In general, the interviews were unstructured and were aimed at obtaining information concerning the restaurant as a shelter facility, i.e., its provisions and resources; the sequence of events in the shelter; and such matters as:

- (1) The population of the shelter, its skills and weaknesses;
- (2) The development of organization, leadership, and self-help;
- (3) Expectations concerning duration of stay in the shelter;
- (4) Information and communication problems and solutions;
- (5) Reactions to crowding, confinement, and lack of privacy;
- (6) Reactions to possible crucial shortages;

- (7) Maintenance or changing of social codes;
- (8) Physical design factors influencing habitability of the shelter.

### CHARACTERISTICS OF THE SHELTER FACILITY

Physical Characteristics -- The Brandywine Howard Johnson's Restaurant is located between the Morgantown and Downingtown interchanges of the Pennsylvania Turnpike, approximately 35 miles west of Philadelphia. It is one of 26 stores on the Turnpike operated by the Howard Johnson Restaurant Corporation. A restaurant, gift shop, and an adjoining Gulf gasoline station are housed in a stone-faced building containing two floors -- a main floor and a basement. The main floor of the restaurant contains two dining rooms, capable of seating 125 people; a counter area, with a seating capacity of 36; a small gift shop; a lobby with a circular couch; a large kitchen; two storerooms; and a large walk-in freezing room. The Gulf station contains a display room, a two-bay lubrication garage, an office and a basement storeroom. The basement of the restaurant contains a large L-shaped furnace and equipment room (with two furnaces, two water tanks, compressors for refrigerators, etc.), a storage room, a men's locker room, a women's locker room, and a dining area for employees. The total floor space of the main floor of the restaurant and Gulf station is approximately 8500 square feet. Total floor space of the basement is approximately 5500 square feet. The actually habitable floor space throughout the building is, of course, considerably smaller than the total square footage. The total habitable floor space, combining restaurant and gas station, but subtracting counter areas, kitchen equipment, etc., more nearly approximates 7500 square feet.

Food -- The manager of the restaurant has estimated that the food supply at the time the restaurant was isolated could have lasted five or six days without rationing. Al-

though only a day's supply of milk had been on hand, a stalled dairy truck on the highway was able to supply all the milk needed. The water supply was also more than adequate since the restaurant has its own wells and storage tanks. The bread supply, depleted sometime Thursday, was partially replenished Thursday afternoon by a farmer who brought a truckload of bread to the restaurant, and was completely replenished Friday morning when a helicopter brought an order in from a Harrisburg baker.

The feeding problem was considerably simplified by the fact that most of the restaurant's food is already processed and required little preparation. The restaurant's stoves are gas operated and the butane supply was more than adequate. Other food preparation devices, such as coffee urns, are operated by steam which was similarly unaffected by the electric power shortage. Although the dishwasher is electric, it is hooked up to the restaurant's emergency generator and thus was not disrupted when the normal power sources were cut off.

Heating, Ventilation, and Lighting -- Heating, ventilation, and lighting are facilities highly dependent on power sources and normal electric power sources were severely disrupted by the storm. The restaurant had an emergency electric power generator which went into operation automatically when the normal source was cut off. Nevertheless, this generator was not powerful enough to supply all the electric power required.<sup>1</sup> Fortunately, the heating system was oil-operated and required only minimal electric power for operation. Only a few lights operated on the emergency power system. This was not disruptive although it did make work in the kitchen more difficult. The normal ventilation system was completely inoperative resulting in a need for substitute measures. After leadership and organization

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1. Details concerning the generator and other equipment may be found in the appendix.

had developed, Thursday afternoon, smoking was prohibited except in the Gulf showroom and doors and windows were periodically opened to freshen the air. Nevertheless, when outsiders arrived on Friday they reported that the air was foul.

Equipment Maintenance -- Maintenance of equipment was the responsibility of the gasoline station personnel and they called in one of their special maintenance engineers to deal with some problems which developed with the heating and pumping systems.

Toilet Facilities -- The restaurant has a Ladies' Rest Room and a Men's Rest Room for customers and also separate facilities for male and female employees. The Gulf gasoline station also has an employees' toilet facility. Since the employees' rest rooms were not made available to the persons who took refuge in the restaurant, only the customers' toilet facilities will be described in detail.

The ladies' rest room contains eight commodes (four "pay," four free); six sinks with mirrors above them; a dressing room with a full-length mirror and four hassocks; a dispensing machine for combs, "Kleenex," perfume, lipstick, and other cosmetics; a dispensing machine for sanitary napkins;<sup>1</sup> a dispensing machine for sanitary belts; a dispenser for paper towels; and one or two hot air blower driers (inoperative during the emergency).

The men's rest room contains six urinals; five commodes; five sinks with mirrors above them; one or two dispensers for paper towels; two blower-driers; and a dispensing machine for combs, nailclippers, shoepolish, toothbrushes, etc.

Although these facilities appear to have been sufficient, the shelter leaders felt

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1. The supply of sanitary napkins was exhausted fairly early in the shelter stay and women who were having menstrual periods had to resort to the use of paper towels.

it necessary to make occasional announcements concerning special care or the toilets.

