

DISASTER RESEARCH CENTER  
THE OHIO STATE UNIVERSITY  
COLUMBUS, OHIO 43201

Working Paper #27

HURRICANE BETSY:

A SELECTIVE ANALYSIS OF ORGANIZATIONAL RESPONSE

by

Thomas R. Forrest  
Department of Sociology  
Disaster Research Center  
The Ohio State University

The author acknowledges the assistance of David Adams, James Ross, Barbara Tootle, and Stephen Vargo in the preparation of this paper.

12/70

## CONTENTS

	Page
Chapter	
I. INTRODUCTION . . . . .	1
Hurricane Experience: A Disaster Subculture	
Data Collection	
II. DESCRIPTIVE ACCOUNT OF HURRICANE BETSY IN NEW ORLEANS. . . . .	6
Hurricane Betsy: Pre-Impact	
Hurricane Betsy: Impact	
Hurricane Betsy: Post-Impact	
Chronology	
III. CIVIL DEFENSE . . . . .	23
Organizational Structure	
Pre-Emergency Tasks	
Previous Disaster Experience	
Emergency Adaptations	
Organizational Adaptations	
Decision Making	
Authority Structure	
Task Reorientation	
Interorganizational Relationships	
Conclusions	
IV. THE NEW ORLEANS SALVATION ARMY: HURRICANE BETSY DISASTER RELIEF. . . . .	47
National Organizational Structure of the Salvation Army	
Organizational Structure of the Salvation Army in New Orleans	
Salvation Army Emergency Operations	
Intra- and Inter-organizational Relationships in Emergency Operations	
Interorganizational Problems	
Summary	
V. THE NEW ORLEANS RED CROSS . . . . .	67
Tasks and Authority	
Mobilization of the New Orleans Red Cross Chapter	
Red Cross Shelter Operations	
Conclusion	
VI. NEW ORLEANS PUBLIC SERVICE INCORPORATED . . . . .	86
Organizational Structure -- Pre-Impact Period	
Organizational Structure -- Impact Period	
Organizational Structure -- Post-Impact Period	
Problems and Adaptations	
Conclusions	

Chapter

VII.	SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY . . . . .	104
	Introduction	
	General Organizational Structure	
	Pre-Disaster Preparations	
	Emergency Period: 9:00 p.m. Thursday to Daylight Friday	
	Post-Storm Period: September 10 through September 19	
	Interorganizational Relationships	
	Other Operating Problems	
	Summary	
VIII.	CONCLUSION . . . . .	126
	Organization Changes	

ILLUSTRATIONS

Page

Figure

1. Disaster Service and support tasks performed by local Red Cross Chapters . . . . .	71
---	----

## CHAPTER I

### INTRODUCTION

This monograph presents a descriptive case study of organizational response to the threat and impact of Hurricane Betsy which struck New Orleans, Louisiana September 9 and 10, 1965. The study focuses on five organizations; Civil Defense, Salvation Army, Red Cross, Public Works (which includes electric, gas, and transit division), and the Southern Bell Telephone and Telegraph Company. Each chapter will concentrate on the particular organization's adaptation to increased demands brought about by the disaster agent.

In focusing on organizational adaptations to a disaster we will be concerned with the unique situation of a "dual disaster." A dual disaster is the occurrence of one disaster agent (hurricane) followed shortly by another disaster agent (flood). While organizations expected and prepared for a hurricane, they were also confronted with a flood which required reassessment in allocating existing and emergency resources. Extensive flooding, resulting from a tidal surge, forced water from the Mississippi River to overflow the existing levee structure. The eastern section of the city experienced the bulk of the flood.

Three time periods will be used in discussing the dual disaster: pre-impact, impact, and post-impact. The pre-impact stage is the period preceding the hurricane-flood in which a hurricane warning alerts organizations to prepare for the ensuing disaster. This stage is characterized by organizations mobilizing their material resources and personnel according to a disaster plan formulated from previous hurricane experience. The pre-impact stage is somewhat different for each organization since some organizations began preparations before others; however, for purposes of this monograph, 8:00 p.m. September 9 will designate the end of the pre-impact stage and the beginning of the impact period. The impact period continues from 8:00 p.m. September 9 until 9:00 a.m. September 10. This stage is characterized by various degrees of organizational response ranging from total inactivity to active involvement (e.g. providing transportation for evacuees). It was in this period that the hurricane swept its way across southern Louisiana, simultaneously creating a tidal surge which lead to extensive flooding. Although the hurricane did cause heavy damage, the immediate problems faced by organizations in the post-impact stage centered around the flooding. The post-impact stage began around 9:00 a.m. September 10 and ended at a different time for each organization; however, for most organizations some degree of normalcy was reached by September 26, 1965. It is on this post-impact period that each chapter will focus, describing the adaptations each organization had to make in confronting the dual disaster.

## Hurricane Experience: A Disaster Subculture

Hurricanes are not new to the New Orleans area. Previous hurricane threats and side effects have enabled organizations to make specific adaptations in confronting these storms. Hurricane Hilda in 1964 provided a very real experience which encouraged organizations to develop detailed emergency plans. It was the plans formed from previous hurricane experiences that were put into operation with the threat of Hurricane Betsy; and it was this set of emergency procedures that had to undergo adjustments to the unexpected flooding.

In order to comprehend the initial set of organizational responses to the hurricane threat, it is helpful to understand the concept of a "disaster subculture." New Orleans, along with other Gulf Coast cities, has undergone repeated--almost annual--hurricane threats. Studies conducted in communities that experience predictable disruptions (i.e., annual floods or hurricanes) have shown that organizations learn to adopt activities so that appropriate action can be taken to combat the disaster.

The concept of subculture refers to those identifiable variations in the more general and pervasive cultural themes and patterns characteristic of a given society. Subcultures exist when certain groups of people come to share rather distinctive cultural characteristics which set them off, or differentiate them, from other groups. . . . Thus, a disaster subculture may be defined as those subcultural patterns operative in a given area which are geared towards the solution of problems, both social and nonsocial, arising from the awareness of some form of almost periodic disaster threat.<sup>1</sup>

The period from June 1 to the end of November is designated as the hurricane season. Shortly after June 1, all city government emergency-oriented departments with the military, medical, and allied agencies meet to review emergency plans and to inform each other of organizational changes. This is known as the mayor's Disaster Survival Committee. These annual meetings illustrate the repetitive responses typical of a disaster subculture.

Many of the adaptations that organizations made to the threat and impact of Hurricane Betsy had been learned responses developed from previous hurricane experiences. However, with each new disaster experience, additional knowledge is gathered to more effectively plan and cope with these disruptions. Throughout the monograph, references will be made to previous plans and adaptations that organizations have found to be useful from past disaster experience.

## Data Collection

In studying organized behavior in disasters, the Disaster Research Center (DRC) has developed a fourfold typology classifying organizations according to their structure and tasks. The four organizational types are: established, expanding, extending, and emergent organizations. Established organizations maintain their existing structure and generally continue their normally assigned tasks during an emergency period (e.g., telephone company, public utilities, police and fire departments). Change in structure while maintaining the same pre-disaster tasks is the basic characteristic of an expanding organization. Often these organizations rely heavily upon volunteer aid (e.g., Civil Defense, Red Cross, and Salvation Army). Extending organizations are those that keep the same pre-emergency structure but change their task involvement. An example of this type would be a contractor who loans out equipment for clearing debris. An emergent organization is a totally new organization that develops a structure and appropriate tasks. In many disaster situations coordinating committees emerge to direct the total community recovery effort. This type of committee would be classified as an emergent organization. In this monograph we will be concerned with established and expanding organizations.

Data collected from personal interviews by DRC staff, official reports, and a complete set of New Orleans newspapers provided the basis for descriptive material. Interviews were conducted by DRC field teams with all key decision-making officials and representatives from lower echelon positions in each organization. Departments that experienced the greatest amount of stress were also interviewed and where organizational size permitted, all personnel were questioned (e.g., Civil Defense with a staff of sixteen). In conducting each interview special emphasis was placed on probing for information concerning authority patterns, decision making, tasks, and communication. Data was collected on pre-disaster structure and procedures to offer a basis for comparing the organization's adaptations to the hurricane and flood. Information concerning the Southern Bell Telephone and Telegraph Company was gathered with strong emphasis placed on interorganizational communications via the public relations department. Interviews were conducted primarily with public relations officers and supplemented with data obtained from company reports, newspapers, and booklets; together, this data provided the basis for analysis.

The purpose of this monograph is to present a detailed descriptive account of the operation of five specific organizations in a stress situation. It is hoped that through this presentation the reader will become familiar with many of the common problems stress situations present to a community and how a community is able to mobilize its resources to meet the increase in demands that follow in the wake of a disaster. It will be continually emphasized that where there may appear to be an unorganized chaotic situation, what in effect occurs is that an emergent emergency social system develops with a whole network of interdependencies. This network can more effectively meet the increased demands produced by a disaster.

The following chapter will describe the physical impact of Betsy from its first inception far out in the Atlantic Ocean until it dispersed into the Ohio Valley. A brief chronology of events will be presented in order that the reader may obtain a quick overview of disaster-related activities. Chapters two, three, and four will deal with the responses and adaptations of the following expanding organizations: Civil Defense, Salvation Army, and Red Cross. The next chapter will focus on the New Orleans Public Service, Inc. with special attention paid to the electric, gas, and transit departments. Chapter six contains a discussion of the Southern Bell Telephone and Telegraph Company with emphasis on interorganizational communications. The last chapter will bring together major themes running through the monograph.

Notes: Chapter I

1. William A. Anderson, "Some Observations on a Disaster Subculture: the Organizational Response of Cincinnati, Ohio to the 1964 Flood," Disaster Research Center Note no. 6, mimeographed (Columbus: Disaster Research Center, The Ohio State University), p. 3.

## CHAPTER II

### DESCRIPTIVE ACCOUNT OF HURRICANE BETSY IN NEW ORLEANS

In order for the reader to have a basic overview and context in which to place the events of Hurricane Betsy, a general overall descriptive account is presented. September 9 and 10, 1965, and the days immediately following will long remain in the memories of the citizens of New Orleans as the period when Hurricane Betsy occurred -- one of the gravest and most devastating storms ever to strike the Louisiana coast. Never in Louisiana's history had more people been affected nor had such widespread destruction resulted as during those two hellish days when Betsy ranted and raged her way across the state of Louisiana. Gusts of wind clocked between 112 and 150 m.p.h. shattered stores, twisted billboards, uprooted trees, and tore off roofing.

Unsatisfied, Betsy left in her wake a tidal surge that inundated all low-lying areas throughout the state. The existing levee structures provided little or no protection from this mammoth tidal surge. Much of Louisiana lies below sea level, with countless bays and bayous along its 366 mile coastline. These served as natural funnels for the incoming water.

Unlike most states, Louisiana's political unit is the "parish" rather than the more traditional "county" boundary. The New Orleans Parish, which is the city of New Orleans, is located 107 miles from the mouth of the Mississippi River. From all available information concerning hurricane paths, the city is situated in one of the highest hurricane frequency areas in the United States.<sup>1</sup> Since the turn of the century, Louisiana has undergone eleven major hurricanes and forty-two minor storms with total damages running into the billions. Since 1957, there had been four hurricanes including Betsy, that severely affected the New Orleans area. Hurricane Audrey struck on June 27, 1957, causing \$120 million damages in Louisiana alone. The next storm occurring in this area was Carla -- September 8, 1961. Residents in the low-lying areas evacuated, limiting damages and deaths that could have resulted from the storm. Hurricane Hilda, October 1964, provided New Orleans with a learning experience that was to prove very valuable when Betsy arrived in September of 1965. In an unprecedented cooperative effort, emergency organizations responded to the impact of Hurricane Hilda. Red Cross, Civil Defense, the police and fire departments, Salvation Army, levee board, the mayor's office, and countless other organizations worked together to reestablish normal operations in New Orleans.

In the following discussion of Betsy, it will be helpful to divide our remarks into three time sequences: the period before the storm (pre-impact), the actual storm and flood (impact), and the period of general rehabilitation (post-impact).

### Hurricane Betsy: Pre-Impact

A hurricane, such as the one that occurred in September 1965 can be classified as a "progressive-diffused" type of disaster.<sup>2</sup> A hurricane, like other disasters included in this category, is a slow moving event preceded by a period of warning and followed by widespread destruction. In the words of a Civil Defense worker, Hurricane Betsy was exactly this type of disaster.

It's a slow, mournful, agonizing approach of a monster that you know days ahead of time is going to strike. It comes and, just as sure as taxes, it comes slowly and it weighs on the individual, it weighs on us here who follow this thing hour by hour, for days at a time and by the time this old bag ever comes strolling in you say, "Sure glad to see you. Let's get this over with."

This "mournful, agonizing approach" began on August 26, 1965, when a tropical depression was located approximately 675 miles east-northeast of the island of Trinidad. On the morning of August 27 a reconnaissance aircraft located the squalls that spawned this hurricane moving in a west-north-westerly direction. By August 29 tropical storm Betsy had become Hurricane Betsy with winds up to 80 m.p.h., and centered 200 miles north-northeast of San Juan, Puerto Rico. After stalling for two days off the coast of Puerto Rico, Betsy regained hurricane intensity on September 1 and moved westward with winds increasing from 80 to 150 m.p.h. On September 3, Betsy continued to move in a northwesterly direction, skirting east off the Bahamas and slowing down to a standstill on September 4. On September 5, Betsy began an unusual movement southward at 8 m.p.h. By this time, Betsy measured 450 miles from north to south with an eye 40 miles in diameter. On September 7 Betsy swept across the northern tip of Nassau, its violent winds and accompanying high tides inflicting a severe beating on the small island. By midnight of the same day, winds of hurricane force were lashing Miami. Damage along the lower east coast of Florida was estimated at \$139,330,000. On the eighth of September, after stalling off the tip of Florida, Betsy moved through the Florida Keys and into the Gulf of Mexico.

The movement of Betsy into the Gulf activated a hurricane watch at the New Orleans Civil Defense Emergency Operations Center located on Lake Pontchartrain. It is generally understood by the Gulf Coast states that whenever a storm enters the Gulf of Mexico, they are in the direct path of severe weather conditions. The weather bureau furnished information every two to six hours while the storm was in the Atlantic Ocean and the southern Gulf of Mexico; hourly reports were given as the storm approached the Louisiana coast.

Preparation for the storm had begun in the mayor's office early on September 8. A meeting was held of the various department heads and other agencies concerned with public protection during emergencies. Discussion centered around the functions that each department or agency would perform

during the emergency. Each organization mobilized its personnel and made preparations for the ensuing storm. The New Orleans morning paper published the following warning:

Betsy is large and dangerous and all precautionary measures should be completed as soon as possible. . . . Low-lying coastal areas in the area of hurricane display, especially the Louisiana coast should be evacuated as early as possible today before escape routes are cut off by rising waters. Small craft along the entire Northern Gulf Coast should seek safe shelter. . . . All interests along the Northern Gulf Coast should listen to radio and television for frequent advice from the Weather Bureau. Heed the warnings for your own protection.<sup>3</sup>

Indeed, thousands did take the warning to evacuate inland. Off-shore oil rig workers and fishermen swarmed the highways heading north to higher ground and away from the precarious lowland.

In New Orleans shopkeepers closed early, boarding up their windows and making sure that all loose objects were secure. Families assembled and divided up household preparatory duties. Windows had to be taped or boarded up, antennas securely fastened, flashlights and candles gathered, food and water set aside, and families in the low-lying area near the lake had to decide whether they were going to seek shelter elsewhere. On the morning of the ninth, the New Orleans States Item published an editorial expressing the feelings that the citizens of New Orleans had toward hurricanes.

About hurricanes New Orleans does not joke, an attitude born of centuries of respect for the awesome power of these water-spawned evil spirits of the weather world. . . . The elements of surprise and disregard of warnings are the principal allies of hurricanes in bringing great damage and heavy loss of life. With the perfection of the advance warning service the surprise factors largely have been minimized. Disregard of the ample warnings preceding the killer storms also is not the problem it once was. Coastal Louisiana will not soon forget the example found in Audrey. Man is learning more yearly about the intricate nature of hurricanes and may soon be able to deform them. Until then, Betsy and her ill-gotten sisters command respect for an unbridled force.<sup>4</sup>

#### Hurricane Betsy: Impact

By 10:02 p.m., September 9, the winds in New Orleans had exceeded 100 m.p.h. At midnight the center of the storm passed 35 miles southwest of New Orleans. Wind gusts were reported to be more than 160 m.p.h. causing tides 16 feet above normal. Betsy would go down in the Louisiana records as the most destructive storm to date: inundating an area of some 4,800 square miles,

killing 81 persons within the state, forcing about 250,000 persons to evacuate, and disrupting transportation, communication, and utilities service throughout the eastern coastal area of Louisiana for weeks.

Throughout the period of impact, activity was almost at a standstill. Those stationed in the Civil Defense Emergency Operations Center, which is the central emergency coordinating center, lost most of their communications with outside agencies and lost all communications with the weather bureau. Earlier in the evening, however, before the storm struck, a mass evacuation had been undertaken. The transit division of the public service department assigned buses to special routes to aid in the evacuation. Additional vehicles were obtained from the department of public buildings. Schools, churches, and other public buildings were opened to families seeking shelter. But once the storm impacted, there was very little that could be done except to sit tight and wait out the storm. During the night of September 10 and the morning of September 11, Betsy became an extratropical storm as it moved over eastern Arkansas and continued into the Ohio River valley.

#### Hurricane Betsy: Post-Impact

Reports of flooding in a number of sections in the eastern part of the city began coming in after the storm. This was not expected. It was felt from past experience that the area adjacent to Lake Pontchartrain would be the area affected by the flooding. However, flooding in the New Orleans area west of the Inner Harbor Navigation Canal (Industrial Canal) and south of Gentilly Boulevard resulted from a tidal surge which overtopped the Industrial Canal west levee in the vicinity of the intersection of the canal and the Mississippi River. This unexpected flooding caught many families by surprise. Many persons were awakened in the early morning hours by the water surrounding them. Those families who felt they could walk to safety sought out the nearest public building, usually an elementary school. Many other families were trapped with no other alternative than to seek shelter on the roof of their homes.

The immediate problem facing the city was the evacuation of those stranded by the flood. An announcement requesting owners of small boats to volunteer their crafts for rescue activity was released through the mass media Friday morning, September 10. Volunteers in their small crafts along with army personnel in amphibious ducks, conducted an intensive search-and-rescue operation in the inundated area. However, some problems arose with the use of these private crafts. Overall coordination was lacking and boat operators were not told where to take the evacuees once they had been rescued. Often people would request to be taken to a relative's house only to discover that it, too, was flooded. Isolated incidents of profiteering (charging for rescue service) were reported, but by and large the rescue activity ran smoothly and effectively.

Shelters had to be set up and stocked in order to provide the evacuees with food and medical supplies. Temporary shelters were set up in schools, shurches, and large public buildings. More than 96,000 people sought safety in these shelters; however, the enormous scope of the disaster required a more permanent shelter set-up. Thus the U.S. Naval Station was mobilized to handle evacuees. On the morning of September 11, Army personnel and field equipment began arriving in New Orleans by military aircraft and by the morning of the twelfth, Algiers Naval Station was prepared to receive refugees from the forty shelters scattered throughout New Orleans.

In addition to these rescue and evacuation operations, immediate post-impact attention was focused on the restoration of minimum community services. The sewer and water board, levee board, and the Army Corps of Engineers had the monumental task of handling the flood situation. Before the hurricane struck, the sewer and water board had instructed their drainage and maintenance crews to report to their respective stations and to await further notice. Because of the flood conditions and power interruption, three of the sewer and water board's pumping stations on the east side became inoperative. At 4:00 a.m. Friday it was decided that if it were possible and the situation warranted, the flood gates in the siphon that carries water into the Florida canal under the Industrial Canal would be closed. By closing the flood gates, it was believed that the waters would be prevented from inundating the west side. However, water did spread over wide areas on both the east and west sides of the Industrial Canal. By 11:00 a.m. that morning, the flood gates on the east side of the Industrial Canal were closed, thus allowing control of the west side situation.

The Army Corps of Engineers immediately aided the sewer and water board in its flood control and drainage attempts. The mobilization of six dredges, one pump barge, and eight pumps allowed for the removal of much of the city's floodwaters, lessening the strain on key pumping stations in the more severely flooded eastern areas. By September 26, the emergency phase of the sewer and water board's restoration process was over.

Each organization and department within the city took immediate restorative actions. Public health personnel began inoculations; crews in the department of streets started clearing over 12,000 miles of street; gas and electric departments first took care of immediate dangerous conditions (i.e., fallen wires and broken gas lines), and then focused on restoring normal service. Every organization had as its main goal the restoration of normal operating processes. On the evening of September 10, the President of the United States paid a visit to New Orleans and offered the assistance of the federal government to the newly declared national emergency area.