Besides its usual function, the rest rooms were also employed for washing diapers and infants' clothing by mothers. Diapers and infants clothing were dried by hanging them on lines strung up over the large stoves in the kitchen.

Seating and Sleeping Facilities -- Little "elbow-room" or comfort can be expected when 800 persons are occupying a facility meant for 200. People were having difficulty just finding a place to sit down. Various regulations and events, however, combined to make the situation more livable. Single men were assigned to the less comfortable basement quarters; single women, families, and elderly people shared the main dining area. Fortunately, a truck loaded with packing quilts was stalled near the restaurant and its driver volunteered their use for sleeping purposes. About 500 persons were estimated to have slept on the 150 or so large quilts.

Medical Care -- The restaurant had no special medical or first aid facilities. However, three physicians, two or three nurses, and two ambulance drivers were present and active in first aid and treatment. The only medical care required was for an ambulance patient, two diabetic patients, a child with the croup, a woman in shock from exposure, and several minor exposure cases. A diabetic, an ambulance patient, and a cardiovascular patient were flown out by helicopter early Friday morning. The helicopter returned with medical supplies (including insulin) ordered by one of the physicians.

There was one death during the isolation period. A man died of a heart attack while struggling through the snow towards the restaurant. His body was wrapped in blankets and kept outside in the snow until flown out by helicopter Friday.

Communication Facilities -- The restaurant and service station together had a total

of five telephone lines, two private and three public, all of which were in operating order throughout most of the time the refugees were present. Although public announcements were made in the restaurant throughout the shelter stay, the restaurant had no public address system.

Transportation -- At least one auto was able to drive up to the restaurant as late as 5 o'clock Thursday morning. The next vehicle able to reach the restaurant from any considerable distance was a helicopter about 4:30 P.M., Thursday evening. This was an H-21 helicopter from Olmsted Air Force Base in Middletown, Pennsylvania. No transportation was available Thursday night because of the difficulty of helicopter operations at night in the snowstorm. State Police managed to reach the restaurant Friday morning sometime after 4:00 o'clock. A roadway to the restaurant was cleared about 9:00 A.M., but people were not able to leave until about noon on Friday.

Helicopter operations Thursday evening were limited to removal of persons from an ambulance and a bus. On Friday, seven "sorties" were made with the H-21 helicopter and three "sorties" were made with an H-19 helicopter also from the same base.<sup>1</sup>

#### CHRONOLOGY OF EVENTS

In order to clarify the nature of this emergency shelter situation, there is presented below a chronology of some selected events:

Wednesday, 9:45 P.M. The normal electric power system went off and the emergency generator automatically went into operation in the restaurant. The immediate effect was that most of the lights went off, the water pumps and sump pumps no longer operated

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1. The H-21 holds 18 passengers plus a crew of three; the H-19 holds 5 or 6 passengers plus a crew of two.



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properly, and the heating system went off. The service station employees contacted their maintenance man by phone concerning what needed to be done and the sump pump and heating systems were put back into operation by 11:30 P.M.

Wednesday, Midnight to Thursday, 5:00 A.M. An increasing number of cars, trucks, and buses were becoming immobilized. Many people spent the night in their cars. An estimated 60 - 150 people spent the night in the restaurant or had arrived by 5:00 A.M.

Thursday, 5:00 or 6:00 A.M. thru Thursday night. After daybreak people began to leave their cars and seek refuge. By Thursday evening about 800 persons had sought refuge in the restaurant. Sometime Thursday morning Mr. B died of a heart attack as he and his wife struggled through the snow toward the restaurant. Mrs. B continued on to the restaurant and the body of Mr. B was picked up by truckers, and placed in the snow outside the Gulf gasoline station. The body was covered with blankets.

Thursday, 1:00 or 2:00 P.M. A physician, Dr. L, asked permission of the assistant manager of the restaurant to try and organize the large crowd. After obtaining permission, Dr. L stood up on the counter and asked for attention, which he got immediately. He spoke of the need for organization and asked for volunteers. Everyone cooperated and most people volunteered. Dr. L asked whether there were any other physicians in the crowd, and a surgeon and an osteopath came forward.

Thursday, 1:00 or 2:00 P.M. Following this response from the crowd, Dr. L talked by telephone with Secretary S of the Turnpike authority who assured him that a maximum effort would be made to get the people out of the restaurant. This was announced to the crowd.

Among other volunteers, two men offered to help Dr. L organize. Dr. L and these

aides then diagrammed the restaurant and allocated space so that there were separate areas for a first aid station, a nursery, a place for families, and a place for single men.

A rescue mission, composed of truckers, was formed. This group went out and evacuated cars.

Thursday, 2:00 P.M. The air in the restaurant was described as "musty and foul-smelling." A rule was made that there would be no smoking except in the Gulf display room.

Thursday, 2:00 - 3:30 P.M. Dr. L and aides made an inventory of food supplies. They found that they had enough food in the restaurant to last several days. If the canned goods in trucks outside were added to the supply in the restaurant, it was believed that there was sufficient food to supply the entire group for at least one week.

Thursday, 2:00 - 3:00 P.M. Because the air was foul and the physician thought that people were incubating disease, people were asked to put on their coats and the windows and doors were opened about once every half-hour in order to ventilate the building.

Dr. L asked for volunteers to help evacuate an ambulance patient stranded in an ambulance about a mile down the road. A group of ten truckers formed a rescue squad, but they were unable to get her out.

Thursday, 3:00 - 3:30 P.M. Dr. L phoned Olmsted Air Force Base asking for a helicopter to evacuate the ambulance patient.

Thursday, 4:30 P.M. At about 4:00 P.M., Major T at Olmsted was notified of the situation and was requested to bring a helicopter to the restaurant to rescue a stretcher case and evacuate a busload of persons also stranded on the Turnpike. He left his base about 4:10 P.M., arrived at the restaurant about 4:40 P.M., and started rescue operations, which continued until darkness made operations precarious.

While Dr. L was involved on this rescue mission, the other physicians were having sick call and treating people.

Thursday, towards evening. Volunteers helped with serving, dishwashing, and making soup. Soup was passed out during the evening. Sandwiches were delivered to a busload of people who had not evacuated to the restaurant.

Thursday night. Packing quilts were brought in from a truck and used for sleeping purposes.

Dr. L made plans with Major T to evacuate the ambulance patient, a diabetic, and a cardiovascular patient in the morning. The restaurant manager, who was stranded at his home, arranged for a helicopter to pick him up in the morning. Major T arranged to have two more helicopters from his base join in rescue operations in the morning.

Major T relieved Dr. L and his aides so that they might get some rest.

Thursday, 11:00 P.M. to Friday, 2:00 A.M. Rumors had circulated in the crowd concerning a busload of children isolated on the Turnpike, other dead persons outside, and persons stranded in their cars. Major T organized a foot rescue team which checked cars and trucks. They found no dead; the stranded bus contained four to six children and about 34 adults and all the passengers were in good condition.

Thursday, 11:30 P.M. to Friday, 3:00 A.M. Major T closed restaurant operations when the assistant manager informed him that his employees had been working continuously for 30 hours and were very tired. During this period only coffee was served.

Friday Daybreak. Major took off in his helicopter with a diabetic patient, a woman accident patient, and a cardiovascular patient. He flew them to his air base, picked up medical supplies there and several cases of bread from a Harrisburg bakery, and then returned to the restaurant.

Friday, 8:30 A.M. A helicopter picked up the restaurant manager, the gasoline station manager, a waitress, and a busboy at the Morgantown Interchange.

Friday Morning. Last refugees arrived in the restaurant from two buses.

Friday, 10:30 A.M. A helicopter removed the body of Mr. 3 to nearby Willow Grove Naval Air Station.

Friday, 11:00 A.M. Employees from other Turnpike restaurants arrived to relieve employees of this restaurant.

Friday, about noon. People started leaving the restaurant. The road was open. Almost all people left within a few hours.

Sunday, 5:00 P.M. Electric power came on in the restaurant.

#### THE PROBLEMS STUDIED

The interviewing and data analysis in this study have focused on the following problems:

1. In a fortuitous, random selection of people, what social and personal characteristics are likely to be represented?
  - a. Is such a selection likely to contain people with all the basic knowledge and skills needed to sustain life in shelters, or are important skills missing or under-represented?
  - b. Is such a selection likely to contain a sufficiently large proportion of dependent people (young children, aged, ill, infirm, etc.) to cause special problems?
  - c. Are the latent skills of such a group utilized under these conditions or does the situation discourage the exercise of needed skills?
2. When there is no pre-designated leadership or form of shelter organization, does

informal leadership and organization arise in the group, or does the group remain an un-organized, amorphous mass?

a. If informal organization arises, who takes a leadership role in such organization? Are there any particular categories or classes of people who are more likely to take a leadership role than others?

b. Are the suggestions and commands of the emergent leaders followed or does discord develop over the assumption of leadership and the instructions issued by the leader?

c. What kinds of division of labor and function develop in such a group? Is the division of labor adequate to handle the essential tasks of maintaining the shelter?

d. What needs beyond sheer survival tend to be spontaneously recognized and provided for by the shelter group?

e. Are most people willing to volunteer their time and efforts in behalf of the group?

f. What kinds of needs facilitate or impede the development of organization?

3. What expectations do people have about their length of stay in the shelter under conditions where length of confinement is uncertain?

a. Are they optimistic or pessimistic in their estimates? Is there a general tendency to underestimate rather than overestimate the length of stay?

b. What are the consequences of such expectations in developing organization, social values, rules of behavior, and allocation of supplies?

4. What information and communication needs are expressed by people in such a situation?

a. How are communication channels with the outside world utilized? Is there a problem of establishing control over the external communication facilities? Does conflict develop over their use? Are vital messages to outside authorities delayed because communication channels are tied up by people wishing to send individual messages?

b. What kinds of rumor or informal verbal communication arise and what subject matters are they concerned with?

c. How is information from outside authorities utilized in the shelter? Are the shelterees kept informed about what is happening on the outside?