The chief officer of the Office of Emergency Planning was placed in charge of coordinating federal assistance to the greater New Orleans area. Summary items from the president's telegram to the New Orleans mayor indicate the type of federal assistance offered:

1. A missing barge with 600 tons of chlorine lost somewhere in the Mississippi River was handled by the Army Corps of Engineers. Aside from responsibility for navigation and flood control facilities, the Corps of Engineers performed much of the disaster work for the Office of Emergency Planning either with military personnel, or by contracting with private firms.
2. Six hundred Fourth Army personnel were brought into the area. They included an engineer company equipped with heavy machinery and water purification equipment.
  - A. Equipment and supplies in the area for immediate use were as follows: rations for 22,500, 147 units of trucks, trailers, water and gas tankers, 20 fixed wing and helicopters, a bull dozer bucket loader, and miscellaneous mobile equipment.
  - B. The National Guard had 4,000 men on duty and brought in an additional 104 trucks, 12 amphibious vehicles, 32 radio sets, 12,100 sheets, 28,444 blankets, 3,100 cots, 2,103 litters, 3,050 mattresses, 5 refrigerator vans, 13 ten and thirty (kilowatt) generators, 14 five-ton tractors, 2 five-ton wreckers, and 8 semi-trailers.
3. The Bureau of Public Roads sent 35 engineers to assist in surveying highway and bridge damage with the Louisiana State Highway officials. Reconstruction work began as quickly as possible with the bureau shouldering the biggest share of the cost for repair of federal highways.
4. The Job Corps was instructed to help in the clean-up.
5. The Coast Guard sent 10 helicopters, 8 fixed wing aircraft, and 30 boats to use in rescue work.
6. The Small Business Administration opened disaster loan offices at 8 locations in refugee centers.
7. The Agriculture Department Commodity Department stayed open around the clock for release of stockpile foods also furnishing transportation if requested.
8. Housing and Home Finance Agency compiled a list of housing units which could be turned over to refugees.
9. Three hundred and fifty mobile vans were purchased and distributed through the General Service Administration.
10. Air Force Reserve units delivered 43 telephone repair vehicles and their crews from northern states to tackle the job of telephone restoration.

11. The Food and Drug Administration worked closely with city and state officials inspecting damaged food and drug supplies for contamination.
12. The Department of Health, Education and Welfare provided inspection services to the Office of Emergency Planning on sewage systems, water-works, insect infected areas, and other matters relating to public health.
13. The FBI sent in teams of specialists to aid local officials in identifying the bodies of hurricane victims.
14. On October 21, the senate passed a bill providing \$35 million in grants to Hurricane Betsy victims.

The combined efforts of the city, state, and federal governments, and the cooperation of private organizations within one week's time brought about a vast restoration of community services and functions. Immediately after the storm, 70 percent of the 186,000 customers of the New Orleans Public Service Inc. were without electricity. By September 18, 90 percent of these customers had power. By the same time, the telephone company reported that 75 percent of all New Orleans customers were receiving telephone service. Bus service throughout the city had returned to normal operations. Except for a few stores in the flooded areas, the majority of businesses in the commercial sector had opened their doors.

The following chronological listing will present an overview of the organizational activities from the hurricane's inception to the phasing out of emergency recovery functions.

#### Chronology

August 27

2:00 p.m. U.S. Weather Bureau received information from a reconnaissance aircraft indicating that there was a moderate tropical depression forming. This depression was watched for further possible development.

August 31

11:00 a.m. A hurricane watch began at civil defense headquarters. The plotting of Betsy began with the Miami Weather Bureau's advisory No. 16. The hurricane's position at that time was about 270 miles north of San Juan, Puerto Rico, and over 900 miles east-southeast of Miami. Daily plotting continued until September 6.

September 6

Weather plotting at the CD headquarters was started on a 24 hour basis.

September 7

1:35 p.m. Louisiana National Guard began detailed planning and preparation should Betsy become a threat.

September 8

10:00 a.m. The Algiers Naval Air Station received a report from the U.S. Naval Hurricane Forecast Facility, Miami, Florida, stating that destructive hurricane winds were possible within 72 hours.

10:00 a.m. The New Orleans Aviation Board decided that all aircrafts should be flown out of New Orleans. Light aircraft should be secured in the hangars.

1:00 p.m. The U.S. Weather Bureau reported that Betsy had moved into the Gulf of Mexico and was moving westward.

5:00 p.m. A special precautionary watch was established at the civil defense emergency operation center. The watch and plotting continued through the night at 7:00, 10:00 and 12:00 p.m.

8:00 p.m. A hurricane watch was advised for the area from the mouth of the Mississippi River westward to Matagoyda Bay on the central coast to Texas. The Weather Bureau at this time recommended evacuation of all off-shore oil rigs.

September 9

2:00 a.m. U.S. Weather Bureau reported that Betsy was moving west, northwest towards the central area of the Gulf of Mexico.

7:00 a.m. U.S. Weather Bureau issued hurricane warnings for the area extending from the mouth of the Mississippi River to Galveston, Texas.

The Louisiana National Guard ceased all routine activities and initiated an emergency operation plan with all personnel and resources committed to preparing for hurricane duty.

9:15 a.m. The U.S. Naval Station at Algiers went on alert taking full precautionary measures. A condition of maximum preparedness and disaster control planning went into immediate effect. Medical, supply, and security teams along with equipment handlers all prepared for emergency duty.

9:40 a.m. All National Guard units were alerted for possible emergency duty.

Morning There was a general meeting of the department heads and other concerned agencies in the mayor's office. The discussion centered around the functions that each department or agency would perform during the emergency.

The division of public buildings began taking precautionary measures. All personnel were ordered to be on standby for immediate call. The public building administrator was stationed at the civil defense emergency operation center in order to relay messages back to the buildings director.

Notification that the hurricane was to strike in the immediate vicinity led the traffic engineering division to instruct the sign and signal shop to gas all vehicles and to empty trucks of normal equipment so that they could be stocked with emergency supplies.

The Army Corps of Engineers put its hurricane plan into effect by securing all government plants and facilities; manning on a 24 hour basis an emergency operations center; and deploying engineer assistant teams into the key metropolitan areas along the Louisiana coast. A liaison representative was stationed at civil defense headquarters, New Orleans.

The U.S. Dept. of Commerce instructed the agents of government-owned ships in the vicinity of New Orleans to take immediate action to secure them for severe weather conditions.

The housing authority's key management, administrative, and maintenance personnel were alerted and emergency measures were instituted.

The municipal auditorium superintendent was ordered to prepare the building in case it should be needed to house evacuees.

The department of streets dispatched all available maintenance division drivers to assist in the evacuation of people from the threatened area.

The vehicles of the coroner's office were placed in service for rescue work and evacuation.

1:00 p.m. The power and light company released a notice through all radio and TV stations stating the precautions all customers should take.

2:00 p.m. The electric distribution department officially started their emergency hurricane procedure.

All sewer and water board departments were instructed to attend a meeting in the board's conference room in order to review what had been done and what still needed to be done to meet the demands of the emergency

The governor granted the adjutant general permission to call up the National Guard troops as needed.

4:00 p.m. The civil defense emergency operations center (EOC) was placed into full operation.

4:05 p.m. A general meeting was held at EOC for all department heads and allied agencies in order to make a final check of the preparedness of all those concerned with the emergency operations. The meeting was short since plans had been made more explicit at earlier meetings.

5:00 p.m. U.S. Weather Bureau reported that Betsy was moving directly towards New Orleans.

The management, administrative, and maintenance personnel of the housing authority were assigned to emergency duty on an around-the-clock basis.

5:30 p.m. The sewer and water board instructed their drainage maintenance crews and trucks to report to their stations and to remain at these locations until further notice. At the main office constant contact was maintained with all crews in case a concentration of manpower would be required.

6:00 p.m. The electric power department of the public service office ordered extra operators to provide a double operating crew at three generating stations.

6:30 p.m. The public service's transit department dispatched buses to transport those wishing to evacuate to safer areas.

6:30 p.m. - The transit department kept several buses making shuttle runs  
1:15 a.m. for evacuation purposes.

6:45 p.m. The power at the EOC started to go off resulting in prolonged moments of darkness and failure in the air conditioning system and other electrical equipment. However, the radio communication setup was not interrupted.

7:00 p.m. The transit department had to curtail some of its service on many transit routes due to the high winds and flying debris.

8:00 p.m. Upon request of the mayor, the doors of the municipal auditorium were opened to those who sought shelter. The building soon filled up although adequate food and personnel were not available.

U.S. Department of Commerce sent a message to civil defense making known the fact that they had a warehouse in Algiers filled with equipment and supplies that would be made available to assist the community in its efforts during and following Betsy.

The last flight departed from New Orleans International Airport. The field was officially closed.

The transit department discontinued all transit service over regular routes.

9:25 p.m. Commercial electric power was lost; however, key areas (i.e., the EOC) shifted to emergency power furnished by the auxiliary generators.

9:30 p.m. The gas department lost its normal source of power and switched to the emergency power supply.

10:00 p.m. The public belt railroad commission furnished sandbags to fill gaps in the Industrial Canal levee. Due to the lower elevation of this particular levee, the railroad commission sought to insure their access to cross by building up the levee to the standard height.

10:10 p.m. The EOC lost communications with the weather bureau and at 10:25 p.m. they lost the use of their telephones. The final weather report received at this time stated that "150 m.p.h. winds bearing down on New Orleans and the Mississippi Gulf Coast."

10:30 p.m. The coroner's office acted as a telephone relay station for the city health director who was at the EOC. An open telephone line was maintained with the doctor since those stationed in the EOC could only receive calls but could not call out. With this open line the EOC and health director were never isolated.

Shortly before the sewer and water board lost communications with their pump stations, they had been advised that one of the stations was receiving an enormous amount of water and that it was suspected that the levee had given way on the Industrial Canal.

Evening The department of public buildings ordered their trucks east of the Industrial Canal in order to help evacuate residents.

Families started seeking shelter in various schools, public buildings, churches and official Red Cross shelters. Several hundred sought shelter at the New Orleans International Airport.

Firemen rescued people trapped in their homes by high water. Using boats and large trucks they continued to work throughout most of the night.

The department of welfare periodically appraised the CD director of the lack of taxi cabs and the need for National Guard vehicles for evacuation. The welfare department relayed calls from individuals requesting evacuation to the appropriate agencies.

September 10

- 12:00 a.m. At this time the eye of Hurricane Betsy passed over New Orleans with winds clocked at 125 m.p.h. For a period from 12:00 a.m. to 4:00 a.m. nearly all departments and agencies were inactive.
- 5:00 a.m. The electric distribution department of the Public Service Inc. returned to the field and began repairing circuits which led to the city hospitals and sewage and water board.
- Weather reports resumed indicating heavy rains and high winds for northeast Louisiana and northern and central Mississippi.
- The EOC began to receive reports from police units of flooding in a number of sections in the eastern part of the city.
- 6:00 a.m. Engineers from the sewage and water board took a "duck" to survey the situation throughout the city.
- 7:00 a.m. Employees of the maintenance division of the department of streets began clearing 1,200 miles of streets to facilitate the movement of traffic.
- 7:15 a.m. Since all power and air conditioning had failed, the CD director and mayor decided to close up the EOC and move to the office in city hall.
- 11:00 a.m. U.S. Weather Bureau reported that all warnings should be lowered.
- The main flood gates on the east side of the Industrial Canal were closed. With the gates closed the westside flood situation should be controlled.
- Morning The electric power department started restoration of their 13.8 kilowatt feeders.
- The gas department assigned all available servicemen to emergency duty. Surveillance was maintained over all areas served by the gas department.
- The coroner's office began setting up a morgue and requisitioning the necessary supplies to handle the multiple deaths.
- The public building administration sent out repair crews to patch roofs and perform other general repairs on city-owned property.
- Water surged with unprecedented magnitude driven by winds estimated to be 125 m.p.h. through every conceivable water avenue in the area.

The Army Corps of Engineers assisted with the early evacuation of people in the area east of the Industrial Canal.

4:00 p.m. New Orleans International Airport received its first flight since it closed down for 24 hours.

6:35 p.m. The transit department restored partial service to nine major arterial routes and on three secondary routes.

Evening The President of the United States visited New Orleans to survey the damage done by Betsy. He was accompanied by four Presidential aides who remained in New Orleans to assist officials and offer the resources of the Office of Emergency Planning.

It was decided that an Army contingent be brought into New Orleans to establish a central base for housing all refugees.

Assessment of damages, emergency repairs, and cleanup operation continued throughout the day and evening. The U.S. Naval Station and U.S. Coast Guard helicopter initiated heavy rescue operations of civilians in the New Orleans area.

The railroad commission began clearing debris and repairing washouts in the rear of the Galacy Street Wharf.

More than 96,000 people sought refuge in 287 Red Cross shelters opened in schools, military installations, churches, and other public buildings throughout the impacted area.

Public service crews began to patrol the transit routes to clear away street obstructions.

The building inspector of the department of safety and permits made a visual inspection throughout the downtown business district and Vieux Carre area.

The New Orleans Health Department organized temporary dispensaries in the shelter areas. The permanent personnel of the health department took care of the refugees who had gathered in city hall.

September 11

9:30 a.m. A meeting was held for all playground supervisors of the New Orleans Recreation Department. They were instructed to go to their assigned facility and take all precautionary measures against dangerous conditions and hazards. A general cleanup program was started for all the city parks.

Morning

Outside help reached its peak. Air Force airlifts flew in Army field kitchens, personnel to man them, and a mountain of needed supplies.

Most organizations and departments spent the day making appraisals of the damage done and made notes referring to any hazardous conditions that needed immediate attention.

Several trucks of the department of public buildings were loaned to the sanitation department to help haul debris. The construction crews continued their emergency patching.

U.S. Naval helicopter rescue operations continued at a steady pace. Supplies of clothing, food, drugs, cots, emergency equipment, Army field equipment, and personnel began arriving at the Algiers naval station by military aircraft. This continued steadily till September 19.

The sewer and water board reported that it was no longer necessary to boil water for drinking purposes since adequate chlorine residual was present in the water distribution system.

The New Orleans Health Department spent their time screening and caring for refugees in the various shelters. A community vaccination program was begun with stations set up to administer tetanus shots.

September 12

Morning

The U.S. Naval Station was requested to prepare to receive refugees from unauthorized shelters throughout New Orleans. Immediate preparations were made to set up facilities for the medical treatment, feeding, clothing and sheltering of arriving refugees.

Afternoon

Some 1,400 refugees were accommodated at the naval station. Assistance in this effort came from the American Red Cross, Catholic institutions and other welfare agencies.

The department of streets continued clearing the streets throughout the city, eliminating hazards that hampered the movement of traffic. This work continued till September 19, when all the streets of New Orleans were cleared.

September 13

9:00 a.m.

Electrical inspectors were sent to their regular assigned areas and were asked to remove all fallen wires and to tape up those wires that could not be removed.

Morning

The U.S. Department of Commerce repeated their offer to the Office of Emergency Planning that their New Orleans warehouse was available for assisting in the restoration process.

12:00 p.m.

The railroad commission reopened most of the intracity lines and were now able to interchange cars.

The municipal auditorium began preparations to receive approximately 1,200 members of the National Guard, 150th battalion from Shreveport, Louisiana. These men were quartered in the auditorium for 6 days.

The city civil service office participated in the planning for and the recruiting of emergency help needed to clean up the aftermath of Betsy.

The department of property management divided the city into areas that would allow building inspectors to make a visual inspection of every house in New Orleans.

The gas department crews were augmented by meter reader personnel that were temporarily assigned to the emergency work.

Four of the city's five health centers opened for normal operations. They continued the additional disaster work of giving immunization and first aid for injury. The health department ordered 12,000 pounds of insecticide to be applied to mosquito-infested areas.

September 14

The transit department restored regular service to the last two lines of the system. Transit service was normal with the exception of route adjustments on a few lines due to the flooded streets and other obstructions.

The water west of the Industrial Canal was finally thoroughly drained. Full attention was given to removing and controlling flood waters in areas east of the canal.

Shelter population stabilized at nearly 20,000 and began a gradual decline.

A prominent nuclear physicist flew into New Orleans and made the statement that the city and civil defense had not been fully alert to all the conditions and as a result of their lack of preparedness caused many deaths in low-lying areas. This statement caused severe repercussions.

September 16

The railroad was able to begin normal operations over most of its lines. However, there were still some tracks that required structural repairs.

September 17

The board of commissioners of the Port of New Orleans issued a statement that the facilities of the port were back in normal operation.

September 18

Electric power department had restored all feeders and transformers and resumed normal operations in all substations.

In conjunction with the American Red Cross, state public health officials, and Plaquemines Parish officials, the U.S. Naval Station furnished medical facilities personnel and equipment at the main gate house in order to help inoculate approximately 3,500 returning refugees to lower Plaquemines Parish.

September 20

All customers of the Power and Light Co. (with the exception of approximately 500) were receiving electric service.

The gas department completed checking and reconditioning meter installations. Gas service was restored to customers ready for it. Customers were advised to have all electrical appliances checked by a repairman.

The maintenance division of the department of streets began to receive assignments to remove household debris and to conduct a general cleanup operation.

September 24

Railroads had completed all repairs and were in full operation.

September 26

The emergency phase of restoration had largely been completed by the sewage and water board. Efforts now were being directed toward restoring the reliability and safety that existed prior to the hurricane.

October 1

Red Cross damage survey showed 1,233 homes destroyed; 26,969 with major damage; and 134,617 sustaining minor damage. More than 1,700 farm buildings suffered the same fate, as did 2,000 small businesses and 1,200 commercial and pleasure boats; 23,813 families had applied for aid at Red Cross field registration points throughout the disaster area.

Notes: Chapter II

1. Gordon E. Dunn and Banner I. Miller, Atlantic Hurricanes, rev. ed. (Baton Rouge: Louisiana State Press, 1964), p. 258.
2. Lowell J. Carr, "Disaster and the Sequence-Pattern Concept of Social Change," American Journal of Sociology. 38(1932): 207-218.
3. New Orleans States Item, Thursday, September 9, 1965, p. 1, col. 8.
4. Ibid., p. 10, col. 1.

## CHAPTER III

### CIVIL DEFENSE

Civil defense is unique among emergency organizations. While police and fire departments are continually in the public eye handling day-to-day isolated emergencies, civil defense is somewhat less visible to the wider community. Its everyday concerns are planning, educating the public, setting up and stocking fallout shelters, and performing general administrative duties. The public is not concerned with such normal CD activities until the community perceives a general threat; then public awareness is focused on civil defense. From its obscure place in the background, CD steps forward to become the chief coordinating center of local government.

The Louisiana State Legislature defines the emergency tasks of civil defense as:

the preparation for and the carrying out of all emergency functions other than functions for which the military forces are primarily responsible, to minimize and repair injury and damage resulting from disasters caused by enemy attacks, sabotage or other hostile action, or by fire, flood, earthquake or other natural causes.<sup>1</sup>

This formalized definition covers a wide and sometimes problematic area. By definition, the main concern of CD is man-made disasters (i.e., nuclear attack or the threat of such attack). To this threat CD devotes its resources seeking to achieve a maximum readiness state for the protection of life and property. Elaborate plans are developed to secure the best possible safeguards for the public and to inform them of the precautions necessary to minimize the effects of such a man-made disaster.

#### Organizational Structure

The structure of civil defense reflects this dual function -- preparation for and coordination of emergency operations. To receive an overview of New Orleans CD each position will be briefly described.

Civil Defense Director. Close supervision of all CD activities is the responsibility of the CD director. With these general administrative duties the director performs the vital function of linking CD to the entire community. A large proportion of CD public relations is conducted by the director who attends civic meetings and speaks to various clubs, business groups, and school assemblies. The director also provides the link between CD, city government, and state and national CD associations. Policy decisions and changes are officially announced by the director who will then seek to involve the total complex of community institutions in a viable CD program.

Deputy Director. Closely associated with the director is the deputy whose main task is to see that all executive orders and policies are carried out by the organization. The bulk of the daily administrative matters are coordinated by the deputy with the aid and advice of the administrative staff. On numerous occasions the deputy is asked to speak before civic organizations. He is continually involved in training programs.

Planning Officer. Revising and creating new emergency plans is the responsibility of the planning officer. Attention is focused on preparing for nuclear fallout. These plans are developed to supplement the national fallout program. The planning officer works closely with the shelter analyst in securing adequate fallout shelters. The community organizations who wish to set up emergency plans complementing the broader city plans can seek advice and assistance from the planning officer.

Public Relations. The public relations director's position was unfilled at the time of Betsy; however, the task of informing the public through lectures and community meetings is largely the task of the director, deputy, planning officer, and training officer.

Training Officer. Part of CD's responsibility to the larger community is providing training classes for the public. Instruction is given in the proper construction of fallout shelters and in general safety procedures to be followed. Some responsibilities of the training officer are delegated to the shelter analyst.

Shelter Analyst. Working closely with the planning officer, the shelter analyst is responsible for securing suitable fallout shelters and seeing that these shelters are stocked and ready for any potential emergency. The bulk of the shelter analyst's job is arranging with owners and managers of large commercial buildings to donate space for public shelters. In addition, he carries out responsibilities delegated to him by the training officer.

Budget and Finance Officer. All administrative details are handled by the budget and finance officer (i.e., processing reports, allocating funds, writing checks, ordering supplies). The chief task of this officer is the preparation of an annual budget which is presented to the federal government. Under the administrative direction of the budget and finance officer are telephone operators and stenographers.