5. How do people react to conditions of close confinement, lack of solitude and privacy, and conditions of crowding?

a. Do such conditions in themselves produce conflicts, tensions, and irritability, or are they modified by the development of social organization?

b. Are normal prejudices and conflicts between various racial, ethnic, and social class groups carried over into and intensified in the shelter, or are such cleavages mitigated by shelter life? Do people with high social and economic status in the outside society attempt to exercise their normal prerogatives over others?

c. Do small cliques of dissident people develop to oppose the shelter leadership and form of organization?

d. Does a control group develop to deal with troublesome offenders of the shelter rules?

e. What rules develop among the shelterees concerning utilization of space and shelter facilities? What priorities, if any, are established in terms of need

and access to these facilities?

6. How do people react to the possibility of shortages of food or other essential supplies?

a. Is there a tendency for competitive behavior to develop, so that some people seek to hoard food or other supplies or consume disproportionate quantities compared with others? How are these problems handled?

b. Do the ill and other dependent types of people in the shelter have their needs adequately cared for?

c. Does the absence of certain kinds of food or luxury items create tensions? Are there some kinds of food that are dietetically unnecessary, but symbolically important for maintaining morale?

7. What happens to normal social and moral codes in such a situation? Are they maintained, degraded, or changed to adapt to the situation?

8. What elements of physical design of the shelter serve to enhance or decrease habitability of the shelter and a sense of well-being?

### FINDINGS

The findings of this study will be presented by focusing on the questions raised in the previous section.

1. Population Composition -- The diversity of personal and social characteristics found among this group of refugees is striking. Represented here were both sexes, all ages the range of social classes, different races and religions, and a great variety of occupational groups, educational levels, etc. Some of the specific characteristics represented are presented below:

Restaurant employees (8) - assistant manager, 3 waitresses, 2 kitchen workers, and 2 busboys

Gasoline Station employees (4)

Truck drivers (50-200)

Busdrivers (4-6)

Physicians (3) - a surgeon, a general practitioner, and an osteopath

Nurses (2-3)

Ambulance drivers (2)

Ministers (4)

Nuns (2-4)

Servicemen (10 in uniform) - one Air Force Major, the rest non-officers

Helicopter (Air Force) personnel - Major H, Major T, and engineer

Entertainers (up to 20) - members of "rock-and roll" troupe

College students

Teenagers

Children (20-40) - aged 12 or under, including 7 infants

Although the diversity of personal and social characteristics found here suggests an almost random selection process, it should be noted that there was surely an over-representation of young, healthy males, particularly truck drivers.

a. The variety of persons present appeared to have had sufficient skills and knowledge to deal quite adequately with the problems they faced in the restaurant. There were persons present who could deal with problems of organization, medical care, rescue and other physical labor tasks, child care, equipment maintenance, cooking and serving, emotional support ("spiritual" care), etc. Most of the problems



faced by the people in the shelter required orientations towards particular kinds of work but did not require special training for their solutions. Examples of these were preparing and serving food and the foot-rescue work. For those tasks, which required special training and experience, the required personnel seemed to be present. Thus, medical care was given by physicians, nurses, and ambulance drivers, all of whom had been accidentally stranded in this restaurant; knowledge and maintenance of the physical structure, supplies, and equipment of the shelter were supplied by the restaurant and gasoline station personnel.

b. The number of dependent people in this group probably added up to about 50, or roughly 6 percent of the total. This number includes about 30 children, about five people with physical ailments of sufficient severity to cause medical problems, and an unknown number of elderly people who were infirm. The proportion of dependents in this situation was probably lower than might be expected in many typical shelter situations, since, with the exception of the ambulance patients, only those able to travel were represented. (In residential areas, particularly, a larger proportion of dependents might be expected. In some situations, however, such as a business or factory area, the proportion of dependents could be smaller.)

c. There is no evidence that latent specialized skills of the people (e.g., hobbies, skills learned in the past but not used recently, etc.) were utilized. Presumably, since most of the specialized needs of the situation were met by persons whose primary occupational skills fitted the situation, there was little need or opportunity to use latent skills.

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2. Organization, Leadership, Problem-solving -- The shelter situation was never without an organization of some kind. Initially, this consisted entirely of the pre-existing restaurant employee organization. Since this organization operated according to rules and procedures designed only for a limited function, that of feeding customers, some new organizational development became necessary. The leader of the pre-existing structure, the assistant manager of the restaurant, did not expand his operations for this purpose, but attempted to manage as best he could within the limitations of the pre-existing order. This was not satisfactory in reducing the considerable discomfort which developed in the overcrowded restaurant. Informal leadership and organization then developed to deal with the special problems of this shelter situation.

a. Informal shelter organization was initiated by Dr. L, a physician. He was then joined by Mr. F, a salesmanager, and Mr. B, an associate of Mr. F. Finally, leadership duties were assumed by Major T and to some extent by Major H. Others may also have taken leadership roles. Each of these leaders about whom we have any information is normally engaged in an occupation in which the role of supervisor, leader, or counselor is important. That is, each is normally concerned with directing others. Furthermore, each probably comes from a middle socioeconomic class background which emphasizes the need for order and rational behavior. Another point concerns the relevance of the person's occupational background to the particular problems faced by the refugees. In this case, the physician was concerned about: the incubation of disease under such crowded conditions; establishing a rescue effort for an ambulance patient; and setting up a first aid station. Organization was required for any solution to these problems.

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b. Suggestions and commands seem to have been followed readily. There is no evidence of discord developing over either the assumption of leadership or the instructions issued by the leaders. Dr. L first obtained permission from the assistant manager of the restaurant to make an announcement concerning getting things organized. Dr. L got up on the cashier's counter and asked for attention. The crowd's response is indicated below, in Dr. L's words:

. . . everyone turned and stopped talking at once; it was so quiet you could hear the snow falling. I introduced myself and said that it was time that we got organized. The response was amazing; tremendous. We got cooperation from everyone. We asked for volunteers and we got 700 of them. Everybody came up and wanted to know what they could do . . .

Cooperation with the informal leaders included respect for new rules as well.

Dr. L states:

. . . We made the rule about no smoking right after we got organized; it was accepted most heartily because the air was musty and foul smelling. . . . Occasionally someone would forget and unconsciously light a cigarette, but all you had to do was remind them and they put it out immediately or went to the smoking room.

c. Once informal leadership had been recognized, the leadership decided on tasks which needed to be done and changes which had to be made in the shelter.

The division of labor, space, and function which resulted are indicated below:

| <u>Task</u>                                  | <u>Persons Involved</u>                                      |
|----------------------------------------------|--------------------------------------------------------------|
| 1. General planning, administration, control | Dr. L, Major T, Mr. F and Mr. B                              |
| 2. External communications                   | Dr. L, Majors T & H, and Assistant manager of the restaurant |
| 3. Internal communications                   | Dr. L, Major T, and the two salesmen (Mr. F & Mr. B)         |

| <u>Task</u>                                                     | <u>Persons Involved</u>                                          |
|-----------------------------------------------------------------|------------------------------------------------------------------|
| 4. Supply                                                       | Assistant manager, Major T and Major H                           |
| 5. Rescue                                                       | Truckers, busdriver, Major T & H, Dr. L, and ambulance driver    |
| 6. Cooking and serving                                          | Restaurant personnel, wives, couples, college students, minister |
| 7. Cleanup                                                      | College students, servicemen                                     |
| 8. Care of children and dependents                              | Relatives (mostly mothers), nuns                                 |
| 9. Medical care                                                 | 3 physicians, 2 or 3 nurses, 2 ambulance drivers, a truck driver |
| 10. Safety (checking boiler room, taking fire exit precautions) | Major H                                                          |
| 11. Engineering, maintenance                                    | Gasoline station personnel                                       |
| 12. Religion                                                    | Ministers and nuns                                               |

In general, then, division of labor was based on pre-existent skills either related to peoples' occupations or associated with their age or sex group.

There was also a rough division of function in space allotment:

| <u>Function</u>                                              | <u>Space Allotment</u> |
|--------------------------------------------------------------|------------------------|
| 1. First aid center                                          | Back dining area       |
| 2. Occupancy by families with children                       | Main dining area       |
| 3. Occupancy by young single persons, including truckdrivers | Counter area           |
| 4. Occupancy by truckdrivers and other single males          | Boiler room            |
| 5. Occupancy by ambulance patient and her relatives          | Basement storeroom     |

| <u>Function</u>                                    | <u>Space Allotment</u>                     |
|----------------------------------------------------|--------------------------------------------|
| 6. Children's play area                            | Gulf station storeroom                     |
| 7. Smoking Room                                    | Gulf sales room                            |
| 8. Headquarters and communications for leadership  | Offices in restaurant and gasoline station |
| 9. Public announcements and assembly of volunteers | Cashier counter                            |

There was also further specialization in the use of equipment and supplies.

Examples are: tables were used for beds for children; access to milk dispenser was given to mothers with children.

There seems to be no evidence to indicate that the division of labor and function which developed was inadequate in dealing with the essential tasks of this shelter situation.

d. Very few of the activities of this shelter group were concerned with the problem of sheer physical survival. Some of the needs beyond sheer survival which were recognized by the group are indicated below:

1. Physical comfort, cleanliness, and health: distribution of blankets, smoking restrictions, first aid for minor ailments, care of toilet facilities.
2. Activity: Dr. L tried to give everyone something to do, playroom was set up for children.
3. Emotional support, reassurance: Announcements were made by leaders to indicate that outside help was on the way and to squelch rumors concerning many dead persons in their cars and a busload of stranded children; nuns stayed with the wife of the man who died.
4. Information: people in the shelter were kept informed of relevant outside events, also information concerning leadership changes, volunteers needs, rules.
5. Isolation and privacy for persons who might be disturbed by, or disturbing

to the group: the accident patient was allotted separate space.