The Emergency Operations Center (EOC) located on the shorelines of Lake Pontchartrain is the facility which most clearly reflects emergency CD preparedness. Located in this structure is the necessary emergency equipment (i.e., radios, open line telephones, switchboards, weather teletype machines, large maps, auxiliary generators, and other specialized equipment). Space in this building is allocated to the following emergency agencies:

City Police Department  
City Fire Department  
Sewerage and Water Board  
Volunteer Ham Operators  
City Health Department  
American Red Cross  
Civil Defense Volunteers  
Corps of Engineers

Louisiana Power and Light Company  
Southern Bell Telephone and Telegraph  
Port of New Orleans  
U.S. Coast Guard  
New Orleans Public Service Inc.  
Civil Air Patrol  
Salvation Army  
City Welfare Department

From this center coordination of the entire disaster operation is to be provided. EOC personnel include:

EOC Coordinator. Keeping the operations center on twenty-four hour preparedness is the responsibility of the coordinator. Working closely with the director, the coordinator sees that all equipment (radios, transmitters, etc.) is in operating order and that the director is informed of any equipment inadequacies.

Draftsman. In the absence of the coordinator, the draftsman is in charge of the center. His duties are to keep the supply of maps at an adequate level and to provide special maps at the request of any city agencies. Many jobs at the center require the aid of an additional individual -- the draftsman performs this service.

Radio Technician. Keeping a continual check on the condition of the radio equipment is the task of the radio technician. Equipment is tested once a week to see that all radios are transmitting clearly. A log is kept on the test results. In slack periods he aids in the general maintenance of EOC facilities.

Radio Maintenance Man. Working closely with the radio technician, the radio maintenance man takes care of all radio repairs and assists in the general operations of the center.

Siren Maintenance. Installation and maintenance of all 102 sirens located throughout New Orleans requires the total attention of the siren maintenance man.

Custodial Worker and Stationary Engineer. Responsibility for the maintenance of physical facilities at the center is delegated to these two individuals. Maintaining the various generators, heating and air conditioning units, is the responsibility of the engineer; the custodial worker takes care of the general maintenance (i.e., sweeping, washing walls, floors, etc.).

### Pre-Emergency Tasks

Civil defense has five major nonemergency tasks: planning for disaster operations, securing and stocking fallout shelters, providing public information, performing administrative duties, and maintaining twenty-four hour preparedness of EOC. In 1958 the federal government allocated \$307,000 for an urban analysis of New Orleans. Information was gathered concerning the location of emergency facilities and equipment and an extensive survey was conducted regarding the availability of public and private buildings for use as nuclear fallout shelters. The process of gathering information on the suitability of large public and private buildings for shelters has been continued by local architects and engineers contracted by CD. From these survey recommendations owners and building managers are contacted and "diplomatically" asked to volunteer their facilities. The approach taken is an appeal to their sense of civic duty.

Perhaps CD's most important single task is the development of adequate nuclear disaster plans that will also cover recurrent hurricane threats. The chief responsibility for formulating these plans rests with the planning officer. Adhering to the general principles found in the national disaster plan, each state must create plans relevant to their own problems. Louisiana, like many of the Gulf Coast states, is exposed to an annual hurricane season. Thus, operational plans have to be developed for both nuclear disaster and hurricanes. Prior to the impact of Hurricane Betsy, a temporary set of plans had been drawn up consisting of a five-divisional breakdown with the director as chief coordinator responsible only to the mayor. The five divisions were: (1) welfare, (2) technical, (3) protective, (4) administrative, and (5) medical. Each division had a commander responsible for the plans and operations of his division. However, when actually faced with the hurricane situation presented by Betsy, these plans had to be modified to fit the particular personalities and problems encountered.

The shelter analyst has the task of approaching owners and managers of suitable buildings to arrange for adequate space for storing emergency supplies (i.e., food, water, cots, blankets, and emergency medical supplies). The problem of securing this space is frequently complicated by the "second thoughts" of those who donate space. The act of volunteering space is strictly an act of good will because no financial remuneration follows. When the cost of valuable space is realized by owners and managers they often request that these supplies be removed and stored elsewhere. This requires the reselling of the whole idea of public service and civic duty.

General public interest in CD tends to fluctuate with the actual threat perceived. After the Cuban crisis enrollment increased multifold in CD public information courses. Part of CD's role in the wider community is to provide training programs instructing the public first in disaster preparation for themselves and their families and secondly, in assistance for members of their community who are incapable of helping themselves. Generally, these classes

are poorly attended and are of little immediate interest to the public. However, when a threat such as the Cuban crisis occurs, individuals actively seek information concerning shelter construction, emergency supplies, and the effects and prevention of radioactive fallout. These training courses are supplemented by CD personnel who speak to business groups, civic clubs, and school assemblies. The main task of the training officer is to see that courses are set up and that requests for speakers are honored. Due to personnel limitations, other executive officers (director, deputy, planning officer, and shelter analyst) aid in fulfilling these speaking requests.

In order for any organization to continue its daily activities, a certain amount of administrative detail must be handled. Budgets have to be prepared, letters sent, supplies ordered, and bills paid. All these activities are handled by the budget and finance officer.

The operational arm of CD consists of the Emergency Operations Center. The bunker structure contains emergency equipment, supplies, and living arrangements sufficient to maintain its occupants quite comfortably for fourteen days and, if food, air, and other facilities are conserved, it would be possible to stay in the center for twenty-eight days. Normally the tasks of those employed at the center are focused on twenty-four hour maintenance-preparedness. Such tasks include: (1) map making -- maps are used to plot all emergency activity, with specialized maps presenting land contours to facilitate controlling flood situations; (2) siren maintenance to insure an effective warning system; (3) radio maintenance to guarantee an effective communications system vital to any coordinating effort; and (4) the overall maintenance of the emergency center's physical structure.

#### Previous Disaster Experience

New Orleans civil defense has had experience with both the threat of a man-made disaster (Cuban crisis of 1962) and the impact of a natural disaster (Hurricane Hilda 1964). Its basic orientation, however, is towards preparing for nuclear survival and CD found during Hurricane Hilda that its role in times of natural disaster is somewhat less clearly defined than its role in national emergencies. The civil defense organization participates in the disaster subculture that exists in New Orleans. CD takes part in the mayor's disaster survival committee annual meeting of emergency-related organizations at the start of the hurricane season. The EOC is on twenty-four hour preparedness. Like other emergency organizations in the disaster subculture, CD responded to alert status September 8 as Betsy moved into the Gulf. Civil defense officials met with the Army Corps of Engineers to discuss preparatory measures and potential damage areas. Informal understandings among CD personnel also reflect the characteristics of a disaster subculture. Each staff member would put in the necessary extra time to maintain operations during the emergency. As one employee stated, "It was understood that during any times of emergency we would be expected to put in as many hours that we possibly can." Although a disaster

presents CD with a new set of demands which must be dealt with quickly and effectively, the organization's yearly exposure to the threat of tropical storms and hurricanes has continually added to its facility in adapting to many specialized disaster demands.

### Emergency Adaptations

Two time periods are extremely demanding for civil defense. The first is before the hurricane strikes when it is imperative that individual citizens and emergency organizations prepare for the ensuing impact and physical destruction. CD is responsible for the overall coordination of this preparedness activity. The second period of stress comes once the storm has moved over the city leaving in its wake the destruction of life and property. Similar to the first period of stress, CD's main task during the post-storm period is the coordination of recovery activity. The following discussion will focus on the adaptive techniques employed by CD in confronting the increased pressures and demands rising from the threat and impact of Hurricane Betsy. The discussion will be divided into two parts corresponding to these periods of stress.

### Pre-Impact Activities

As stated earlier, New Orleans was rapidly developing what could be called a "disaster subculture"; community organizations had learned through repeated threats and impacts how to adapt their behavior to efficiently mobilize resources to meet the disaster demands. Early planning took the form of meetings and conferences of emergency-oriented agencies and departments during which discussion centered around the effective mobilization of the EOC. A close weather watch throughout the summer months enables CD to follow storms from their first inception far out in the Atlantic.

On August 26, 1965, civil defense received a report from a weather satellite of an unsettled condition far out in the southeast Atlantic close to the African coastline. However, the weather bureau did not release any positive coordinates until August 29. From this point on, the CD planning officer maintained a tracking chart on a drafting board located in the city hall office. At 5:00 p.m. September 8, it was decided that the plotting of the storm movements should be conducted at the EOC. Reports at the center were received over a weather teletype machine (TWX) which was linked to the weather station in Miami, Florida. These reports were then plotted on a large weather map which allowed CD personnel to follow the storm's progress at a quick glance.

Another important pre-impact activity was the public information service that CD performed. Individuals would ask CD where the nearest shelters were located and what precautions should be taken to secure homes, offices, and stores;

frightened individuals would call just to be reassured. The decision to issue evacuating orders on the afternoon of September 9 was an extremely difficult one faced by the mayor and the CD director. After deliberation with the Army Corps of Engineers (the organization which would be in charge of all flood conditions resulting from the storm), and upon evaluation of the predictions of the weather bureau as to the future course of Betsy, it was decided to issue evacuation orders for the western portion of the city from the shore of Lake Pontchartrain as far south as Gentilly Boulevard. Public buses, cabs, and trucks transported evacuees to various designated shelters.

At 4:00 p.m., September 9, the mayor and CD director decided that the EOC should be staffed and fully prepared for the coming emergency. A skeleton staff consisting of the planning officer and stenographers remained at the city hall CD office in order to handle public requests for information. The director, deputy director, finance officer, and shelter analyst all moved to the EOC and took on their emergency responsibilities. At this time the whole organizational character of CD changed. Stepping out of the shadows of its hidden daily activities, CD became the official community coordinating agent.

Prior to staffing the emergency center all electrical and mechanical equipment had been checked to be certain that everything would be operational. The plotting of the storm continued at the center; reports arrived from the weather bureau every two hours. But perhaps the most important activity at the center during the pre-storm period was the staffing of the center by the representatives of various emergency-oriented governmental departments, allied agencies, and volunteer groups. A total of 209 individuals, representing 16 different agencies, gathered at the EOC. These emergency personnel and their families engaged in numerous disaster-related tasks. Wives of emergency personnel staffed the kitchen and used the emergency rations to prepare a hot meal for about 100 persons. The center is equipped with dining and dormitory facilities that will adequately house emergency personnel for 14 days or longer on a rations basis. However, due to a number of unexpected occurrences (i.e., communications and power failures), the EOC was in operation for only 16 hours.

CD's main task for the duration of the emergency was the coordination of the total emergency effort. This basically consisted of relaying information, material, and personnel from their sources to wherever they were needed. Underlying the whole coordination activity was the importance of an effective communication system -- one which would insure smooth information flow. A relay system was instituted by CD: all incoming information was evaluated by CD and then transmitted to the appropriate agency. Incoming calls received at the center's switchboard were passed on to an auxiliary operator who typed the message in triplicate and handed one copy to a runner. The runner took it to a classifier who designated the appropriate department for the message. Once the message was received by the appropriate department it was dispatched to the field unit responsible for the situation. The time lapse between the receipt of the message at the center's switchboard and its dispatch to the field was only a matter of a few minutes. The overall control of the message center was under the jurisdiction of the budget and finance officer.

Once an individual agency received a message, either from the runner or from their own radio system, they in turn were to send a copy of this message to the CD draftsman who plotted the activities of each agency on a large control map. This map enabled those making decisions to assess the entire situation and allocate resources in an efficient manner. However, this system failed to be effective because some agencies neglected to report messages to the draftsman. Instead, the draftsman had to collect the information himself, thus decreasing the efficiency of the mapping activity.

A telephone link was established between the city hall CD office and the EOC. The planning officer's station in the city hall had information pertaining to the location and capability of shelters; during the pre-impact period the director frequently called the planning officer to obtain the latest information on certain of these shelters. The planning officer also had access to official city hall records which were important to EOC operations. Shortly before the full impact of the storm, however, this communication link between CD personnel at city hall and at the EOC was lost together with most of the center's other communications.

#### Impact

Early in the evening, power at the EOC had been failing intermittently, resulting in periodic darkness and loss of the air conditioning and other electrical systems. At 7:02 p.m. the mayor and CD director decided that emergency diesel power should be used to avoid damaging electrical and communications equipment. However, it was found that the emergency system itself would have to be shut down periodically. A complete break in the system could only be forestalled by directing maximum ventilation onto an overheated circuit breaker. But the periodic shutdowns this ventilation required were effective only until the following morning when the system stopped altogether.

The serious effects of Betsy's wind began to be felt at 10:00 p.m. September 9. At that time the center received its last weather report. Due to an outside malfunction of a teletype circuit between the EOC and the weather bureau, further weather information was unavailable. In addition, telephone communication to the outside was lost at 10:25 p.m. and the ham radio antenna was lost at 10:40 p.m. This problem was somewhat alleviated by a line temporarily open between the director of the city health department stationed at the center and the coroner's officer. Rescue calls received at the center were relayed to the coroner's office from which, in turn, they were relayed to the police department. This method of communication continued until the next morning when the entire EOC staff moved back to city hall.

The additional loss of the ham radio antenna totally isolated the center, critically limiting its ability to communicate with the outside. Except for the relaying of messages through persons calling in and the coroner's office, the EOC

was frustrated in its attempt to do any meaningful coordination. Coupled with these losses in the communications network, the circuit break idled the generators, cutting off the lights, air conditioning, and all other electrical equipment. After an uncomfortable night of inactivity, the operations were moved to the city hall offices, and the bulk of the recovery operation was directed from the mayor's office.

### Post-Impact Activities

The move back to city hall brought about an effective coordination of emergency activities. A number of major problems had to be faced, however, including the provision of food and shelter for 20,000 to 65,000 refugees, the unexpected and intensive flooding, and the coordination of convergent organizational responses. In responding to these problems, civil defense acted as a relay station, receiving information, material, and human resources and transmitting them to the appropriate emergency organization.

Information was crucial to the total recovery effort. Agencies and individual citizens called CD asking for information concerning a variety of questions: How many refugees are in a particular shelter? What is the food and water situation at Washington Elementary School? What roads are still open across the Industrial Canal? Where is the nearest shelter to our house? Hundreds of questions like these -- from the very specific to the very general -- were continually put to CD personnel. In order to handle these questions, CD had to become a reservoir for emergency information and had to provide staff that could handle these requests. The liaison officers and coordinating staff of over sixteen agencies and departments were stationed with CD in city hall and proved to be the source of much of this emergency information.

The activities of all disaster agencies were plotted on a large city map so that a quick glance decisions could be made as to where to allocate additional resources. The map served as a vital aid for summarizing emergency information.

Material and human resource allocation required the bulk of CD coordinating efforts. Requests for aid would reach CD personnel who would in turn contact the appropriate agency and relay the message. One CD officer related the following example:

The quickest movement of any item I can recall in the whole set of demands was that the medical department needed some 1,000 vials of some antitoxin for vaccinations. We had the request at 12:30 p.m. our time which was 1:30 Detroit time. The medical department wanted to get this vaccine to the city as quickly as they could. They had the order, but they had no means of delivering other than, of course, air freight. So, I was cognizant of the fact that there was a 2:00 p.m. flight out of Detroit because I had been in and around Detroit with flying and I knew that a certain

airline had flown it. So I called the airlines to verify their 2:00 p.m. flight and it was confirmed. I said, "Well, I need to have 1,000 vials of a certain type of vaccine flown from Detroit airport. Can you hold your 2:00 flight if I can make the delivery?" They said, "We will check it out." Meantime, I went to air freight and I talked to the supply house and I asked them how far they were from the airport in Detroit. They said, "Well usually with the normal run we could make it in about 45 minutes, may be an hour." I said, "Well I'll do this. I'll call you back." In the meantime I got back to the airlines and they said that of course the 2:00 p.m. flight was on time, but they would wait word if I wanted them to hold the flight. So I called the air freight back on the other end and I said, "Contact the police department in Detroit and have them send a squad car to your installation and tell them that the mayor of the city of New Orleans wants those 1,000 vials taken by the police to the airport." I gave him the flight number and the airline. I said, "We want that on the plane." They did this. The flight took off at 2:15 p.m., which was 1:15 our time. It was here within two hours and in the hands of the doctors. These are the type of problems that I had, more or less.

This was one of many incidents that required the assistance of civil defense. The more typical demands were for liaison between different governmental and volunteer agencies. This liaison took the form of arranging with appropriate agencies and volunteer groups for food, shelter, water, equipment, and other needed items and services.

One of the greatest problems that CD had to face was the evacuation of thousands of refugees from unauthorized shelters to a more permanent arrangement at the Algiers Naval Station. Due to an unexpected tidal surge, water overtopped the west levee of the Inner Harbor Navigation Canal flooding an area south of Gentilly Boulevard and west of the canal. CD was not directly involved in decisions concerning the flooded area (i.e., lifting culverts, blocking off areas, and starting and stopping pumps); however, it did assist in arranging for refugee transportation. The American Red Cross had a number of well-stocked and staffed shelters; however, the unanticipated numbers forced from their homes led many refugees to break into public schools to escape the rising water. Once they were in these schools and other public buildings, an acute need for food and water arose. This problem was brought to the attention of the coordinating officials when the President of the United States visited the Washington Elementary School in the ninth ward. On asking refugees what they needed, the reply was that they lacked water. All water at the time had to be boiled for fear of contamination. The President's aide asked if CD could bring in some water to help the situation. This was done with thirteen seventeen-and-one-half gallon cans brought from CD fallout shelters. With crowded conditions making it imperative that these individuals be moved immediately, the CD director assigned the budget and finance officer to arrange transportation for these refugees. The officials at Algiers Naval Station were asked to prepare for approximately 10,000 refugees. On September 11, an Army unit arrived for duty at the naval station and by the next morning, 10,000 refugees were being moved by public service transportation to the Algiers Naval Station. CD aided in

coordinating the registration and supervising National Guard protection at the installation.

Civil defense had a number of long-range recovery tasks that demanded attention shortly after the initial impact of Betsy. The greatest physical task was the responsibility of the siren maintenance man. Of the 102 sirens located throughout the city, 62 were inoperable after the storm. An additional man had to be hired to assist the siren maintenance man in tracking down the wind-scattered parts before they were confiscated by roving junk collectors. The bulk of the damage resulted from wind blowing off siren hoods, damaging power connections, and destroying siren poles. Those parts that could be gathered were then reassembled and secured to the pole while additional parts had to be ordered.

By Friday, September 17, the EOC staff had returned to the center and clean-up had been initiated. The threat of another hurricane (Debbie) hastened the center's restoration. The circuit breaker that failed during Betsy was replaced and an additional breaker was purchased to prevent the recurrence of a similar power failure. A more durable radio antenna had been ordered to replace the wind-fallen antenna, all radio transmitters and receivers were double checked to insure operating effectiveness, and the emergency food supply was replenished.

The administrative arm of CD was delegated three long-range tasks. During the storm a request was communicated over the mass media asking individual boat owners to donate their time and boats to evacuation activities. In the process of assisting, many boats suffered severe damage from hitting hidden fire hydrants, cars, and floating debris. On the whole, most citizens accepted their damages and did not seek reimbursement; however, some did request that CD repay their losses. The deputy director took care of the necessary paper work and where possible arranged for reimbursement through the Office of Emergency Planning.

The second major task CD faced was capitalizing on the public's renewed interest in civil defense. The apathetic attitude of the public toward civil defense changes abruptly when the community is directly threatened by some outside disaster agent. Additional courses and lectures were scheduled aimed at making the public self-sufficient and capable of assisting others in the event of a future disaster.

The third long-range task was the continued reevaluation of emergency plans. Emergency power and communication lines were the two problems that crippled the use of the EOC. Future plans would have to anticipate these problems and, in addition, provide a more detailed division of labor. Betsy served as both a tragic and helpful learning experience. Community emergency-oriented organizations were able to effectively meet Betsy's wrath and acquired knowledge that only such experience can give.

### Organizational Adaptations

Some organizations undergo extensive adaptation in meeting new emergency demands and change considerably in their structure and tasks as a result. An attempt to order these changes has been carried out at the Disaster Research Center. In terms of this scheme, civil defense has been classified as an "expanding" organization, which is described as follows:

These (expanding organizations) are organizations with latent disaster resources. They are in a state of readiness, and both the community and their own expectations move them toward mobilization and involvement. However, these organizations generally have only a small, central, permanent cadre of workers during nonemergency periods. Also, while these organizations have emergency responsibilities, their normal-time activities are not directly related to existing or current community emergencies. It is clearly expected, however, that these organizations will become active in a different way during a disaster. . . . When the disaster occurs, the preemergency cadre provides a name and a core of permanent workers for the new structure of an expanding organization.<sup>2</sup>

### Volunteers

"Expansion" of civil defense by the addition of volunteers is one of the crucial adaptations the organization made to Hurricane Betsy; the permanent cadre of CD workers was augmented by volunteers. Loosely defined, volunteers are those individuals who have indicated to the organization that they are available in times of emergency to assist in whatever capacity necessary for recovery and rehabilitation. According to local CD files, some 50,000 individuals have "volunteered." These individuals are solicited to augment the existing city structure, but it has been found during emergencies that such "official" volunteers can not always be relied upon. Part of the explanation may be found in the uncertain timing of the emergencies to which volunteers are asked to respond.