6. Social values: separate sleeping area was allotted to single men, single women shared area with families; men got less comfortable quarters.
7. Special treatment for dependent persons: infants and children given priority on milk, children given special sleeping arrangements.
8. Centralization of problem-solving efforts, development and announcement of rules, desirability of order.

e. As soon as the need for organization was defined, most people were willing to volunteer their time and efforts in behalf of the group. Prior to the announcement concerning organization, only a few persons were engaged in any voluntary efforts.

f. Interpersonal conflicts and tension over available food, space, and service initially dictated the need for organization and probably facilitated the development of organization. It was the need to reduce this tension which lead Dr. L to initiate organization and which probably lead people to respond so favorably to his suggestions. Dr. L's personal need for some kind of orderly situation seems also to be involved. These points may be seen in Dr. L's statements below:

. . . About noon I went back out into the dining room and I saw that people were beginning to push and shove and shout for food; they were becoming quite disorderly. . . there were just too many people crowded into too little space. People were tired, hungry, and discouraged. You could feel the tension mounting. You could hear people shouting, 'That's my hamburger.' . . . Everyone who came in felt that he was an emergency -- felt that he should be served right away. . . (Then) I asked permission of the assistant manager to get organized. I got up on the counter and introduced myself and said it was time to get organized. I . . . asked for attention and everyone turned and stopped talking at once; it was so quiet you could hear the snow falling. . . The response was amazing; tremendous. We got cooperation from everyone.

Needs which appear to have impeded the development of organization were:

- (a) the tendency to view the situation as a personal emergency, i.e., as a threat
-

to oneself and his companions, rather than an emergency for the total group of shelterees; (b) the need to preserve the pre-existing order of doing things (on the part of the acting management of the restaurant) as long as possible. This need to continue operating as usual was apparently a result of the limited responsibility which the acting manager felt. He did not feel he had sufficient authority to alter things in any basic manner. This continuance of relatively normal operations undoubtedly interfered with the development of a collective view of the problem. The recognition that a common problem existed developed quickly when an appeal for cooperation was made by Dr. L.

3. Expectations Concerning Duration of Stay -- Our data do not permit us to generalize to the entire group of shelterees in regard to expectations concerning length of stay in the restaurant-shelter. We do know that the refugees were very concerned with the question of how long they would have to remain and when help would come. We can also assume that once the helicopter had arrived Thursday evening they felt that they could be evacuated if an emergency arose.

a. People's initial behavior on entering the shelter suggests that they anticipated only a short stay, perhaps a few hours, when they first arrived. In general, though, it seems that there was considerable uncertainty about their length of stay. Thus, Dr. L was unsure at first whether they would have to stay a day or through the weekend (four days). The arrival of the helicopter aided considerably in the definition of the probable length of stay. Flying in by helicopter Thursday afternoon, Major T was able to observe the position of the snowplows in relation to the restaurant. He estimated that the snowplows would not get through until the

following afternoon. Major T states, "I figured that it would be about 36 hours before the people in the restaurant would be able to get out in their cars." This information was apparently communicated to the crowd sometime Thursday afternoon or evening and may have served to establish a common (and realistic) definition that the stay would last through part of Friday.

b. Uncertainty concerning their length of stay led to attempts to determine the food inventory by Dr. L and the acting manager. Their finding was that the food supply would be adequate for several days without rationing and thus rationing was not instituted. This uncertainty undoubtedly influenced the decision to evacuate three medical cases as well.

4. Information and Communication -- Both internal and external communication needs, individual and group oriented needs were represented. Refugees spoke with one another; made personal phone calls; listened to announcements from the shelter leadership; asked questions of the shelter leadership; leaders got together for planning purposes; made phone calls to obtain information from outside agencies or to request aid from outside; announced rules to the crowd; announced findings from outside to the crowd; answered questions from the crowd.

a. There were three public telephones and two private telephones that could be used for outside communication. The two private lines appear to have been used exclusively by the restaurant and gasoline station management and by Dr. L, and the two pilots, Major T and Major H. There seems to have been no problem of establishing control over these facilities, no conflict over their use, and no problem of people in the restaurant tying up the channels to send individual messages. Their



only problem was that people calling in tended to tie up the channels for considerable periods of time. There apparently was no attempt made to control use of the three public telephones. People queued up in long lines and are reported to have been orderly. Although there may have been a few cases of individual conflict over the use of these telephones, they seem not to have caused a major problem.

b. The most frequently reported topic of conversation concerned the question of when the group would be able to get out. They also discussed how serious their situation was compared with those outside and how "loved ones" elsewhere were doing. Sometime Thursday evening, rumors were being circulated about a number of deaths which had occurred among those stranded on the Turnpike, about a number of persons still stranded in their cars, and about a busload of children stranded somewhere on the Turnpike nearby. As a result, a rescue squad was organized, searched the stranded cars, trucks, and buses, and found these rumors to be untrue. This information was disseminated to the group.

c. From the beginning, Dr. L apparently sensed the need for people to know what was going on outside that was of relevance to their getting out and their period of stay. This is indicated in the following statements by Dr. L:

We tried to keep them up to date about what was happening on the outside. We tried to give them something to hang on to so they didn't feel so out of the picture. (About 2 P.M. Thursday) Just after I had my talk on the phone with Secretary (S.), I told the crowd about my conversation and said that he told me that there was going to be a maximum effort made to get us out. When we heard that a helicopter was coming (about 3:30 P.M. Thursday), we announced that. Every little bit of information that we got was passed on. A little later when we learned that the bulldozers were only six miles from us, we announced that. We reassured them about the food situation. We told them that we had enough food and that we wouldn't have to starve because there was plenty of food in the trucks stranded along the road. By keeping

them informed and keeping them busy we made the stay as pleasant as possible even though it was unpleasant at times. Mr. (F.) was available at all times to make announcements and answer people's questions.

Major T states that he made a point of combining news from the outside with announcements and instructions concerning internal matters:

About 9:30 or 10:00 P.M. on Thursday, I got information from the weather forecaster that it was going to stop snowing in three hours. I got up and announced that and, at the same time, I reiterated that there should be no smoking except in the Gulf station because of the need for ventilation and I mentioned the latrine situation -- that it was important not to throw paper and other things in the toilets that would stop them up.

(About 11 P.M.) we got a report from the State Police on the progress of the snowplows, I announced that and at the same time made the announcement that the restaurant was shutting off all operations except the operation of the coffee bar.

(Later) I announced the plans to evacuate by helicopter those who needed medical attention and that we would be returning and that the doctors advised that there was no serious illnesses.

5. Reactions to Confinement, Crowding, and Lack of Privacy -

a. Most of our respondents' descriptions of people's behavior in the restaurant emphasized the cooperativeness of people. Nevertheless, there were reports of considerable tension in the crowd and at least one incident. Most of the tension seemed to concern competition for service at the food counter and finding a place to sit. It seems that the initiation of organization acted to reduce the tensions.

One respondent states:

. . . well, the turning point was when they began to organize. Until this point, people just sort of sat around and stared at each other and nobody approached anyone else. If you were lucky enough to find a chair, you just sat in it, in case someone else might get it. (When they began to organize) instead of tearing up packages of sugar, people started cleaning it up, and that's all the difference in the world.

We have also quoted Dr. L's comments previously which reported "people were beginning to push and shove and shout for food; they were becoming quite disorderly." Dr. L also indicated that a marked change occurred when they began to organize. By the time Major T arrived, he found that things were under control. A reporter who arrived on the scene the following morning even saw a kind of "comeraderie" in the crowd.

b. There is no evidence in this situation pointing to the carryover of pre-existing prejudices and conflicts between racial, ethnic, and social status groups. If anything, such cleavages seem to have been mitigated by the situation. Negroes were in the group but there were no signs of prejudice against them reported. A woman "dripping with diamonds" was observed helping a mother with her baby. A clergyman helped prepare food and a Doctor's wife put on a waitress' uniform and helped in the kitchen. These are some examples which indicate that social distinctions were pretty generally ignored.

c. As already indicated in previous sections, no dissident cliques developed to oppose the shelter leadership. On the contrary, according to the leaders, there was full cooperation and conformity to the rules that were developed.

d. Only one incident of a potentially disturbing nature developed, according to our respondents. On Friday morning, one of the truckdrivers at the counter got up to give his seat to a girl; but before she could take the seat, another truckdriver grabbed it. There were some harsh words between the two truckers, but no exchange of blows. At this time, a few truckdrivers got together and formed a group to deal with any future troublesome incidents; but none arose.

When he arrived, Major T thought that there might be some difficulty if people had liquor with them and began to drink. The problem was dealt with by making a public plea to donate liquor for medicinal purposes. Four or five bottles of liquor were donated to the dispensary as a result of this plea. No instances of "drinking" were reported.

e. The allocation of space has already been described in section 2c. The sick were put in an area where they could be separated from the others. Mothers, small children and families were in the area closest to the milk dispenser. Single women were allocated space with the families. A playroom was set up in a less crowded area. Single men occupied the least desirable locations.

6. Reactions to Food or Other Supply Shortages or Their Anticipation -- Worry about the supply of food led leaders to inventory the food supply and then to reassure people that the food supply was adequate. There was apparently considerable tension around the food counter, particularly while people were still arriving from outside.

a. Initially, the situation was conducive to competitive behavior because the restaurant personnel attempted to continue its normal operating procedures. The scarcity of waitresses and counter space in relation to the size of the crowd led people to react competitively. Dr. L states, "You could hear people shouting, 'That's my hamburger,' . . . Everyone who came in felt that he was an emergency -- felt that he should be served right away." It was also observed that some people ordered food five or six times a day, but it is difficult to determine whether this behavior represented hoarding, simply a substitute for other activities, or differential food needs among the people represented.