In the absence of clear and present danger, civil defense as a voluntary organization confronts the dilemma indigenous to any national program for which the need is only sporadically apparent locally. Reliance upon volunteers for staffing such a program results in unevenness in both the level of participation and the quality of task performance, since tasks must be justified to most volunteers in terms of ultimate goals, and the goals must be sufficiently compelling to attract and hold volunteers.<sup>3</sup>

On the other hand, another common problem in an emergency situation is the inverse of the above. Many volunteers who do appear are not qualified to aid in the disaster activities. What frequently happens is that individuals, eager to help in the emergency but unfamiliar with CD activities, converge on CD headquarter:

This great influx of volunteers often adds to the difficulties of coordinating emergency activities. In the name of CD, individuals duplicate activities other organizations are capable of doing and neglect tasks that are assigned to civil defense.

While many volunteers may have been working in the name of CD, at the New Orleans CD and EOC there was a fairly restricted cadre of workers. Knowing that the hurricane emergency period would require total devotion to their work, a number of the staff decided to insure family safety by bringing families to the CD office or EOC. Many of these family members then became volunteers. Wives and older children began answering the telephones and relaying information. The sons of an executive officer ran intraoffice messages, reducing the volume of telephone communication. The EOC kitchen services were provided by the wives of personnel with the aid of some outside organizations (i.e., Salvation Army and Red Cross). "Walk-in" volunteers were also employed. At one point, for example, a young man from Baton Rouge caught in New Orleans by the floods walked into the CD office and introduced himself and said, "I know a little about ham radios." One official responded by saying "Well fine. There's a set over there. Check in with the boys and go to work."

An attempt was made to register all who volunteered their aid. However, this registration process came under a great deal of criticism as some personnel felt that the time spent was not worth the return. The purpose of the registration was to insure that during any future emergency an identifiable group of individuals could be relied upon to respond. However, most disaster studies have shown that volunteers appear quite readily. With available mass media (i.e., radio, TV, newspapers), CD could call for volunteers and get them. By calling for volunteers with particular skills only, the organization could regulate the flow of volunteers and could direct the time, energy, and personnel involved in registration and record-keeping to more urgent activities.

In theory all disaster volunteers are civil defense volunteers. CD is government in time of emergency; therefore, all activities related to the total disaster effort in the community come under the coordination of CD. Volunteers need no official insignia. Isolated individuals involved in debris removal or some other activity were, in fact, CD volunteers. However, family members of CD personnel composed the actual CD volunteer staff helping in the administrative and related duties.

In addition to expansion in size by numbers of volunteer personnel, CD adapted in four major demand areas: decision making, authority, task reorientation, and interorganizational relations. Each area will be discussed separately to facilitate our understanding of these structural and functional changes.

## Decision Making

Normal decision making is relatively structured. Each staff officer is responsible for a particular area or range of activities. Unusual problems which overlap departmental boundaries are handled by the director who has the final say on all policies. Staff conferences are held often to solve particular problems through a group effort. Many of the director's policy decisions are made in consultation with a staff member especially knowledgeable in the particular problem area. For example, before purchasing new office equipment the director consults with the finance officer with regard to the working budget.

In a period of great stress a number of modifications occur in the decision-making process. One executive officer made the following comment on these changes:

Decision making under disaster or emergency situations, you cut corners, you don't explore avenues and go down to the dead end and then say, "Well, we won't do this way. We'll turn around and go the other way."

Thus, instead of asking for advice, the director made decisions as rationally as possible without worrying about the latent consequences. It was generally understood by staff members that in a unique situation they should be flexible enough to adapt a common sense solution. The luxury of contemplative decision making is not practical or possible in a stressful situation.

In carrying out specific tasks, personnel had considerable leeway. Big decisions were made by the mayor who then communicated these broad directions to particular individuals with extensive power to handle specific problem areas. For example, the mayor assigned one councilman the job of cleaning up the city. This councilman then coordinated all city resources and whatever aid was obtained from private businesses in this task. Many of the mayor's decisions, however, were made in consultation with the CD director. On the morning of September 10, a joint decision led to closing the EOC after a long night of intermittent power failure.

During the days immediately following the impact of Betsy, the civil defense operated from the city hall. While the mayor and other city officials were in the field, the CD director remained in the mayor's office. By radio he received information from the mayor related to the needs of the field recovery teams. The director then dispatched the necessary supplies or manpower. Under pressure for quick decisions, the director had to commit the resources at hand. Roughly 95 percent of the director's decisions were of this spontaneous nature. Underlying all these decisions was the city's responsibility for the well being of the public; the benefit of the majority was the basic criterion for his decision. During normal times, the director has tight control over decisions made in the civil defense office. The hurricane did change this decision-making structure somewhat because as problems arose they were assigned to available members of

the staff; only "critical" problems were still solved by the director. However, what was "important" became relative. With telephones continually ringing, demands for quick decisions became acute. One staff member stated:

Well, when I was on the phone, I made the decision myself, right there. There was nothing else to do. I would listen to what the person wanted to know and I would decide right there the best place for him to go and that's what I told him.

During nonemergency operations, CD staff members frequently bypass the deputy director, approaching the director personally with problems that theoretically should have been handled by the deputy. These numerous chain-of-command violations relegated the deputy to the relatively powerless position of figurehead. However, during the emergency, the deputy did perform a more decisive decision-making role, attempting to keep all but the most important problems off the director's desk. In periodically relieving the director, the deputy was confronted with decisions involving the deployment of city resources and the assignment of tasks to CD personnel. On paper the deputy was in charge of all administrative operations, but in actuality the administrative officers were autonomous, responsible only to the director. This autonomy was reflected in the emergency decision-making responsibilities of the planning officer. Remaining in the CD city hall office, the planning officer was in charge of a skeleton staff which answered the public's questions concerning available shelters, securement of property, and other personal survival questions. The planning officer made decisions involving task allocation, safety precautions for CD staff members (i.e., when were they to seek shelter in the city hall basement), and other administrative decisions not normally associated with the position.

During the period when CD staff were at the EOC, the budget and finance officer was in charge of the message center, making decisions on procedures for transcribing incoming calls, assigning PBX operators to their stations, and designating the appropriate departments for each incoming message. Later, at city hall, this officer was asked to arrange transportation to Algiers Naval Station for refugees in unauthorized shelters, in addition to continuing the supervision of stenographers and telephone operators. However, considerably less supervision was possible than during normal times. Each stenographer and operator had a new task assignment -- that of answering telephone calls which required immediate decisions.

The EOC coordinator experienced the least disruption in his decision-making pattern. He normally received his instructions from the director, but during the emergency the mayor, in the director's absence, approached him with certain requests. The coordinator is normally involved in seeing that the center is in full operating capacity and this responsibility initially carried over into the emergency period; but when the staff moved back to city hall on the morning of September 10, the coordinator answered telephones.

Assisting the coordinator in many operational decisions at the EOC was the draftsman. Since the first plans were conceived for the center, the draftsman

had been associated with the building and operations of the EOC. More than anyone else, he knew the function and intricate operational aspects of the center's equipment. In decision involving operational aspects, therefore, his opinion and consultation was highly valued by the coordinator. In the coordinator's absence the draftsman was second in command at the center.

### Authority Structure

Changes in the legitimate authority patterns of CD also followed Betsy's impact. CD is mainly oriented to man-made disasters (i.e., thermo-nuclear attack) when it becomes, in effect, the prevailing government. Natural disasters, on the other hand, pose different problems which must be dealt with appropriately. A number of problems arise concerning the use of nuclear fallout shelters for natural disasters. Supplies designated for man-made disasters are often difficult to transfer legally to a natural disaster situation. An effort was made after Betsy to integrate these disaster plans so that plans for man-made disasters could be adapted to natural disaster situations.

Perhaps the greatest problem CD faced was the legitimation of its authority structure. In a natural disaster, the chances are that the existing city government will remain relatively intact and will resist any assertive effort made on the part of CD. However, in event of a man-made disaster the community would more likely legitimate CD authority primarily because that is the organization's role as perceived by the greater community. Thus, the problem faced by all CD agencies is how to step out of the shadows of public unawareness into the main arena of governmental activity and be accepted there by the public. No doubt this would be difficult in man-made disaster, but a natural disaster presents additional problems in confronting existing governmental structures and obtaining public acceptance. An adequate discussion of this topic, however, would require a monograph of its own.

The intraorganizational authority structure changed very little in adapting to the demands of Betsy. The activities of the director left little doubt in the minds of the staff as to the authority structure. A majority of key personnel had military backgrounds and were aware of the importance of established authority. Orders were given and carried out without question. Each one knew the boundaries of his position. The chain of command was well identified; each staff member was aware of who gave him orders and also to whom he could direct his requests.

### Task Reorientation

Expanding organizations face problems of adapting to numerous tasks that normally are not part of a scheduled routine. Such was the case in the New Orleans civil defense. It was generally acknowledged by each employee that during

emergency periods their presence would be required. In order to adapt to increasing demands, personnel had to be available to take on new tasks. Emergency priorities replaced the normal administrative priorities; the new emphasis was upon coordinating, relaying, and supplying resources.

Second in command to the mayor for emergency recovery and rehabilitation activities was the CD director. Stepping out of his role as chief administrator and public relations officer, the director took on the task of coordinating all disaster-related activity. Thus, the responsibility for expanding CD's role rested mainly on the director. An incident concerning the involvement of CD in emergency shelter arrangements is an example of this expansion. Although previous agreements existed with Red Cross making that organization largely responsible for the operation and maintenance of shelters, the CD director had no hesitation about expanding CD responsibilities into this area. The number of refugees was great due to the flooding east of the canal; the director felt CD ought to assist the Red Cross in its shelter program. Meeting with members of his staff, the director assigned specific problem areas to particular officers. Evacuation of unauthorized shelters was placed under the direction of the deputy director and refugee transportation was assigned to the budget and finance officer.

Making specific the vague directions contained in the civil defense legislation was perhaps the main overall task of the director. To accomplish this the director assigned his permanent staff to specific problem areas. The following is a brief summary of the task adaptations that CD personnel had to make.

The deputy director continued his normal activities of assisting the director in carrying out administrative decisions. Priority was given to the immediacy of particular requests. While stationed at the EOC, the deputy helped in message classification, designating which department was appropriate for the incoming messages. On returning to city hall, the deputy at times relieved the director in the supervision of CD activities, organized evacuation activities, and saw to it that the various requests were carried out.

Switching from his normal task of planning and handling the national fall-out program, the planning officer assumed command of the CD office in city hall while the majority of the staff had taken new positions at the operations center. While in command at city hall he answered telephones, distributed information to the public, supplied immediate shelter information to the director, and relayed the information pertaining to availability of emergency supplies. He was asked to open additional shelters in private office buildings, but his request for these shelters was denied by the building managers who stated that their own staff and families were using the physical facilities of the buildings. Caring for and feeding the refugees seeking shelter in city hall came under the direction of this officer. He also assisted in arranging transportation for refugees to Algiers Naval Station.

Having no specific emergency duties, the shelter analyst assisted in a number of activities. The initial plotting of Betsy on September 8 and 9 at the EOC was done by the shelter analyst. Keeping abreast with the teletype messages he would take reports and plot the movement of Betsy from the Florida coast across the Keys and into the Gulf. Due to numerous personal problems, the shelter analyst was absent from the emergency activities from Friday, September 10 to Sunday, September 12. Upon returning to the CD office, he answered questions over the telephone and delivered messages to different city departments and agencies.

Emergency communications (i.e., teletype, telephones, radios), fell under the direction of the budget and finance officer. A file of all messages received was maintained in order to have a complete record of all incoming calls. In order to facilitate rapid mobilization of volunteers in future disasters, a list of volunteers was kept. The budget and finance officer was also in charge of arranging transportation for refugees to the Algiers Naval Station and assisting in the arrangement for the proper distribution of resources. Under the direction of this officer, the stenographer made the transition from office worker to social service worker, answering individual problems over the telephone. As the number of telephone calls subsided, her priorities shifted to urgent disaster-related correspondence.

The EOC coordinator continued his normal activities, seeing to it that the center was in full operational order. Additional responsibilities were added when the total emergency effort moved to the center. It was the coordinator's responsibility to see that all departments of city government had office space, to make sure that food and other living arrangements were set up, to check the functioning of the communication systems, and to assist the director on the technical aspects of the center operations. Moving to the city hall on the morning of September 10, the coordinator assisted in answering the telephones.

During Betsy, the draftsman assisted various individuals in the EOC by making sure that the necessary maps, papers, and other office supplies were available. The plotting of Betsy and related emergency activity was delegated to him. At the city hall office, he too answered telephones and relayed messages to proper authorities. In one instance, he personally delivered food, water, and sanitation facilities to a makeshift shelter in St. Bernard Parish. When reassuming duties at the center, his main tasks were refurbishing the supply of maps and taking inventory of the remaining stock.

During the early hours of the storm numerous miscellaneous duties were carried out by the siren repairman. At the center he helped with cooking meals, plotting Betsy's movement, and running errands. During the immediate post-storm period, he had obligations with the National Guard which required his aid in the transportation and guarding of refugees. The restoration of sirens occupied him for weeks after the storm, with 62 of the 102 sirens inoperable.

When Betsy struck, the radio man was stationed at the EOC and did a number of tasks, from fixing fuses to helping prepare meals and relaying messages. His top priority, however, was the maintenance of the engine room. With the circuit breaker out, he moved to city hall to help answer telephones, returning to the EOC September 17 to the task of cleaning up, repairing equipment, and installing a new radio antenna.

### Interorganizational Relationships

Any recovery or rehabilitation effort of the magnitude required in New Orleans required the total action of a complex network of departments, agencies, and organizations both public and private, crossing local, state, and federal political boundaries. Civil defense was just one organization in this wide interlacing network, but a very important member that helped integrate this complex effort to restore New Orleans. In discussing the interorganizational relationships, we will first focus on the local relationships, then move to the wider political boundaries of state and federal agencies.

#### Local Organizations

Certain community agencies like the Red Cross and Salvation Army are oriented towards the general public welfare. The Salvation Army's main tasks were clothing and feeding refugees, volunteer workers, and members of various emergency agencies. Red Cross was involved in similar activities. Civil defense acted as an information service for these welfare agencies, relaying information about shipments of food, clothing, cots, blankets, sanitation kits, and the like. Civil defense received telephone calls from agencies in other cities stating that they were sending emergency supplies and requesting CD's assistance in directing these supplies to the appropriate agencies. For example, bakeries and dairies in neighboring states donated sandwiches and milk to the Salvation Army. CD acted as the middle man, receiving the information and passing it along to the Salvation Army. At one point during the recovery activity four ministers walked into the CD office and volunteered their help. CD called the Salvation Army and asked if they could use this help. The Army replied affirmatively. This is only one of many examples of how CD matched volunteer offers to appropriate agencies.

Civil defense relations with the Red Cross were not entirely harmonious. As we have indicated earlier, there did arise a question concerning jurisdiction over emergency shelters. This problem became more apparent after the President visited the disaster site; the lack of water in one unauthorized shelter was called to the attention of CD officials. Civil defense delivered water containers to the shelter. Based on this kind of information, the CD director concluded that the refugee problem was too acute for the Red Cross to handle alone. At 2:30 a.m., Saturday, September 11, the CD director went to the Red Cross chapter

to consult with the local and regional Red Cross directors. The meeting lasted until 4:15 a.m. when consensus on the evacuation of some 20,000 people stationed in inadequate shelters was reached. Because part of Red Cross's policy is not to open shelters until they can be properly staffed, official shelters were overcrowded. In addition there was the difficult problem of the refugees in the many unofficial shelters. It was suggested that these 20,000 refugees be transported to the Algiers Naval Station where emergency housing was arranged with the military's cooperation. Refugees in unauthorized shelters were moved first, followed by those in the overcrowded existing Red Cross shelters. CD maintained continual contact with the Red Cross in order to be informed of the shelters which remained open.

The New Orleans Board of Education and the administrators of parochial schools, college, and universities had numerous contacts with civil defense. During normal periods, CD conducts training courses at the nursing schools of Tulane and Louisiana State University, and frequently presents lectures to school assemblies concerning precautions and procedures one should follow in the event of a natural or man-made disaster. Many schools are designated as official fall-out shelters. However, the problem arose of the legality of using such shelters in times of natural disaster. Many public and parochial elementary schools were commandeered by those seeking shelter from the rising flood waters and established as ad hoc shelters. CD eventually had to close these schools due to the inadequate supplies of food, water, sanitation facilities, and staff.

Protective departments (i.e., police, fire departments) had continued contact with the civil defense. Search-and-rescue teams were under the supervision of the fire department. Over 2,000 small boat owners donated their time to rescue activities. CD again acted as a referral agency in directing volunteers to the appropriate protective agencies.

The police department assisted in directing volunteer recovery activity. CD worked closely with this department in requesting information and aid concerning the field situation (i.e., flooding, shelter needs, transportation, acquisition of heavy trucks, and passable streets). Requests reaching the CD office were relayed to police cars which, in turn, provided transportation for supplies and/or evaluation of the validity of the request. Towards the end of the initial recovery stage, the National Guard, the majority of whose members were students, requested to be relieved of their duties at the Algiers Naval Station in order to return to civilian life and studies. CD suggested that the police relieve the Guard in providing security at the make-shift shelter installation. The police felt that it was not their duty to guard a military installation and that legally they had no jurisdiction over the installation. The legality of the situation was investigated and the conclusion was that police could provide security and arrest violators; however, it was up to the military to try them. The ensuing controversy was settled by consultation between the police chief and the mayor. The police did provide security for the installation.

Telephone communication was an acute problem at the EOC. The morning of Thursday, September 9, telephone personnel conducted a thorough check of the center's facilities, finding them in full operating order. At 4:00 p.m. the same day, a liaison officer was stationed at the center to provide any aid or information that CD might desire and to also feed back to the telephone company any relevant information. According to CD officials, telephone communication at the EOC was lost at 10:00 p.m., leaving the only contact with the outside through an open line to the coroner's office. CD could receive incoming calls but they were unable to call out. The charge was made that the telephone company turned off their line-load control service which gives priority to certain critical agencies. Civil defense was supposed to be a high priority agency. The telephone company claimed that they did not cut off CD when they instituted line-load control. The telephone company claimed that jammed switchboards in many of their offices caused a delayed dial tone, which meant that some individuals upon lifting their receivers may not have gotten a dial tone and given up, thinking the telephones were dead. Whether it was the line-load control or jammed switchboards can not be fully determined, but it was clear that the EOC would have to undergo a complete communications check to insure that this problem would not occur again.

During recovery and rehabilitation, CD had contact with virtually every agency in emergency work, whether providing information, material, and human resources, or accepting such resources. Examples of these contacts follow:

The coroner's office was for a period of time the only source of communication out of the control center.

Volunteer radio operators came from the citizen's band (a short-range transmitting frequency used by cab, utilities, and other small companies) and RACES, an amateur ham operators' club.

Requests for information came from the division of public housing New Orleans Public Service, Inc., sewer and water board, and dock and harbor board.

Message runners for the CD office came from boy scouts and civil air patrol volunteers.

The city planning commission reported on-the-scene observations and made subsequent reports and recommendations to the mayor, CD, and the sewer and water board.

Many private businesses donated their boats, barges, and marine personnel. CD directed these resources to appropriate agencies.

## State Organizations

New Orleans civil defense had a number of contacts with various branches of state government and state agencies. The state CD office had a limited role in New Orleans CD affairs. Moving from their local office in Jackson Barracks, the state CD set up operations in the EOC on the eve of the hurricane. On Friday morning, they attempted to move back to the Jackson Barracks office. Finding Jackson Barracks under water, the state CD staff moved to CD headquarters in Baton Rouge, leaving behind a liaison officer with New Orleans CD. New Orleans civil defense, however, found it more expedient to deal directly with the state CD headquarters than to go through the liaison officer.

On many occasions New Orleans CD had contacts with state senators, representatives, and the governor's office, providing these persons with field information. The most persistent contact with a state organization occurred between CD and the Louisiana National Guard. Major National Guard tasks included providing assistance in transporting supplies and equipment, evacuating refugees, guarding against looting, and directing traffic. Acting in its general coordinating role, CD had continuous contact with the National Guard. Thus, CD played an instrumental role in securing the Guard's release from duty.

## National Organizations

The scope of Betsy's wrath was so pervasive that additional resources were sought from the federal government. In a telegram to the New Orleans mayor, the President of the United States outlined numerous forms of assistance which were available. The content of this telegram was presented in chapter 2. In administering this federal assistance, the CD director worked closely with the director of the Office of Emergency Planning for region five.

During the initial stage of the emergency, CD had continual contact with the United States Weather Bureau in Miami, Florida. Weather reports at first came at irregular intervals, but as the storm entered the Gulf of Mexico, posing a direct threat to the Louisiana coast, reports came in every two hours.

A liaison officer from the Army Corps of Engineers was stationed with CD throughout the storm and with the mayor's office during the recovery rehabilitation period. The liaison officer assisted in arranging evacuation transportation for those living on the front of Lake Pontchartrain. The Army Corps of Engineers became involved in directing drainage operations in the flooded areas. Additional military aid was received from the Eighth Naval District, Algiers Naval Station, in providing evacuee shelter. The EOC coordinator was instrumental in arranging this refugee shelter from the naval district. Because of his previous position as operations officer in the Eighth Naval District, the EOC coordinator had several informal contacts at the naval station which facilitated a successful working relationship.

### Conclusion

The most severe problems which confronted civil defense were centered around the effects of the unexpected flood from the tidal surge. Although previous flooding had occurred along the Pontchartrain lakefront and low lying areas near the canals, none as extensive as that which followed Betsy had ever been experienced or even anticipated. During the late afternoon and early evening of September 9, evacuation of residents from areas which had previously experienced flooding took place. However, the area surrounding the Industrial Canal was not scheduled for evacuation. It was this area, especially the area to the east, that experienced severe flooding from water overflowing the existing levee structure. This unanticipated flooding caused problems involving evacuation, shelters, transportation, and public health. These problems increased the demands made upon CD to coordinate and participate in confronting the unexpected event. While CD had geared itself to meet the demands of the impact, it was faced with meeting the demands of a dual disaster.

In adapting to the hurricane-flood, CD had to operate within the context of and existing disaster plan which emphasized man-made disaster situations. Although efforts had been made to adjust this plan to "natural" disasters, certain legal clauses restricted CD's response. The restriction was most obvious when a decision had to be made concerning CD's role in emergency shelters. Under a state agreement Red Cross has full responsibility for shelters in time of natural disasters; in a man-made disaster (i.e., nuclear attack) CD would have shelter responsibility. Existing agreements with owners and managers of private buildings allowed for the use of facilities only in time of a national emergency (i.e., man-made disaster). In a natural disaster these facilities were not available under the informal contracts that existed. CD, in trying to locate shelter space during Betsy, called the owners and managers with whom they had fallout agreements only to find that all available space in these buildings was being used by the respective organization personnel and their families. This problem could be indicative of what might be faced in a man-made disaster.

Although CD had extensive physical facilities to effectively coordinate the emergency operations, these facilities were rendered useless due to failures in the communication and power systems. While the power failure could be accounted for by a faulty electric circuit, the communication problem was not clearly defined. However, steps were subsequently taken to correct the problem through the installation of a more elaborate telephone system. The faulty electric circuit breaker which operated the emergency generators has been replaced and additional parts are on hand if this situation should occur again.

Both communication and power problems at the EOC were unanticipated by CD. With the EOC inoperative, the entire staff at the center moved back into the offices in city hall. This ad hoc set-up lessened the coordinating potential of civil defense. Given the limitations under which they had to act, civil defense responded most efficiently. While it is not anticipated that the EOC will become inoperative in any future emergency, specific alternate plans and operating facilities should be established so as to have the most efficient physical arrangement from which to coordinate emergency activities.

Notes: Chapter III

1. Louisiana State Statutes, no. 614, "State Civil Defense Agency," p. 488.
2. Russell R. Dynes, Organized Behavior in Disaster, Disaster Research Center Monograph Series (Lexington, Mass.: D.C. Heath and Company, 1970), p. 139.
3. Lois R. Dean et. al., The Use of Volunteers and Voluntary Organizations in Civilian Defense and Preparedness (Ithaca, N.Y.: Cornell University, 1964), pp. iii-iv.

## CHAPTER IV

### THE NEW ORLEANS SALVATION ARMY: HURRICANE BETSY DISASTER RELIEF

This discussion will focus on the New Orleans Salvation Army city command during normal, pre-impact times and during the post-impact period following Hurricane Betsy. Although the New Orleans Salvation Army includes three units: men's rehabilitation unit, division command, and city command, the city was most highly involved in the disaster response and therefore will be the focus of this examination. The other two units will be discussed primarily in terms of their relationship to the city command. Especially emphasized will be the city's tasks, chain of command and decision making, communications, inter-organizational relations, and interpersonal structure.<sup>1</sup>

#### National Organizational Structure of the Salvation Army

The Salvation Army's national headquarters in New York City maintains direct lines of authority and communication with the international office in London and with the territorial offices in the United States. There are four territorial commands: Eastern (headquarters in New York), Central (Chicago), Southern (Atlanta), and Western (San Francisco). (Hawaii, Alaska, and Puerto Rico are included in the closest geographical territorial command.) Each territorial command is separated into divisions; for example, the southern territory includes twelve divisions as well as autonomous men's and women's social rehabilitation centers. A division serves to administer and coordinate Salvation Army operations with state agencies (or areas, for those few divisions controlling more than one state). The men's and women's rehabilitation centers reportedly are separate from divisions and receive orders directly from the territorial command -- except in cases of emergency. This separation results from the fact that the rehabilitation centers serve persons who are sent from all parts of the territory; separation is also designed to prevent undue control by the division in which the social rehabilitation center happens to be located.

Divisions incorporate the smallest continuously functioning units of the Salvation Army: the city command in larger cities, and the corps command<sup>2</sup> in smaller cities. City commands include religious corps centers, welfare centers, and transient lodges. The only distinction between a city command and a corps command is the size and scope of their operations; for example, in a large city there is both a city commander and a corps leader, while in a smaller city one man performs both functions as a corps commander.

## Organizational Structure of the Salvation Army in New Orleans

Because of its size and its role as a communications center, New Orleans has three different types of Salvation Army units: a men's social rehabilitation center, a division command, and the New Orleans city command. A brief mention will be made of the first two units followed by a more extensive discussion of the New Orleans city command.

### Men's Social Rehabilitation Center

The staff of the men's social rehabilitation center, located on the outskirts of New Orleans, consists of four persons: director, supervisor, secretary-bookkeeper, and receptionist. The goal of the center is to provide shelter, food, and clothing for the homeless and jobless and rehabilitation in the form of training in the collection, repair, and resale of used furniture as well as a basic religious program. This center is independent of the rest of the New Orleans Salvation Army organization; it is a self-sufficient unit which takes orders from the territorial headquarters in Atlanta during normal times. The director of the center supervises all activities of the center. Contact between the men's social rehabilitation center and territorial headquarter generally takes the form of written reports, while personal contact through either meetings or telephone calls is maintained between the center and division and city command.

### Division Command

The division command, the smallest Salvation Army unit located in New Orleans, is one of the twelve divisions in the Southern Territory. With headquarters located in Birmingham, Alabama, the divisional command is responsible for organizing, directing, and coordinating the religious, welfare, and emergency functions of the Salvation Army within a specified geographical area -- the states of Alabama, Louisiana, and Mississippi. Divisional headquarters also insures that instruction and decisions are disseminated throughout its area. This is done primarily through written reports or letters -- occasionally telephone calls and/or personal conversation.

The eight staff members include: division commander, division secretary, division Girl Guard leader, financial secretary, assistant financial secretary and three stenographers. The division command coordinates Salvation Army services controls finances, and supervises corps (religious) programs for the city command and the corps units. The division commander supervises divisional headquarters while his second in command, the division secretary, relieves and helps him, acts as office manager, supervises the youth program at the territorial level, acts as property manager for all properties in the division, and somewhat unofficially (as a result of personal interest) acts as photographer and performs public

relations work. The divisional Girl Guard leader works under the division secretary setting up and directing the divisional girl's youth program, divisional camp programs, and directing at least one camp. The financial secretary does bookkeeping and votes on divisional financial matters.

#### City Command

While the largest Salvation Army unit in New Orleans is the men's social rehabilitation center, the most complex is the city command. The number of city command personnel varies from eight to fourteen and includes bookkeeper, corps leader, assistant corps leader, social worker, men's lodge director, men's lodge truck driver, men's lodge maintenance man, men's lodge cook, women's lodge director, women's lodge maid, and camp caretaker. The city commander coordinated the activities of these persons and is advised by a forty-five member businessmen's board composed of lay people who help with the business, financial, and charitable functions of the Salvation Army.

The city commander acts as the general administrator of the city command unit, supervising personnel and coordinating the city command with other agencies in the community. There are several staff members under the city commander. The corps leader performs all tasks involved with the religious function of the Salvation Army including meetings, visitations, newsletters, and reports. The assistant corps leader keeps records, makes reports, and leads several young people's groups. He unofficially maintains vehicles and helps lodge people. The social worker interviews welfare cases, writes letters on paroles, and procures aid for cases she judges necessary. The director of the men's lodge supervises the lodge operation. He also helps on fire calls.<sup>3</sup> The lodge director has under him a truckdriver, a maintenance man, and a cook. The women's lodge director, with the help of a maid, supervises the operation of the lodge. The camp caretaker, who at one time was in charge of the men's lodge, is concerned with the upkeep and protection of camp facilities.

The city commander makes or approves in some manner all significant decisions in the city command unit. He has delegated individuals to make decisions with his approval in the areas of religion, welfare, and care of transients. This approval is most often understood and not overt in nature. Among the decision-making positions below the city commander in the chain of command are the corps leader who makes all decisions concerning the operation of the religious unit, and the assistant corps leader who makes decisions relating to the young people's program and the band. The social worker decides who should receive help, the nature of this aid, and any other matters concerning the care of transients. The director of the men's lodge and the director of the women's lodge make decisions on the maintenance of the building and physical facilities, assigning specific operational and upkeep tasks to subordinates. The camp caretaker makes decisions regarding the maintenance of the camping facilities. The advisory board members have no official decision-making functions; however, they actually make many decisions on who to approach in securing aid and setting up programs.

Normally, the pattern of communications in the New Orleans Salvation Army city command -- means, topics, and persons who give and/or receive communications -- follows a relatively simple order. The city commander has the most complex pattern, using a variety of means in his daily communications. The topics include the internal operations of the city command, relations between the city command and the other Salvation Army units in New Orleans, and the relationship between the city command, the advisory board, and the public of New Orleans (via radio messages). The staff members in the functioning units within the city command -- corps, welfare, and lodge personnel -- communicate with each other (in person, by telephone, and by messenger), with the city commander, and with the division headquarters (by reports) concerning their immediate tasks. Other city command personnel communicate with the city commander or with the heads of the functioning units in person and/or by telephone; the topics are usually about an immediate task. In sum, most communications in the city command are straightforward. The means usually employed include face to face, telephone, letters, messengers, and reports. The most complex communications pattern centers around the city commander.

Because of the unofficial nature of many tasks and the existence of some conflict areas in the New Orleans Salvation Army, it is difficult to distinguish between official, unofficial, and interpersonal structures. For example, in the city command the corps assistant had unofficially assumed the task of maintaining vehicles in good mechanical condition. Although these vehicles were assigned to the city command, this task should officially have been a function of one of the city commander's maintenance men. However, the assistant corps leader unofficially performed these tasks because of personal interest.

Also the social worker in the city command had the official responsibility of providing aid and lodging to those in need. However, many of her tasks were unofficial, such as trying to obtain paroles for relatives of clients and trying to obtain aid for a client from a source other than the Salvation Army when the Salvation Army could not provide the needed service. Thus, she had acquired many tasks not expected by her position or by the normative prescriptions of the organization.

A large number of the tasks that any Salvation Army worker may perform are similarly ambiguous. The difficulty in distinguishing between official and unofficial tasks is not an isolated organizational phenomenon applicable only to the assistant corps leader and the social worker; rather, the phenomenon permeates the entire organization. Salvation Army personnel do not define tasks in terms of the normative prescriptions of the organization; they define tasks in terms of the environment. A very common justification for performing any particular tasks is: "I just saw that it was a job that had to be done."

For similar reasons, interpersonal structures are difficult to distinguish. Religious, work, and recreational roles, which are indicators of these structures, mesh together and are practically indistinguishable for most Salvation Army personnel. However, some aspects of the interpersonal structure deserve particular mention. First, in the city command, all personnel thought highly of the city

commander and spoke of him almost charismatically. Second, due to a heart condition the division commander was in poor health; consequently the division secretary had been delegated many of the commander's tasks and much of his authority. Third, the men's social rehabilitation director appeared to have complete power in his organization and almost complete independence from the other two Salvation Army units.

Some conflict existed between the city commander and the other two units -- the division headquarters and the men's social rehabilitation center. Reportedly, territorial headquarters had sent the city commander to New Orleans because the previous commanders had been unable to handle financial affairs.

### Salvation Army Emergency Operations

One year prior to Hurricane Betsy, New Orleans was hit by Hurricane Hilda. Although Hilda did not reach the proportions of Hurricane Betsy, it was serious enough to involve a number of organizations including Salvation Army. Salvation Army disaster relief was limited to three canteens and fifteen to twenty persons during a two to three day period. Personnel utilized were primarily from the division headquarters and the New Orleans city command; most volunteers had previous association with the Salvation Army. During Hurricane Hilda, the Salvation Army never experienced any serious threat to its ability to meet requests for aid.

### Summary of Disaster Operations

Prior to the impact of Hurricane Betsy, Salvation Army activities centered on general preparations: obtaining supplies, readying equipment, and assigning tasks. When it became evident that Hurricane Betsy posed a real threat to the Gulf Coast on September 8, 1965, a general alert was given to all Salvation Army personnel in the Southern territory. In addition the divisional headquarters sent out a more specific alert by telephone and telegraph to those Salvation Army personnel expected to be directly threatened by Betsy. On that same day, September 8, the city commander along with members of the general advisory board attended an emergency meeting called by civil defense and held at the mayor's office. The nature of this meeting was focused on a last minute inventory of emergency preparedness.

The following day, September 9, the Salvation Army continued its general preparation activities by: (1) obtaining additional supplies (coffee, sandwich material, etc) and the listing of additional sources of food and clothing supplies in the event they were needed; (2) seeking permission from the police to use a red-flashing light on the Salvation Army car; and (3) announcing to the public over radio and television that Salvation Army services would be available. That same day another meeting was held at the civil defense emergency operations center where more definite assignments were given. At this time the city commander

informed the civil defense director that three more canteens were enroute from Galveston, Houston, and Little Rock and would be available for emergency food relief. The city commander remained at the civil defense command post acting as a liaison officer.

During the height of the storm, midnight September 9, through the early morning hours of September 10, activity was at a standstill because of the storm's intensity. However shortly after the severest part of the storm had passed over New Orleans, the Salvation Army began receiving requests for food from various city work crews who had ventured forth to begin assessment of the damage and restoration activity. During the days immediately following the impact of Betsy and the subsequent unexpected tidal surge, Salvation Army activity centered around sandwich preparation, canteen trips, and the sorting and distribution of clothing.

The week following the impact of Betsy, a Catholic convent with the help of neighboring local groups, began to take over the sandwich making operation. The Salvation Army buildings became primarily food distribution centers. By September 12, concerned individuals and organization outside the state began sending food and clothing to New Orleans. Clothing was immediately handed over to the Salvation Army for sorting and distribution since they normally have experience with this type of activity. A member of the advisory board donated a warehouse which was turned into a clothing distribution center. Distribution of clothing and food was discontinued by October 15, 1965. By this time nearly all of the evacuees had returned to their homes or were relocated and emergency repair and restoration crews were back to fairly normal routine work loads.

The remaining part of this section will be directed towards looking at specific aspects of the emergency response with respect to tasks, chain of command and intraorganizational conflicts. Again, each of the three units will be discussed with the emphasis being upon the city command.

### Tasks

Tasks of individuals in the post-impact period generally followed those prescribed by the chain of command; tasks occasionally deviated from this due to the fact that Salvation Army personnel do not consider themselves as officials (performing a formal set of functions) so much as persons who perform tasks "that have to be done."

The Salvation Army Manual for Emergency Disaster Service<sup>4</sup> contains the official prescription of Salvation Army functions and personnel tasks. This national publication also explains financing and organizational procedures, but the Arkansas and Louisiana division has its specific interpretation of the national publication.<sup>5</sup> The divisional publication includes: (1) an extensive call sheet containing addresses and telephone numbers of police, state patrol, county sheriffs,

and Salvation Army personnel; (2) a section outlining "Instructions for Guidance of Officers in Disaster Emergency Service"; and (3) suggested report forms, supplies to have on hand, and operation of mobile equipment.

The director of the men's social rehabilitation center performed mostly normal tasks. However, a large number of his personnel and a large amount of his equipment was utilized in emergency operations. The facilities at the center had been extensively damaged; thus, the involvement of this unit in emergency tasks was necessarily limited.

Three important division staff members were concerned with emergency operations. The division commander supervised state level operations, arranged for help from Salvation Army personnel outside New Orleans, and worked on public relations. The division secretary aided the division commander during the early period of emergency operations and supervised and performed relief activities outside New Orleans. Unofficially, the division secretary assumed most of the division commander's tasks since the commander was recovering from a recent heart attack. The division financial secretary handled all communications from division headquarters by answering the telephone, receiving telegrams and mail, and relaying messages.

The New Orleans city commander was the zone commander for Hurricane Betsy disaster operations. The zone commander's duties are described in the Manual as follows:<sup>6</sup>

At the time of disaster, all Officers will be alerted and specific instructions issued to those immediately concerned. Officers should not leave their appointments without prior consultation with Zone Commander. The Administrative Area of which any officer is a part is organized into zones, areas, or grouping of Corps under a Zone Commander who is responsible to the Divisional Commander for all operations in his zone.

#### ZONE COMMANDER'S RESPONSIBILITIES:

The Zone Commander will be responsible to the Divisional Commander or appointed Officer for all operations in his zone. Working under the Zone Commander will be all Advisory Board Members, Auxiliary Board Members, Salvation Army personnel, and all volunteer workers. Duties of the Zone Commander should include the following:

1. Notify Divisional Headquarters immediately of any disaster.
2. Alert workers and volunteers (including appointed Officer personnel).
3. Call together those necessary to prepare food and equipment.
4. Proceed to the scene of trouble prepared to give service, establishing headquarters at some strategic point.
5. Determine if additional equipment is needed and inform Divisional Headquarters
6. Locate sources of supplies nearest disaster.
7. Arrange workers into shifts so continuous service can be given. Don't hesitate to give responsibilities to others but make certain instructions clear.

8. To see that such Officers or other personnel as have been assigned responsibilities for supplies, transportation, canteen supervision, clothing distribution, etc. will function in these various capacities.
9. Keep a record of donations received whether food or money. No special appeal to be made without approval of the Divisional Commander.
10. The Zone Commander will have in mind the four types of service to be rendered:
  - a. Feeding
  - b. Clothing
  - c. Mobile Services
  - d. Spiritual Ministry

Some conflict existed between the zone commander and division personnel. In New Orleans, the city commander performed most zone command tasks. Outside New Orleans, the division secretary performed zone command tasks. The city commander had authority over seven supervisors; while the occupants of supervisory positions shifted, the pattern of authority was discernible.

The corps leader became the night relief supervisor and carried out the tasks the city commander performed during the day. These tasks were never very extensive since the city commander was always available to consider important decisions and since night operations were fewer than day operations. Most night relief tasks were concerned with preparations for the following day. The men's lodge cook worked as the night relief supervisor's assistant by running messages, transporting supplies, making sandwiches, and sorting clothing when needed.

The social worker directed and made decisions about disaster relief policy. Her assistant social workers were the division Girl Guard leader, the wife of the division commander, and the wife of the division secretary; they interviewed welfare cases and decided what kind and how much aid to give a client if he were in the disaster area.

The division Girl Guard leader also supervised dispatching the trucks and canteens<sup>7</sup> and placing orders for supplies for the trucks and canteens. Directly under the dispatcher were the drivers and assistants. The drivers were in charge of their vehicles and the distribution of their supplies (sandwiches, coffee, and clothing); the assistants distributed supplies and performed cleanup and maintenance tasks.

The camp caretaker performed a number of very important tasks during the disaster period including communications, purchasing, and dispatching. Communications tasks included taking and routing most incoming calls and occasionally performing an activity requested or arranging for the task to be performed through a telephone call or radio message. Purchasing tasks included signing all orders -- a practice authorized in advance by the city commander who is the only other person in the city command who can sign such orders -- initiating orders when necessary, and making decisions on where to purchase supplies, how much to purchase, and how to transport purchases.

The supervision of sandwich making and of clothing distribution illustrates the flexibility of the chain of command during an emergency. At different times, the wife of the city commander, the division Girl Guard leader, the division

financial secretary, and the wife of the corps leader supervised these two areas. At times, volunteers served in supervisory positions in these areas. In fact, a volunteer had set up the sorting and distributing system. Primarily, it was volunteers who made sandwiches and sorted and distributed clothing. After a week, a convent volunteered to make all sandwiches needed.

The remaining supervisory positions in the city command, the directors of the men's lodge and of the women's lodge, changed little during the emergency. The two directors did perform some disaster tasks but not as extensively as the other city command supervisors. The necessary normal tasks were still carried out by assistants.

In summary, the emergency tasks of the Salvation Army in New Orleans differed considerably from their normal tasks. The pre-disaster tasks were concerned with religion, welfare, and minor emergencies; while emergency tasks involved most personnel in making sandwiches and distributing clothings. During this period, trucks and canteens arrived for the distribution of food and supplies to needy areas. The post-disaster tasks were concerned almost exclusively with the distribution of supplies. The supplies distributed expanded to include blankets, detergent, and mops, as well as food and clothing. However, during all three periods, the major religious services of the Salvation Army were continued and the men's and women's lodges remained in operation. All tasks, then, had continued throughout the emergency period, but emergency tasks had grown such that they became the largest part of the organization's functioning.