The problem of competition for food and service was handled by: (1) eliminating individual orders from the menu; (2) setting up a single feeding line (serving only items such as soup, coffee, eggs, etc.); (3) eliminating the collection of money for food; (4) and supplementing the regular staff of waitresses and kitchen help with volunteers.

b. The ill and other dependent types of people in the shelter seem to have had their needs adequately cared for. The ill included: (1) an ambulance patient recuperating from an auto accident and being transferred from a hospital in New York to her home in Detroit; (2) two diabetics; (3) a young woman who suffered shock from exposure; (4) a child suffering from croup; (5) a cardiovascular patient; and (6) 10 - 12 people who suffered exposure. All of these people received attention and care from the three doctors, two nurses, and two other first-aid personnel. The body of the dead man (see "Medical Care," page 13) was retrieved from the snow, wrapped in blankets, and placed in the snow outside the gasoline station. His wife was given considerable attention by two Catholic nuns. Other persons given special attention included young children, single women, families (see sections 2c and 5e). Two or more families whose cash was depleted were given some funds from a collection which had been taken up among the shelterees.

c. There is some evidence that a shortage of bread was given more significance than was justified by the general food situation. The restaurant manager seemed to feel that people were getting "panicky" when they ran out of bread. Mrs. L states, "One of the big things that made us feel or realize that something had to be done was when we ran out of bread. I persuaded (Dr. L) that we at least find

out what the food situation was." It seems, then, that a shortage of bread led to expectations of a general shortage of food and gave an air of emergency to the situation. The importance assigned to bread may derive from the imagery of bread as the "staff of life;" or, it may derive from the fact that sandwiches were a major item being served up to that point.

7. Social Codes -- There seemed to be no basic change or degradation of moral codes. Such basic codes as "women and children first" and priorities of attention and care for the elderly, ill, bereaved, and dependent were maintained. Basic sexual codes were maintained. The crowded and public nature of the situation discouraged overt sexual expression. Major T states, "There was nothing untoward between male and female; nothing suggestive. There was very little swearing; and I saw no drinking."

8. Physical Design Aspects of Habitability -- Both the advantages and disadvantages of the physical aspects of this shelter result from the discrepancy between its usual functioning and the needs of sheltering a large group of persons for an extended period of time. The restaurant is designed for rapid service and quick turnover of customers, with no more than 200 customers present at any one time. The average length of stay of a customer in the building, under normal circumstances, is less than one hour.

The disadvantages resulting are as follows:

- (1) Not enough space per person
- (2) Inadequate sleeping facilities
- (3) Inadequate facilities and supplies for care of dependent and ill persons
- (4) Inadequate supply of many supplies and services required normally during extended periods of time (e.g., laundry facilities, supplies of sanitary napkins).

- (5) No public address system

Advantages resulting from the character of the shelter are:

- (1) Adequate cooking facilities (and food supplies)
- (2) Well-designed toilet facilities, though inadequate for this large group.
- (3) Acoustical tile on the ceiling, which reduced the noise level considerably.
- (4) Some degree of privacy in case of emergency made possible by the division of the restaurant into separate rooms. This also facilitated setting up special area for limited activities such as smoking and the playroom.
- (5) The presence of reasonably adequate external communications channels (five telephones).
- (6) Interior decoration designed to achieve a "homelike" atmosphere. This might have been appreciated under less severe crowding conditions.

Recommendations Suggested by Respondents -- Respondents were asked what they learned from their experience which might be useful in future shelter situations and what recommendations they would make for improving the situation if they were to face the event again. These suggestions are indicated below, categorized by the role of the respondent in the event:

**Manager of the Restaurant**

- (1) Serve cafeteria style only
- (2) Serve only three meals a day -- no continuing service
- (3) Use paper plates, cups, etc.
- (4) Institute a ticket system for controlling number of meals per person
- (5) Give food away instead of charging (to save time)
- (6) Allot more space to women and children

**Physician Who Initiated Organization of the Group**

- (1) Give everybody a job to do

- (2) Provide guidance for the group
- (3) Keep people informed about events on outside

**Physician's Wife Who Helped in the Kitchen**

- (1) Don't try to conduct "business as usual"
- (2) Serve only one menu or kind of food at a time
- (3) Restaurant employees should only supervise volunteers in kitchen and serving; should not do jobs themselves

**Air Force Major Who Took Leadership Role and Flew Helicopter Rescue Missions**

- (1) Control of movement, if this were wartime situation
- (2) Provide entertainment
- (3) "Put people to work. Give them responsibilities. Make them feel a part of the overall situation. Make them feel they are doing a constructive job."
- (4) Rationing and inventory of food would be necessary (in wartime). Special food requirements for babies and special medicines for ill people.
- (5) Getting the right information to people to control rumor.



## APPENDIX

### EQUIPMENT IN RESTAURANT

#### Kitchen equipment

- 3 - 4 burner gas stoves
- 3 - deep fat fryalators
- 2 - coffee urns
- 1 - dishwasher
- 1 - "silver" washer
- 2 - milk dispensers
- 1 - large frying grill
- serving tables and shelves
- walk-in freezing room and refrigerators
- 1 - slicing machine

#### Basement equipment

- 2 - oil furnaces (one steam-producing)
- 2 - 4 x 25 ft water tanks, filtering system, chlorinator, and pumps
- 8 - compressors for operating freezer room and refrigerators
- 1 - sump pump
- 1 - air conditioner (and ventilation) equipment room

#### Gulf Station equipment

- 1 - emergency generator (4 cylinder, 65 horsepower Hercules engine; 220 v., 3 phase, 60 cycle)

#### Equipment operated by the emergency generator:

- well pump (5 h.p.)
- chlorinator
- walk-in freezer
- heat boiler
- steam-generating boiler
- dishwasher
- emergency lighting