#### Chain of Command

Through the orders of its director, the men's social rehabilitation center provided trucks and personnel for the city command. Officially, during a disaster the men's social rehabilitation center staff is subject to the orders of the disaster zone commander. However, for the most part the director maintained the independence of his unit and aided the disaster work only when he considered it necessary and when it did not interfere with the goals of his unit.

The division commander and the division secretary worked with and occasionally made decisions for the city commander. In addition, the division commander alerted Salvation Army personnel outside New Orleans for help, made decisions on public relations, and decided where and what services would be offered outside New Orleans. The division commander's decisions were at the official level; the division secretary actually made and carried out these decisions. While interviewees stated that the division commander approved decisions, it appears he was rarely consulted. The division commander's actual role was as a figurehead; the city commander made local decisions and the division secretary made decisions affecting areas outside New Orleans. The city commander and the division secretary occasionally consulted with each other.

The size and scope of the New Orleans city command changed considerably during the emergency period. The city commander was the Salvation Army disaster zone commander in the New Orleans area. He made all decisions including assigning personnel, deciding the extent of Salvation Army involvement, and arranging and purchasing supplies. Some key city officials, the mayor, the civil defense director, and the police department officials requested aid from the city commander. Decision making for the staff under the commander's leadership changed greatly.

The men's and women's lodges continued operation; generally lodge personnel were concerned with the usual types of decisions. The director of the men's lodge had almost complete charge of the Magazine Street facilities since most of the personnel were on Gerard Street. Only the maintenance man remained at the men's lodge with the director. The cook aided the corps leader as night director.

Welfare services also experienced little change. The social worker did have wider decision-making powers and more opportunities to exercise them. She determined welfare guidelines (to whom, what kind, and how much aid to give), supervised other Salvation Army personnel and volunteers helping in the welfare effort, and interviewed clients to make decisions in individual cases. Her helpers -- the wife of the division commander, the Girl Guard leader, and the wife of the division secretary -- also had decision-making powers in individual cases.

Sandwich and clothing distribution had been functions of the New Orleans Salvation Army before the disaster, but during Hurricane Betsy segments of the organization concerned with these areas grew to the rank of departments. The wife of the city commander, aided by the division Girl Guard leader, directed these activities. Although physically separated from the rest of the Salvation Army personnel in the Gerard Street warehouse, most of the same Salvation Army personnel worked in both kinds of distribution. Decisions involved organization, quantity, types, and methods of performing the two jobs. Volunteers were mainly responsible for actual clothing distribution and preparation of sandwiches. Eventually, the sandwich making task was taken over by a voluntary group, a Catholic convent.

The dispatching of eighteen canteens became a decision-making position. The division Girl Guard leader assigned times and locations for canteens, decided when, and how many supplies to send to these canteens, as well as deciding on initial canteen stocking. Due to the unavailability of other personnel, some decisions concerning personnel assignments and the decision to transfer sandwich making to the convent group, were made by the division Girl Guard leader.

The corps leader made night relief decisions. While similar to decisions the city commander made during the day, night relief decisions were less numerous and less serious. Generally they concerned preparations to be made for the next day.

The camp caretaker made purchasing and communications decisions. Communications decisions concerned whom to contact and how to contact them; purchasing decisions concerned what, where, how much, and when to purchase supplies.

After impact decision making on disaster relief measures escalated sharply. Organizational segments concerned with disaster decisions became departments with unique and wider decision-making powers for those in charge, while lower echelon personnel were mainly concerned with decisions on how to perform a task and experienced no significant change from their normal decision-making responsibilities.

### Communications

From the very beginning of the emergency to the end of the disaster relief period, communications were a major problem for the Salvation Army. Communications under normal conditions were relatively simple and straightforward; however during the emergency communications became complex and problematic.

Before the disaster, communications were sent by letter, telegraph, and telephone by the city commander and the division commander to territorial headquarters in Atlanta and to Salvation Army units in neighboring states. These groups, as well as units in the Louisiana-Arkansas division, were alerted to possible needs of the New Orleans Salvation Army for personnel and equipment. In addition, meetings and telephone calls occurred among city officials, civil defense staff, and Salvation Army personnel during the early disaster period. A limited number of radio announcements were made notifying the public of the services and needs of the Salvation Army in the disaster.

During the height of the hurricane, most communications including those from the civil defense command post, ceased. Many telephone lines and radio antennas had been knocked down by high winds, and telephone lines which were operating were overloaded. After the winds had died down, the Salvation Army began using new means of communication including the following: many television and radio requests to the public (a means very rarely used before the disaster); radios belonging to police, amateur, and citizen band operators; hot line telephones to division headquarters and the mayor's office; messengers to suppliers; and intercom and memos within the Salvation Army group. Despite this extensive growth of communications, the lack of direct communications with canteens and personnel, with public officials, and with suppliers proved to be one of the most critical problems experienced by the Salvation Army during the disaster relief effort.

The emergency communications pattern of the director of the men's social rehabilitation center remained essentially the same. Calls concerning the donation of supplies increased, but this did not affect the overall communications pattern of this Salvation Army unit.

The division commander and the division secretary communicated with the public, with city officials, with Salvation Army personnel in other areas, with businessmen, and with city command personnel and volunteers working with them. Personal conversation, police and private radios, commercial broadcast networks, newspapers, as well as telephone, telegraph, and messengers were all employed in these various contacts. The division secretary communicated with many officials and individuals outside New Orleans as he organized the relief effort in those areas. The division financial secretary acted as router for division communication and handled mail, telegraph, and telephone communications at division headquarters.

The city commander, in his role as zone commander, was the center of the most complex communications pattern. He communicated with the general public and with the following officials: city officials, Salvation Army personnel, businessmen, divisional personnel, director of the men's social rehabilitation center, city command advisory board, city command personnel, and volunteers. The common means of communication were: personal, telephone, telegraph, police and private radios, and messengers.

Two aspects of the city commander's communications pattern are of particular interest. First, most of the city commander's requests to the director of the men's social rehabilitation center were routed through the division secretary because of the secretary's close personal relationship with the director. Second, the camp caretaker, in charge of communications and purchasing during the disaster, routed many of the communications to and from the city commander. Next to that of the city commander, probably the most complex communications pattern was that of the camp caretaker. As purchaser he communicated within the organization with personnel involved in such things as sandwich making and clothing distribution. Outside the organization he communicated with suppliers and transporters and routed incoming communications.

The communications of the acting night relief supervisor were similar but more limited than those of the city commander. Most of his communications were with Salvation Army personnel working in canteens and with public officials. Communications were carried out through personal conversation, telephone, police, and private radios, and messengers.

The division Girl Guard leader acting as dispatcher during the disaster period communicated within the organization with sandwich making and canteen personnel, and with the purchasers. Communication by personal conversation, memo, messenger, telephone, and police and private radios were most common. Outside the organization she communicated with suppliers and transporters by telephone and by messenger. Inability to get information on the location, needs, and personnel of the canteens caused many problems for the dispatcher.

Personnel involved in sandwich-making, food and clothing distribution, and social work communicated primarily among themselves either in person or by memo, intercom, and messenger. Occasionally these persons were in contact with suppliers, transporters, and donors both in person and by messenger and telephone.

Except for canteen personnel and messengers, the rest of the city command communicated with one another concerning specific tasks either in person or by telephone, intercom, and messenger. Communication between canteen personnel and Gerard Street concerned personnel relief, supplies, and location of canteens and were carried out in person, via memo, telephone, or radio. The assistant corps leader and the men's lodge cook acted as messengers and communicated a variety of topics from canteens to suppliers, employing all possible means of communication.

### Official, Unofficial, and Interpersonal Structures

The difficulty in separating official, unofficial, and interpersonal structures has been discussed previously. Under normal conditions some facets of these structures were particularly outstanding: a large number of unofficial tasks, potential conflict between the city commander and division personnel, and potential conflicts between the director of the men's social rehabilitation center and the other two New Orleans Salvation Army groups. Each facet had interesting consequences during the emergency.

The high number of unofficially assigned tasks proved to be an asset during the disaster. Personnel were able to adapt readily to new and expanded tasks by handling problems as they arose and shifting tasks as necessity dictated. Consequently, a number of persons worked on multiple tasks especially in social work, sandwich making, and food and clothing distribution.

Conflict between the city commander and division personnel did develop. During the early stages of the relief work, the city commander and the division secretary gave numerous contradictory commands. Because of the illness of the official division commander, the division secretary acted as de facto division commander and attempted to assume authority in the division and in the city. The city commander, because of his status as zone commander during disasters likewise assumed authority. Because of his close contacts with city officials, businessmen, and citizens, and because of the loyalty of city command personnel, the city commander was able to retain the power and authority of his official position as zone commander.

The city commander decided to focus his efforts on New Orleans where aid was felt to be most needed. The division secretary assumed control in areas outside New Orleans, despite the fact that officially these areas were the city commander's zone. This division of authority solved the conflict to some extent, although at one point the city commander cautioned his personnel to take orders only directly from him and from his key personnel. That the conflict continued is evidenced by occasional disagreements about whether a canteen or supply truck was operating in the city commander's area (New Orleans) or in the division secretary's area (outside New Orleans).

Conflicts between the director of the men's social rehabilitation center and the other two New Orleans Salvation Army groups also developed. The director rejected all requests which (as he said) he thought "to be unnecessary or to interfere with the functions of his own organization." Because of his friendship with the director, the division secretary was often called upon to make requests for the use of the director's men and equipment. Despite the division secretary's efforts, many requests apparently were still rejected. There were increased calls from the public to the director of the men's social rehabilitation center requesting that goods donated for use in the relief program be picked up. The director himself appeared to have worked little in the relief program. Much equipment from Salvation Army units outside New Orleans and from private sources was utilized by the city command.

### Intra- and Interorganizational Relationships in Emergency Operations

#### Intraorganizational Operations

As previously mentioned, the relationship between the men's social rehabilitation center and the city commander and division commander became a significant problem. The men's social rehabilitation unit enjoyed a great deal of independence being directly responsible only to the territorial office and not to the city or division command. Independence can prove problematic in emergency situations in which official authority lines are somewhat altered. In the case of the New Orleans men's social rehabilitation center following Hurricane Betsy, the director exercised his independence and appeared to have given less than maximum possible help to the city commander. Thus, the city commander had to rely on more outside help than would otherwise have been needed for transporting supplies, food, etc.

The conflicts between the city command and division headquarters were discussed earlier. In areas in which both a city command and division headquarters are located, attempts on the part of division headquarters to dominate the city command are quite possible. Division headquarters in New Orleans had dominated the city command until territorial headquarters in Atlanta appointed the present city commander. Although the conflict which continued to exist between the city commander and the division secretary did not completely disrupt the disaster relief program, it did cause some rather serious problems.

Another important aspect of intraorganizational operations is that during emergency operations, the Salvation Army calls in members from other areas. The number of outside personnel working in the Hurricane Betsy disaster relief effort was very high; although exact figures are not available, eighteen canteens and four trucks came from Texas, Arkansas, Louisiana, Mississippi, Georgia, Florida, North Carolina, and Kentucky. Most of these persons were officers; many had been involved in other relief efforts. In fact, many had more experience than any of the New Orleans personnel with the exception of the city commander, the division commander and the division secretary. These experienced, high-ranking

personnel often assumed authority without the approval of the New Orleans officers. The city commander reprimanded several of these persons and instructed New Orleans personnel to take orders only from him or from local supervisors. As one interviewee explained,

some of the officers who came in from out of town, just because they were officers, they felt they could give orders to other people, and we got a few conflicting commands from them, but we just took them with a grain of salt because we knew what the city commander had said, so his orders went.

The city commander said that a lot of times you'll get an order from someone who has misinterpreted an order or has just decided that they want this done this way, and he said if you get something that doesn't sound right to you, check in before you do it.

Apparently, this procedure solved the problem. Several individuals indicated that this is a common problem in disaster work.

Establishing authority over personnel and between units was one of the main problems the Salvation Army confronted. The city commander suggested that a national or territorial disaster team, similar to that existing in the Red Cross could help eliminate the authority problems in large-scale disasters which involve many personnel and many different Salvation Army units.

#### Interorganizational Operations

In its daily activities, the Salvation Army has some rather close associations with public officials. Its most frequent contacts are with the fire department and the police department because it serves coffee and doughnuts at large fires. Its next most frequent contacts are with civil defense and with the mayor's office. These contacts occur primarily because of civil defense's recognition of the Salvation Army.

During the emergency period, the Salvation Army's pattern of interorganizational relations was greatly altered. The mayor's office had the most contact with the Salvation Army, followed by civil defense. Contacts with the police department made it possible for the Salvation Army to use police personnel and equipment for transportation (including gas for vehicles) and communications. Other public agencies helped also: the House of Detention provided inmates as volunteer workers and the Board of Trade provided warehouse space for temporary storage.

Salvation Army relations with quasi-government and business concerns also expanded. Normally, when practical and possible, most business relations are handled through the advisory board. This pattern persisted throughout the emergency period. Through the advisory board the Salvation Army was able to obtain ice, operations facilities, food, transportation, blankets, clothes,

equipment, and volunteers. Salvation Army units also received much aid from advisory boards in other states: for example, a water purification system from Texas and detergent from Massachusetts. Other organizations providing help during the emergency period were the telephone company, which installed extra and direct telephone lines, and the New Orleans Public Service, Inc. which provided gas and oil for vehicles.

Clubs also provided aid to the Salvation Army. Boy Scout and Girl Scout troops volunteered as units and a civic organization from Memphis sent truckloads of supplies. Church, religious, and school groups were also important sources of aid. A Catholic convent in Covington entirely assumed sandwich-making responsibilities. Many churches set up collection posts for food, clothing, and other supplies. One religious organization gave the Salvation Army \$21,000 to purchase equipment and to defray operating expenses. Area universities sent groups of student volunteers.

Although the Salvation Army received aid from other sources, specific information concerning such aid is not available. Various armed service groups provided supplies and some transportation, primarily through civil defense. An early need for money to purchase milk, bread, and lunchmeat was met by an advisory board member who solved the problem by charging these supplies to civil defense.<sup>8</sup>

Although no accurate records were kept of individual volunteers, the number was exceedingly high and included such diverse types as teenagers, transients, businessmen and housewives. These volunteers apparently performed well, with the exception of some transients and some inmates of the House of Detention. The primary problem was to coordinate and supervise the volunteers to insure that they worked safely and did not overtax themselves. Without the many volunteers who worked the canteens, made sandwiches, organized and distributed clothing, and delivered messages, the Salvation Army relief effort would have been considerably less successful.

In summary, the Salvation Army's relations with other organizations were greatly expanded during the emergency period, including its relations with official government organizations, quasi-government and business organizations, clubs, religious groups, schools, and individual volunteers.

#### Interorganizational Problems

The conflict between the Salvation Army and the Red Cross is an important aspect of interorganizational relations which has not yet been discussed. The two basic areas of conflict were: (1) in operations (the Salvation Army had to perform many jobs assigned to the Red Cross), and (2) in obtaining donations (the Red Cross denied that the Salvation Army had valid needs). This conflict arose because of a major difference in the objectives of each organization in a disaster situation. The Salvation Army is mainly concerned with meeting the individuals' immediate needs, while Red Cross is concerned ultimately with the

total long-term community restoration. For this reason Red Cross asks for money donations instead of material goods so that by giving people money they can in turn purchase goods from local merchants - thus having a snowball affect in restoring the community to its full economic self-sufficiency. The following examples illustrates the nature of this conflict.

The Salvation Army was asked to help evacuate and care for those in the inundated area and to provide food, clothing, and bedding to those in Red Cross shelters. These are long-term operations and are officially assigned to the Red Cross. One interviewee explained:

The Salvation Army says that we will handle emergency clothing. And this is what the Salvation Army does, it's emergency only. We're not the long-range plan like the Red Cross. Well, fine, the Red Cross said that isn't necessary because in the morning we're going to start issuing chips, food chips. Well, that's great, if you're sitting out on the front porch and there's four feet of water around your house and if you come to the Red Cross, they'll give you a food chip. But there aren't any stores to get to that aren't under water or destroyed. Now, this does you a lot of good.

The Salvation Army provided food and clothing for evacuees, even for some of those who were in authorized Red Cross shelters.

The handling of donations was another area of conflict between the two organizations. The Salvation Army responded by attempting to obtain the item needed, while the Red Cross attempted to secure money to give to the evacuees so that they could purchase the item needed themselves -- even though the item was not always available for purchase. In several cases, the Red Cross attempted to block or succeeded in blocking supplies, trying to obtain money instead. During the first few days after the hurricane, the 1,700 refugees housed in the City Hall had no bedding. The Salvation Army located a source of blankets. When the source attempted to verify the need for blankets with the Red Cross, The Red Cross denied the need existed and asked for money instead. As a result, the Salvation Army had to pay for blankets from its own meager operating funds.

A similar conflict occurred with a donation of detergent. Knowing that the refugees would have a great deal of cleaning to do after returning home, a Massachusetts detergent firm offered cleaning supplies. The Red Cross rejected the offer and asked for money. However, a member of the board of the detergent firm was also a member of the Salvation Army advisory board in Massachusetts. He contacted the New Orleans Salvation Army and told them of the Red Cross rejection which was preventing the firm from shipping the supplies. The Salvation Army called the detergent firm and, with the help of the mayor of New Orleans, convinced the firm that there was a real need; the supplies were consequently shipped to the Salvation Army for distribution. Other cases could be cited in which the Red Cross blocked shipment of supplies to the Salvation Army, but these suffice to illustrate the conflict.

If there had been better overall disaster coordination and leadership, the conflict between the two organizations might have been reduced. The lack of coordination led to overt displays of jealousy and conflict between the two organizations. For example, several officials suggested to the division commander that the Salvation Army distribute plasterboard, paint, nails, and tools in addition to the detergent, clothes, and food boxes. These materials would allow the refugees to repair much of the damage to their homes. Territorial headquarters in Atlanta approved this rather unique Salvation Army task. The governor called a meeting of Salvation Army and Red Cross officials to make final arrangements for obtaining the materials from federal, state, and local funds as well as from donations. Red Cross officials blocked the project because "we are the official federal disaster agent and we will handle all problems of this sort." This ended the proposal, and these materials were never given to the refugees. The jealousy was also evidenced by the attempt of one of the local newspapers to block certain donations and operations of the Salvation Army. Salvation Army officials suggested that the newspaper's policy was due to the fact that a local Red Cross official was an editor. Thus, although the Salvation Army's inter-organizational relations were generally very helpful, its relations with the Red Cross were characterized by conflict.

#### Summary

The problems encountered by the Salvation Army in Hurricane Betsy can be summarized in five areas: the scope of the disaster, communications, intra-organizational relations, physical-social problems, and conflict with the Red Cross.

1. The scope of the disaster was larger than expected and the largest ever encountered by the Salvation Army personnel involved. This resulted in the rapid growth of the organization -- in personnel, in size, and in the number of tasks it was requested to perform. Problems derived from the sudden need for personnel, equipment, supplies, transportation, and new methods of performing unusual tasks.

2. Communications problems were directly related to the scope of the disaster. The increased number of personnel and tasks, as well as the dispersion of canteens in the disaster area, demanded more and better communications. A large part of the existing communications system was damaged. Some temporary measures (the use of police radios, direct lines, ham and citizen band radios) were used. The communications problem was not solved until the demand for relief work decreased.

3. Because of the scope of the disaster, the three Salvation Army units in New Orleans had to work together as well as with other Salvation Army personnel. Since authority lines had yet to be developed, some conflict and operational problems occurred during the early stages of relief work.

4. Many physical-social problems developed. In addition to the problems caused by downed trees, water, etc., the convergence of citizens in disaster areas hampered operations. Only time and the development of methods of controlling people and physical conditions were able to solve these problems.

5. Regardless of the scope of the disaster, there seems to be an inherent jealousy between the Salvation Army and the Red Cross which results in problems. Because of its ability to mobilize volunteers and gather materials in the community, the Salvation Army could deal with immediate emergency food and clothing distribution. The Red Cross could deal with long-term manned shelters, medical aid, and financial aid, projects for which the Salvation Army is unprepared.

Intraorganizational relations became a source of authority problems. Interorganizational relations generally aided the disaster response of the Salvation Army by providing equipment, supplies, transportation, and personnel (with the exception of Red Cross). Many of the social and physical problems which arose from the Salvation Army's disaster relief effort during Hurricane Betsy were satisfactorily solved only by decreased demands and better controls.

To conclude, this chapter has attempted to illustrate without giving all details, the specific operations of the New Orleans Salvation Army during Hurricane Betsy. Differences between normal and emergency activities were especially emphasized. While the illustration was a particular case, many of the observable changes in the organization's adaptation to the disaster can be found in most Salvation Army operations in major community crises.

Notes: Chapter IV

1. Distinguishing between official, unofficial, and interpersonal relations in the chain of command, decision making, etc., is difficult for Salvation Army personnel are involved in work, religious, and recreational roles simultaneously. A distinction will be made whenever possible; however, inferences without firm basis in fact will not be made.
2. "Corps" refers to the religious unit in larger cities; in less populated areas it comprises the whole Salvation Army organization.
3. The Salvation Army voluntarily supplies coffee, sandwiches, and doughnuts to firemen, policemen, and other workers during emergency periods such as large fires. It is this function that expanded to become the early part of the Salvation Army disaster relief program after Hurricane Betsy.
4. Adopted by the Commissioners' Conference, March 7, 1958.
5. Lt. Col. Harry Ward, Disaster Services Manual: The Salvation Army, Louisiana and Arkansas, rev. (August 1962).
6. Disaster Manual Louisiana and Arkansas, pp. 12-13.
7. During peak operations there were eighteen canteens. The number of trucks is not estimatable as no complete records were kept and trucks came from many organizations and other Salvation Army units.
8. No permission was obtained for this action. It was a decision made out of necessity by a board member.

## CHAPTER V

### The New Orleans Red Cross

Disaster relief activities are prescribed for the American National Red Cross and its local chapters by the Congressional Charter granted the organization in 1905. One of the two principal tasks of the Red Cross, according to the charter, is disaster relief:

the organization is to continue and carry on a system of national and international relief in time of peace and apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods, and other great national calamities, and to devise and carry on measures for preventing the same.<sup>1</sup>

Nor can the Red Cross evade or delegate its responsibilities in the event of natural disaster; as the organization enjoys certain privileges by its quasi-governmental status, so it incurs corresponding obligations to the people of that government,<sup>2</sup> among which disaster relief to the public and social and medical services to the military population are mandatory. All Red Cross chapters must by law, therefore, provide these two services.

Red Cross disaster relief is divided into two phases, the immediate post-impact mass care phase and the longer range rehabilitation phase. These two elements of the disaster program are performed at two levels of the organization: the former is the responsibility of the local chapter; the latter, of the national organization. This separation of disaster tasks is made for several reasons. First, of course, the impact of disaster occurs frequently with little or no warning; hence the immediate mobilization of the Red Cross must be at the local level. Even in those disasters like floods and hurricanes which often permit pre-impact planning and mobilization, there is likely to be insufficient time for the assignment of scattered national personnel before impact. Secondly, the greater cost of the rehabilitation phase -- during which large grants are provided for families and individuals whose economic situation is such that they cannot recover from the effects of the disaster on their own -- prohibits local Red Cross chapters with limited financial resources from undertaking this kind of disaster relief. The national organization, on the other hand, possesses both the trained, professional personnel required to administer such a program and the financial resources necessary to provide this long-range relief.

In addition to this division of the Red Cross into local and national levels, the organization is divided into staff and volunteer elements. In effect, a local chapter is made up to two separate structures -- the paid professional staff and the unpaid amateur volunteers. In a disaster, the volunteer structure of the organization plays a crucial role for it is upon the volunteers that the greatest responsibility for the performance of Red Cross disaster tasks falls.

The following discussion, therefore, will consider the New Orleans Red Cross as a "dual organization," both in the sense of its staff and volunteer components and in the sense of its articulation as a local unit with the national level of the larger organization.

The first section of this chapter will describe the normal structure of New Orleans Red Cross, the tasks for which it is responsible (including those relevant to disaster operations), and the patterns of authority within the local organization. The second section will turn to the mobilization of this organization to the disaster, discussing both the alterations which occurred in the task assignments and authority relations of chapter staff and the mobilization and convergence of national staff and volunteers on the disaster scene. The consequences of this disaster mobilization for the Red Cross itself and for its operational relationships with other agencies and organizations will be discussed in a later section of this chapter. A case study of the operations of two Red Cross shelters is included. Summary and concluding statements will complete this discussion of the Red Cross.

#### The New Orleans Red Cross: Tasks and Authority

Staff personnel of the New Orleans Red Cross chapter number thirty-one - nine men and twenty-two women. Ten have clerical or maintenance assignments and hence are normally not directly involved in the public service activities of the Red Cross. These activities are the task assignments of the remaining twenty-one members of the Red Cross staff.

There are six service directors in the New Orleans Red Cross chapter. With the exception of the service to military families division, these divisions are normally engaged in work which the Red Cross national organization defines as "permissive," that is, not mandatory by definition of the Congressional Charter. All six of these service tasks are described briefly in the following summary:

1. Service to Military Families: In its charter the Red Cross is charged with the responsibility of serving as "a medium of communication between the people of the United States of America and their Armed Forces."<sup>3</sup> Members of this division perform case-work services for the active military, for veterans, and for their families: such services include obtaining emergency leaves, providing financial assistance and communication facilities for military personnel and their families, and offering counseling services to military, veterans, and their families.
2. Safety Services: The tasks of this division are essentially educational. Members of the safety services division conduct classes in water safety, life saving, small craft operation, and first aid. They also engage in a program of highway safety and operate (during Mardi Gras for example) first-aid stations for the public.

3. Nursing Services: Like safety services' tasks, those of the nursing services division are educational: courses in home nursing and infant care are offered to the public. In addition, the director of this division maintains a roster of nurses, nurses aides, and other volunteers whose services the Red Cross can offer to hospitals which request them.

4. Red Cross Youth Program: This program, the Junior Red Cross, is operated through the local schools and is designed to provide school children with "practical service projects" acquainting them with the national and international programs of the Red Cross.

5. Volunteer Services: The office of volunteers functions as a coordinating center for the assignment and activities of Red Cross volunteers.

6. Public Information: During normal times the public information office provides the various mass media with stories and publicity related to the activities of Red Cross staff and volunteers. In this sense, P.I. is less a public service division than a support division providing certain assistance to the chapter itself rather than direct service to the public.

A total of sixteen members of the staff are active in the performance of these nondisaster tasks. In addition there are two part-time staff members who work in the chapter house at night and on the weekends, largely to cover incoming welfare and assistance calls for the service to military families division. The chapter also employs a full-time comptroller who manages the financial affairs of the New Orleans Red Cross.

The tasks of the chapter manager are those of the executive in any community service organization, especially those organizations which depend, as the Red Cross does, entirely on voluntary contributions for their support. Hence much of his time is devoted to representing the Red Cross in the larger community. He is, for example, "loaned" to the United Fund organization for a month of every year during the annual fund-raising campaign. He is active in other community organizations like the chamber of commerce and a variety of civic groups; he is frequently asked to address such organizations on the activities and responsibilities of the Red Cross. Within the local chapter, the manager is the single most important liaison person between the professional staff and the volunteer board of directors which is the chief policy and decision-making body of the chapter.

The tasks of the assistant manager, on the other hand, are more directly associated with supervision of the staff. The assistant manager does much of the hiring of the staff although the chapter manager has the final authority on such matters. The assistant is the personnel director for the chapter and in this and other respects he has much more responsibility for the day-to-day operations of the chapter than the official authority of his position might suggest. In addition to his supervisory tasks, the assistant director also directs the chapter's college program and affiliations with the international Red Cross and is involved from time to time in projects relating to the chapter's public relations. He also serves as the director of the safety and nursing services division. His most important tasks, however, are associated with his position as chapter disaster director.

As table 1 indicated, there is no independent disaster services division in the structure of the New Orleans Red Cross chapter. Nor is the absence of such a division peculiar to this chapter. Red Cross chapters do not generally make full-time staff assignments to disaster services; rather, a member of the staff, frequently the assistant manager, is designated the disaster director, responsible not for the activities of an independent division but for the disaster preparedness of the entire professional staff of the chapter. Such is the case in the New Orleans chapter. All members of the staff, including the secretarial and maintenance personnel have special assignments in the event of disaster. The specific nature of these disaster assignments will be described later. The disaster policies and tasks of the Red Cross, may, however, be generally described here. The policy of the organization in providing post-impact mass care relief is similar in many respects to that of other welfare organizations such as the Salvation Army. Like the Salvation Army, the local chapter of the Red Cross dispenses emergency relief -- food, shelter, clothing, and nursing and medical care -- to any who require it, be they victims of the impact itself or disaster workers assisting in search-and-rescue operations. These mass care services, together with the tasks Red Cross personnel must perform to support disaster services, are summarized in figure 1.

The policies underlying the rehabilitation phase of Red Cross disaster operations differ significantly from the largesse which characterizes the organization's mass care phase. Rehabilitation, usually in the form of money grants to individuals or families, is a casework-oriented service. Before such grants can be made, therefore, Red Cross personnel -- supervised by national staff -- must gather financial and other relevant information from the applicant to establish the validity of the claim for assistance. The organization's policy further states that individuals who are eligible for assistance from other agencies must exhaust these resources before requesting aid from the Red Cross. These policies are the basis for frequent criticism of Red Cross disaster assistance: because the assistance is granted on the basis of need not loss, it is sometimes argued that the organization rewards the improvident but refuses assistance to those who plan for emergencies.

Rehabilitation and mass care relief stand in marked contrast with each other, both in terms of policy and operations; this contrast is reflected in the public image of the Red Cross in disasters. Much more than any other disaster service organization, the national Red Cross is subject to criticism from the public and from members of other relief agencies. This negative reaction stems in large measure from the bureaucratic and impersonal policies which guide the rehabilitation phase of Red Cross operations. By association local Red Cross chapters are frequently included in this negative public image.<sup>4</sup>

Ideally, the two phases of Red Cross disaster relief do not overlap. The mass care phase is completed by the time the national organization is prepared to begin the rehabilitation phase. In New Orleans, however, the dual nature of the disaster, especially the long term sheltering of refugees from the floods, required an important overlap of these two phases of Red Cross relief. The consequences of this temporal overlap will be discussed later.



The principal policy-making bodies of local Red Cross chapters are the volunteer boards of directors and advisory committees. The chapter board of directors is made up of persons from the larger community selected for membership on the board because together they are representative of the range of organizations and interests in the community. Thus, the members of the board are not, strictly speaking, volunteers: rather they are recruited by the chapter manager and the chapter chairman (the latter being the volunteer counterpart of the manager). Similarly, the members of the various advisory committees are recruited to serve on these committees. The chapter manager is hired by the board of directors and he remains responsible to the board for the operations of the entire chapter. Each of the directors of the chapter's service divisions is, in a similar manner, responsible to one of the advisory committees for divisional authority and for major decisions related to policy and operations.

The head of the double division of safety services and nursing services is the assistant manager. In divisions like service to military families and safety and nursing services which include caseworkers and instructors, these subordinate personnel are directly responsible to the director of the division. Division directors are responsible to the assistant and the chapter manager. As has already been indicated, much of the supervisory work with divisional staff is handled by the assistant manager in his capacity as personnel director. Variations and elaborations in the official authority structure will be discussed below.

Authority relationships between the chapter staff and the chapter volunteers (other than recruited volunteers who serve as advisors to the staff) are difficult to define exactly. Official statements of the Red Cross describe the organization as a volunteer body, in which both the responsibility and the authority for Red Cross tasks rest with the volunteers who make up the vast bulk of the organization's membership.<sup>5</sup> But these volunteer personnel are organized in a relatively distinct system from the chapter staff. Under the volunteer counterparts of the staff manager and his assistant -- the volunteer chapter chairman and his assistant -- the volunteer members of the chapter are assigned to a variety of committees and teams. The tasks which these volunteers perform are associated with the responsibilities of the staff service divisions: thus, Red Cross-trained volunteers staff first-aid stations, take on life guard duties, assist in hospitals, and so forth. The authority relationships between staff directors and volunteer committee chairmen, however, are not clearly defined. At the most, the chapter's trained, experienced volunteers can perform their tasks independently of the staff. But, despite the volunteer character of the organization, even the most experienced volunteer would probably not undertake to make direct assignments to a member of the staff. At the same time, staff personnel are not entirely free to make authority demands on volunteers -- a more cautious tactic is required. One member of the New Orleans staff indicated, for example, that even in the midst of the emergency period following the hurricane and floods she was always aware of the somewhat precarious relationship between staff and volunteers and attempted to make suggestions to her volunteers, not to issue orders to them. An explanation for this caution lies in the volunteer status itself: just as the individual freely volunteered in the first place, so he could freely "unvolunteer" -- resign -- given cause. Staff members would prefer not to be the cause.

Direct authority relationships can be defined within both the staff and the volunteer structures of the New Orleans chapter, but only in the articulation of the volunteer members of the board of directors and advisory committees with their advisees on the staff can such relationships be described between the two structures. Graphically, the greatest number of relationships which obtain between the two would be indicated not by vertical authority ties but by horizontal line relationships. Consulting with each other, coordinating their decisions and activities, seeking and providing information and advice, these are the kinds of relationships which exist between the staff and the volunteers in the New Orleans chapter. Such authority as volunteer members of the chapter have is exercised through the board of directors and the advisory committees; such responsibility as the volunteers accept is under the auspices and guidance of the chapter staff.

Similar advisory relationships exist between national and local staff as have been described between local staff and volunteers. During normal operations three representatives of the national staff maintain offices in the New Orleans chapter house. From these offices they visit all the Red Cross chapters in the state, advising them on national programs and policies, assisting them in establishing or maintaining their local programs, and helping them in their preparedness plans for disaster. In the event of disaster, however, when the local chapter can not be expected to provide all the assistance required, national disaster staff are assigned to the relief operation. Under the leadership of the director of the field operations, national staff are responsible for the rehabilitation phase of the program and for the coordination of all of the disaster operations involving national funds. The field director, however, does not possess direct authority over the manager or the disaster director of the local staff; rather, the national and the local staff are to cooperate in both phases of the disaster operations. The national staff, thus, is to provide whatever assistance is required by the local staff during the mass care phase of the operation and, during the rehabilitation phase, the local staff is to cooperate with national personnel.

#### Mobilization of the New Orleans Red Cross Chapter

Members of the Red Cross chapter in New Orleans were aware of the threat of Hurricane Betsy some time before the actual impact. The national organization, too, had been following the path of the hurricane and had alerted and dispatched members of its disaster staff first to Florida and then, when the hurricane bore west, to cities along the southern coast of the United States. On September 9, facilities in the New Orleans chapter house were readied for these national staff and by the afternoon of that day national staff had arrived in the city. Preparations for hurricane impact, however, had begun much earlier in the year among the staff and disaster volunteers of the New Orleans Red Cross.

Because New Orleans is frequently in the path of hurricanes, the local chapter begins its preparation in early summer. The principal task in this preparation is the up-dating of "The Book," the chapter's disaster handbook

which outlines the hurricane plan -- the location of the fifteen public shelters; the telephone numbers, addresses, and assignments of disaster staff and volunteers; and the identification and location of local merchants and wholesalers who have agreed to provide the Red Cross with emergency food and other supplies. In early summer the process of alerting the public to emergency Red Cross facilities is also begun, principally through informative interviews and announcements over the local television and radio stations. Disaster assignments are made to all of the members of the chapter. All staff work under the direction of the assistant manager in his position as disaster director. For some of the members of the chapter staff these disaster assignments do not differ greatly from their normal tasks. The director of nursing services, for example, and the personnel of the office of public information have disaster responsibilities which are simply extensions of their normal tasks: the director of nursing services mobilizes volunteer nurses and coordinates their assignments so that all Red Cross shelters have medical and nursing staff at all times. Public information staff continue supplying the media with stories and announcements but the focus and the scope of these items, as well as the rate of these activities, change as a consequence of the impact of disaster. The director and the case-workers of the service to military families division similarly modify their activities to take into account the exigencies of a disaster environment. An increase in welfare inquiries can be expected with the impact of a hurricane, inquiries from out-of-town relatives and friends concerning the safety of persons in the area. To handle the great increase in the volume of such welfare inquiries the chapter's disaster plan calls for the assignment of seven additional staff members (secretaries and the director of the youth program) to tasks associated with telephone communications.

For the coordinator of the office of volunteers, disaster assignment involves a redirection of activities, but not an entirely new set of responsibilities. Instead of coordinating the activities of all Red Cross volunteers -- virtually an impossible task in an emergency given the great numbers of new walk-in volunteers which the Red Cross attracts -- this staff member is charged with the responsibility of five public shelters which the organization opens in Algiers a section of New Orleans located on the opposite side of the river in an adjacent parish. The Algiers units of the New Orleans Red Cross chapter is nominally a separate entity, but in the event of hurricane and in nonemergency city-wide activities of the Red Cross, the volunteer members of the Algiers unit participate as members of the New Orleans parish chapter.

The secretarial and clerical staff of the chapter are, as has been indicated assigned to tasks more immediately relevant to the emergency. Six secretaries take on responsibilities associated with welfare and emergency telephone inquiries one of the secretaries is assigned to take the hourly telephone reports from the fifteen shelters operated by the Red Cross. As these calls are channeled to the chapter house on a private telephone line, the secretary should in theory at least have only a minimum of difficulty in receiving the reports.<sup>6</sup>

The two members of the maintenance staff and four of the members of the safety and nursing services division -- all of whose normal tasks have little direct relevance in a disaster situation -- are assigned to "physical property."

This assignment involves the coordination of vital support tasks in Red Cross mass care, all the aspects of providing food and other emergency supplies to the shelters, and of operating the chapter's mobile canteens. In Hurricane Betsy and the floods which it precipitated, these support tasks, which are difficult but manageable in a relatively short range and limited impact, became massive operations involving as many as forty shelters over a period of a week. The dimensions of these operations will be described later.

Only the chapter's comptroller has no disaster assignment. He took on a number of new tasks during the emergency, largely at his own discretion, and from time to time, he was valuable to the chapter's operations in his role as financial officer: the chapter's disaster fund campaign required his attention and he was prepared to cash checks and perform other services for national staff during the course of the emergency period. More complete descriptions of the disaster activities of the New Orleans chapter staff will be presented in a subsequent section of this discussion.

In terms of numbers, of course, the greatest part of the Red Cross mobilization for disaster involves neither the local nor the national staff, but the disaster volunteers. The structure and authority relationships of the volunteers active in the operation of the public shelters are described here. Each of the fifteen shelter operations is headed by the shelter director and his assistant. The additional volunteer personnel involved in the shelter program are described in the following list from the New Orleans chapter's disaster handbook.

1. School Representative: He reports directly to the shelter director; the representative is usually a principal or a teacher who knows the physical set-up of the school and acts as liaison between the shelter personnel and school personnel, and advises as to the facilities offered in the school plant.
2. Custodian: He is responsible for maintenance of physical property.
3. Shelter Coordinator and Assistant Coordinator: They coordinate the work of volunteers serving in registration, food, and clothing.

Registration: This group has the important duty of accurately registering families and individuals. Accuracy is essential because of the inquiries and rehabilitation that will follow the emergency phase.

Food: This group is responsible for serving food to evacuees and all shelter personnel.

Clothing: This group notes those whose clothing is inadequate or too wet to be worn and issues emergency clothing. Robes are used in the initial phase while the real need for clothing is being determined.

4. Auxiliary Members: This group does not have a specific assignment but is available to serve in whatever department additional help is needed.

5. First Aiders: They report directly to the nurse in charge and work under the direction of the nurse.

6. Department of Public Welfare Worker: He reports to the assistant director of the shelter and assumes such responsibilities as are assigned.

7. Cooks: Professional cooks normally assigned to preparation of food in the school system are in charge of food preparation. They are responsible to the director of the shelter.

In addition to these volunteers, the volunteer staff of each shelter includes professional nursing personnel and a publicity volunteer, mobilized by the director of nursing services and the office of public information.

8. Nurses: They report to the assistant director and are responsible for the care of those who need medical attention, and for checking on suspected contagious conditions that might develop. Standing orders for nurses are issued through the medical committee and copies of these are in the medical kit.

9. Publicity Volunteer: He reports to the director and facilitates the reporting of public information.

The pre-impact plans of the chapter provide for the stocking of the fifteen schools with emergency supplies sufficient to sustain the shelters for twenty-four hours. These supplies include the snack food menu which provides the refugee of the shelter with coffee, chocolate milk, and the like during the period when it is still uncertain what demands will be made on a shelter. The preliminary clothing plan, according to the New Orleans chapter's disaster handbook, includes similarly temporary supplies.

A small supply of "robes" will be sent to the shelter automatically when the shelter is opened. This will provide you with a temporary means of handling the "wet" clothing problem should it arise. Diapers will also accompany the robes to handle the "wet" problem.

In addition, registration and medical kits are placed in all the shelters before they are opened to the public. All of these preparations had been accomplished in the chapter's fifteen shelters by the evening of September 8, twenty-four hours before the hurricane struck. On the afternoon of the same day, all shelter volunteers had been alerted to expect the opening of the shelters should the hurricane directly threaten New Orleans.

#### Red Cross Shelter Operations

Two shelters will be examined as case studies to underscore specific problems and the response of the Red Cross staff to them: the shelter in St. Dominic's school, operated for one night under a volunteer staff of residents

of the area; and the shelter at Holy Cross school operated for almost five days with a staff of brothers living on the campus. While they faced many common problems, the response of the staffs of each shelter differed. This case study will demonstrate that the contrast was due to the fact that the brothers at Holy Cross were previously linked together as members of the school staff and a religious order; whereas the staff at St. Dominic's was not previously linked together as a working unit. Since the Holy Cross shelter was in operation for a longer duration than St. Dominic's, the major focus of this discussion will be upon its activities.

### Mobilization

The staff of the St. Dominic's shelter was chosen several years before Betsy; a meeting of the staff had been held about once each year. There was no meeting during the year before Betsy: staff members were simply mailed instructions on how to report to the shelter. However, most of these persons had served in the threat of Hurricane Hilda in 1964 and were somewhat familiar with one another. Staff members were organized in one committee which was divided into subcommittees for the various services such as food preparation and registration. In mobilizing the staff, contacts were to be made with committee members who then notified members of their subcommittees. The director of this shelter, upon learning that his shelter would definitely open, attempted to telephone staff members Thursday night. He discovered that many of the telephone numbers of committee members had been changed or were incorrect. Despite these difficulties, most of the staff did reach the shelter. The director contacted the volunteer coordinator who called three staff members. One was to travel to the school around 5:30 p.m. and with the help of the janitor, actually open the doors to the area residents who were waiting there. Red Cross headquarters had telephoned the food leader to report to the shelter; the food leader called her cooks and left for the shelter where she began preparing registration desks. At this time the nurse leader heard a radio announcement that the shelter was open, after which she called three of her nurses and went to the school. Between 4:00 and 6:00 p.m. most of the staff arrived at the shelter and organization for registration, medical care, and food service was begun. The official opening of the shelter was at 7:30 p.m.

The mobilization of the Holy Cross shelter staff was quite different from that of St. Dominic's. Almost the entire staff of the Holy Cross shelter were members of the school staff. In addition the staff was recruited over a two-day period before Betsy struck rather than assigned almost a year before as at St. Dominic's. Only the position of director at Holy Cross had been previously designated. Holy Cross had been chosen as a Red Cross shelter just after Hurricane Hilda in 1964. Only two brothers had any experience in hurricanes and that was in 1947. The director and volunteer coordinator (referred to also as the assistant director) realized on September 6 that Betsy would hit the area and put up a sign at the school asking for volunteers from among the staff. During the next two days, the director and assistant conducted three meetings with volunteers where details of the operation of a Red Cross shelter were

discussed from a Red Cross pamphlet. On the day before the hurricane hit, the brothers constantly listened to the radio reports on the storm; the coordinator plotted the course of the storm. The school supervisor as shelter director advised the janitor that the storm would definitely hit the area and that he should prepare the school for it. The regular cooks for the school were contacted and agreed to work in the shelter. A woman who had once worked at the school was asked to handle food service. The brothers were assigned duties in the shelter in the afternoon; the assignments were posted in the school. The afternoon was spent gathering supplies and readying the shelter. By the time official word was received from Red Cross, the shelter operation was well underway. A Red Cross van delivered two disaster kits at 5:30 p.m. and the officials learned that the shelter was to open at 7:30. Registration desks were set up and the brothers then waited for the shelter opening.

### Shelter Activities

With the completion of staff recruitment at both shelters, preparation for the major services in the shelter was begun. Food service, registration, medical care, and communications were major areas of concern at St. Dominic's. Throughout the night the basic source of problems was the small number of staff members relative to a more-than-expected number of evacuees. Also, the Red Cross policy of not allowing animals in the shelter conflicted with the desires of evacuees to keep their pets with them. The registration staff received many complaints on this matter. Further problems arose when the supply of 1,500 registration cards was exhausted near the end of the storm. There were other problems which registration workers had to deal with. The terrific winds forced water into the hallway where registration took place. Some evacuees entered the shelter in need of medical attention, but first had to be registered. Provisions for medical care were available. A separate room was set up as an infirmary. The nurse leader had one assistant nurse and two or three evacuees who were doctors to handle the needs of the evacuees. Most medical service involved administering smelling salts and aspirin to people who fainted from nervous emotional upset. The clothing leader, lacking any real job in the shelter, manned the telephone, attempting unsuccessfully to contact an outside line. Many residents of the area called in for information. Within the shelter the director used the public address system (until the power failed) to make announcements to evacuees.

Following the origination of these services, the Red Cross shelter expanded as an organization both in its functions and in its membership. Two major events, a power system failure and the opening of the upper floors of the school to evacuees, seem to be the turning points in this expansion. The capacity of the shelter was stated as approximately 1,000 and almost twice that number had arrived when the director decided to open the second and third floors of the school. More supervisors were immediately required to supervise evacuees and help repair damaged areas in upstairs rooms. The power system failure occurred at 9:30 p.m. and required immediate attention. The initial response of evacuees to the darkness was general confusion and the crying of children. However, most

evacuees had brought flashlights with them and Red Cross workers milled among the crowd, quieting the evacuees. Two auxiliary policemen were present in uniform and regular policemen visited the shelter periodically to help maintain order. In place of the public address system, officials used volunteers to run messages. The high winds repeatedly damaged parts of the school and kept the evacuees in a constant state of anxiety.

For these reasons, scores of volunteers had to be used in shelter repair and for general supervision. The most highly praised volunteers were boy and girl scouts. They aided with manual work and cared for children. They helped the janitor repair the building and ran messages for the staff. The assistant director had gathered all scouts into a room just after opening and had taken their names and addresses and given them armbands. A number of laymen in the parish of St. Dominic's gave unsupervised aid to individual evacuees. There were four or five priests who performed a variety of tasks. Approximately two dozen people who were neither evacuees or regular Red Cross workers volunteered and proved quite helpful. There was some damage to school property that was caused, directly or indirectly, by evacuees. School books were vandalized or taken and some property unnecessarily damaged when evacuees opened windows letting the damp winds rip through the rooms. Problems of this nature were observed at other shelters.

Near early morning the wind stopped and some people left the shelter. When breakfast was served at 7:30 a.m., about three-fourths of the evacuees had left. By 8:00 a.m. only Red Cross staff workers remained, and the shelter officially closed its doors. Within an hour the repacking of Red Cross equipment was finished. The school board, the janitor, and the woman normally in charge of the cafeteria arrived and the remainder of the Red Cross staff left. The dissolution of the Red Cross organization at the school was complete. All clean-up activities were conducted by the school janitor with aid from area residents. The school was used for about an hour on the morning of September 11 to accommodate people being transported from flooded areas; however, all official Red Cross activity ceased September 9.

In reviewing the operation of the shelter, one member of the staff indicated that shelter operations were hampered by a shortage of personnel to handle the three to four thousand evacuees. One official indicated that the shelter could not have operated efficiently more than one night. He cited the lack of staff replacements as the chief reason such long-range care would have been difficult. Also garbage was becoming a problem. Trash had filled all available cans. In the operation of Holy Cross shelter it will be seen that other problems arise when a shelter is open for more than one day.

More extensive pre-disaster preparation of Holy Cross shelter was possible because the school staff lived and worked on the campus. Each brother who volunteered for disaster duty was given an assignment at a meeting held just prior to the storm. Until evening there was some doubt among the workers that the hurricane would in fact hit the area and that anyone would come to the shelter. The official opening at 7:30 p.m. found the shelter in a state of readiness: the first aid, medical, communication, registration, coffee, staff facilities, and refugee facilities sections were operative.

All evening a brother answered the telephone and, in accordance with the Red Cross plan, he called Red Cross headquarters every half hour giving the number of people in the shelter. An effective intraorganizational line of communication was developed when the janitor borrowed two walkie-talkies from the athletic department. Registration activity is proportional to the number of evacuees arriving which up to about 9:00 p.m. was relatively small. As with most evacuations people arrived in groups, generally families. Until 9:30 p.m. all were caucasians from the immediate area. It was reported that many people did not know that Holy Cross was open as a shelter. The homes of these first evacuees were not flooded and many returned to their houses the next morning.

Food service was first established on a temporary basis using the snack menu of the Red Cross plan. At 7:30 p.m. the cooks left having prepared the snacks. The director telephoned the food service leader and told her there was no reason to come in. Shortly after the shelter opened, the coordinator telephoned a request for more cots and blankets to the Red Cross. The staff facilities were contained in a separate room where a television, transistor radio, and coffee station were placed. The television was later stolen.

The major problem faced by shelter staff in the first evacuation was a power failure at about 9:30 p.m. The only immediate light source was hurricane lamps provided by the Red Cross and flashlights evacuees had brought with them. Staff members and volunteers moved through the crowd offering reassurance and answering questions. Until early Friday morning the problem of lighting and power was not crucial since there were only a few hundred people present. In fact at 11:30 p.m. that night a generator had arrived from Red Cross and was sent to a nearby shelter where there were around one thousand evacuees. There was no expectation of mass evacuation in the area of Holy Cross. The lighting problem was especially troublesome for registration workers as the flow of evacuees increased. On September 9 until 11:30 p.m. only 750 evacuees were registered; later that night and early Friday, 1,200 evacuees were registered at the shelter. Friday at 5:30 a.m., 1,875 refugees were registered. The number of evacuees almost doubled from 11:30 to 2:30 p.m. Around 2:30, trucks and helicopters carried large numbers of Negro evacuees from the other side of town to the shelter. After the power failure each registration worker held a flashlight while writing. The registration process was slowed also by the inability of some individuals to respond quickly to inquiries. Many names were difficult to spell. The staff, attempting to speed up the process often wrote illegibly on the registration cards. Many evacuees were never registered; to obtain information on these people some of the staff circulated through the shelter Friday. Figures on how many were at the shelter differ. There were about five thousand people officially registered. However, an estimated maximum of two thousand were present at any one time. Simply entering the building proved difficult. The powerful winds made handling the door strenuous. Once inside evacuees encountered a wet, slippery floor. A group of brothers and evacuee volunteers aided older people and pregnant women. As more trucks arrived, volunteers escorted people to the gym. Early Friday morning nearby residents drove their cars to the edge of the football field and lit the area for helicopter landings.

The Holy Cross school sustained the greatest damage late Thursday night when the front of the gym was taken off. Many windows were broken allowing the wind and rain to come in. One staff worker stated that much of the damage was caused by evacuees who opened windows mistakenly. A great deal of water was pushed under doors by the sheer force of the wind. The central hallway on the ground floor was constantly covered by water. The janitor led crews of boarding students and evacuees in temporary repairs to the building -- more in an attempt to protect evacuees than to restore the building.

The first few hours of evacuee care consisted mainly of serving snacks and coffee and providing supervision and reassurance. Things like dry clothes and minor medical care seemed perhaps trivial compared to the loss of one's home or relatives. After this early stage the needs of evacuees became more complex. Regular meals, dry clothing, first aid, and communication with relatives gradually became more crucial. Communicating the need for materials or supplies became an important aspect of shelter operation. If the needs of evacuees were simply proportional to their number, the problems of the shelter would be those of supplying more food, more protection, etc. Instead, it appears that a greater variety of needs and a more than proportional increase occurred with the increase in the number of evacuees. The focus of this discussion will be food service and registration, the main activities of shelter staff.

The cooks had prepared snacks Thursday afternoon and then left the shelter. The ladies of the parent club of the school prepared more snacks Friday morning. Around 5:00 a.m. Friday two of the cooks left their homes for the shelter. When they reached the bridge spanning the canal, guards stopped them. They had no passes but were allowed to cross. They walked across the bridge and along the levy finally wading in the flooded area to the shelter. This route along the levy had to be used for the remaining three days of shelter operation. The food service leader (the regular cafeteria manager) reached the shelter after 10:00 a.m. Friday.

Friday morning a light breakfast was served to evacuees in the school cafeteria. The brothers took meals in their own residence as usual. The cafeteria manager suggested that only two meals be served each day because the feeding and clean-up for this number took more time than would be available for three meals. Also there were only 800 plates for 4,000 people. The coordinator agreed to serve only two meals a day.

Most of the food available at the school was used for lunch. Nothing cold could be served as there was no ice. Red Cross began delivering food in large quantities just after lunch. The food service leader signed the authorization slips with each delivery and reported the food was never a problem thereafter. There were other secondary sources of food in the nearby area. On Friday morning a milk company left milk and milk products intended for home delivery at the shelter. An unidentified man brought 100 cases of milk. The neighborhood residents gave food from their freezers and other food items. Area schools sent food from their lunch supplies. In fact the food service area became extremely crowded with food stuffs. Some people came in and helped themselves to the food supplies with no apparent interference from the staff. There was not only a great amount of food, but much of it perished because it was not immediately prepared.

Besides problems caused by the inability to store food, there were special difficulties concerning the types of evacuees which a shelter must feed. Sick or elderly evacuees could not come to the cafeteria to eat; their meals had to be taken to them. A group of volunteers served meals to the estimated twenty-five evacuees in this category. Unaccompanied children were kept in a special area in the school and were supplied with snacks and all the water, milk, and juice they wanted. For a time there were thirty children being cared for by a volunteer evacuee; by the time the shelter closed, most were relocated and only five remained. The distribution of baby food and related infant items was centered at a special table staffed by nuns and volunteer evacuees.

Communication outside the shelter became a major problem. There were two telephones at the shelter. Relatives were calling through the main office; their calls were relayed to a brother in the student center. He wrote the name on a roster and sent a boy circulating through the shelter with it. Sometime Friday, the staff began placing both the names of requested evacuees and of inquiring friends and relatives on a large sign. It was reportedly watched carefully by evacuees. Saturday the ticket office in the center became an official missing persons and message center. Registration records were placed in this office. Attempts to contact people were limited to incoming calls the first day. Only occasionally did an outgoing line work. Registration and information was manned by brothers, Holy Cross students, and evacuee volunteers.

While registration and food service were the two major activities at the beginning of the shelter operation, several other important services: (1) medical care; (2) sanitation; (3) clothing; (4) protection and (5) communication and transportation, developed as evacuees began recovering and requiring a variety of services. Each of these services will be briefly commented upon.

Unlike most other Red Cross services, medical care requires highly trained professional help. Only two nurses were present at the opening of the shelter. On Friday, September 10, they were augmented by an additional five nurses from a local nursing school. In response to a typhoid scare and the threat of water contamination, a doctor and six more nurses arrived on September 11, to begin administering typhoid and tetanus shots. In addition to the threat of typhoid, the most immediate injuries to evacuees were to their feet which were cut or bruised from walking barefoot to the shelter. It was estimated that one-tenth of the arriving evacuees sustained such injuries. Medical supplies were obtained from local drug stores, Red Cross headquarters, and a local hospital.

While medical care called for the service of skilled professionals, appropriate sanitation precautions simply required more manpower. Trash became a real problem and the shelter was becoming cluttered with everything from candy wrappers to disposable baby diapers. Besides this garbage, there was the dirt and grime which normally accumulates in a building, especially one so overcrowded. Janitors and brothers attempted to sweep the floors and urged evacuees to clean up after themselves. However, additional sanitation problems resulted from the lack of cooperation from the evacuees. With only one restroom for some 2,000 people, some men began urinating on the floors.

Clothing demands of evacuees in the shelter were never really met. Since the shelter was isolated by water, a combination of difficulties first with transportation and communication and second with the sheer number of evacuees aggravated the situation. Despite repeated requests for clothing, most evacuees had to go for two days without any change of clothes. The only immediate available supply of clothing was that at the brothers' residence. It was not until Sunday, September 12, that the first supplies of clothing were delivered. With this delivery the clothing problem was greatly alleviated; however, the evacuees were ready to return home or to another authorized shelter.

Maintenance of order proved a problem when evacuees were forced by the raising waters to seek refuge on the upper floors of the school. On occupying the school some evacuees began tearing pages from books and sitting on them, or opening windows letting in damaging rain and winds. By Sunday night national guardsmen began patrolling all entrances and exits to the school grounds. However the staff did not rely wholly upon outside help for protection. Some of the brothers formed their own police patrol to prevent vandalism.

Communication from the shelter to the outside generally took the form of messages sent by telephone and radio while runners were used for internal communication. On Thursday evening telephone service was reduced to only incoming calls generally from other shelters requesting names of evacuees. Shelters began calling Red Cross headquarters every half-hour on Saturday, and registers exchanged names of missing persons. With the intermittent loss of telephone service, a two-way radio donated by the Red Cross became an indispensable means of communication. However, this form of communication was not without problems. There were complaints regarding the lack of response that these radio messages received from outside agencies. Within the shelter runners were used to deliver messages to the various staff members.

Since communication to the outside generally took the form of requests, transportation became an important factor in the fulfillment of these requests. Regular deliveries of supplies were made by Army "ducks", while local department store trucks also assisted in delivering of food and clothing. Transporting people and supplies at times involved trips to the outside by individual staff members. These trips were necessitated by the lack of an effective communication set-up which could relay the need to outside organizations and agencies.

In fulfilling these various shelter activities the use of volunteers became essential for the effective operation of the shelter. There existed three categories of volunteers: (1) staff volunteers who came from the order of Holy Cross brothers; (2) non-staff volunteers who were distinguished by their membership or association with an outside agency; and (3) individual volunteers who were acting upon their own desire to help.

During the final two days of shelter activities there were no major problems. By Sunday, September 12, the water around the shelter had dried up and some people slept outside. On the final morning of the shelter operation attempts were made to arrange for the relocation of evacuees. Officials at New Orleans

Red Cross headquarters called and said they could not provide evacuee transportation but that civil defense could arrange such transportation. In turn, civil defense arranged for school buses to remove evacuees to a newly established shelter at the Algiers Naval Station.

### Conclusion

A few observations of the overall operation of the shelters are now in order. First and most important in an effective shelter operation was the size of the Holy Cross staff. There were enough brothers to handle assignments. One of the main reasons that St. Dominic's staff was unable to handle long-term operations efficiently was the lack of staff replacements. The pre-storm instruction and preparation at Holy Cross made an effective shelter operation possible. No such immediate pre-storm instruction occurred with the St. Dominic staff members, who did not live and work together. Instructions were only mailed to volunteer members and telephone numbers were not updated. Perhaps the most important factor accounting for an effective response of the Holy Cross operation was the pre-disaster relationships of the staff members. This facilitated rapid organizational adjustments and adaptations in order to meet the new demands necessitated by a shelter operation.

Notes: Chapter V

1. New Orleans Chapter, American Red Cross, Disaster Shelter Operation Summary (no date).
2. The exact pamphlet used is not known.
3. New Orleans Chapter, American Red Cross, Ibid., p. 4.
4. Ibid., p. 1.
5. Ibid., p. 4.
6. According to the Red Cross Shelter Summary (Ibid.) the use of evacuees as shelter volunteers should be on a limited basis and only with the approval of the shelter director. This procedure was not always followed.

## CHAPTER VI

### New Orleans Public Service Incorporated

Focusing on the operations of the New Orleans Public Service Incorporated, this report will present a case study of their involvement in Hurricane Betsy. The following discussion will be divided into five sections. The first section will describe the disaster plan of the organization and the pre-impact departmental activities, thus providing a basic description of the organization's structure. Next, a discussion of the departmental responses during the evening of the hurricane impact will be presented. Departmental adaptations in the post-impact period will comprise the third section; and the fourth will focus on departmental problems faced in adapting to the demands of the hurricane and flood. This fourth section will place special emphasis upon organizational tasks, decision-making processes, lines of authority, and communication patterns. The final section will contain a brief concluding statement assessing the emergency operations of the New Orleans Public Service Incorporated.

#### Organizational Structure: Pre-Impact Period

The New Orleans Public Service Incorporated (NOPSIS) is one of four municipal departments under the jurisdiction of the New Orleans City Utilities Department which, in turn, is responsible to the mayor. The other three organizations are Louisiana Power and Light Company, Southern Bell Telephone and Telegraph Company, and the taxicab industry. New Orleans Public Service supplies the gas and transit service for the city of New Orleans and shares, approximately equally with Louisiana Power and Light Company, in supplying electrical service to the area.

The internal organization of New Orleans Public Service consists of thirteen departments responsible to the executive department. The activities of the various departments will be discussed focusing on organizational changes which occurred in response to the disaster agent.

#### Disaster Plan

As was stated in the introduction to this monograph, it might be beneficial to conceive of organizations as responding in a disaster subculture context. A basis for such a response pattern can be found in the company's formalized disaster plan. NOPSIS has had such a plan since 1947 and previous to the hurricane season revisions had been made. The disaster plan, entitled Hurricane Procedure, is a company-wide plan for the restoration of electric and transit services.<sup>1</sup> The plan (1) sets up a coordination procedure between

NOPSI and civil defense; (2) creates new departments to handle damage reports and coordinate restoration information; (3) reassigns certain personnel to departments different from those in which they normally work; (4) assigns immediate pre-storm and post-storm tasks to various departments; (5) allows for requesting aid from out-of-state crews if additional men and equipment are needed for restoration; and (6) supplies a priority list designating which customers in the post-impact period should be restored first.

Under the New Orleans Civil Defense Plan, NOPSI is one of the "allied agencies" represented at the New Orleans Civil Defense Emergency Operations Center (EOC). This center provides the overall coordination of public and private agencies during and after disaster. When the mayor sends word that the New Orleans Civil Defense control center has been activated, the company sends four representatives to the center. A separate room is provided at the center for NOPSI and for the Louisiana Power and Light Company. From this room requests from organizations represented at the control center concerning the electric, gas, or transit systems are processed and forwarded to NOPSI for action.

Within the organization, certain new departments are created by the disaster plan to deal with customer calls about damage to or loss of electrical service and to coordinate restoration information for the company. When the disaster plan is put into effect, the customer communication center becomes operative to receive and record customer calls. The calls are then forwarded to the screening section of the second new department known as the information center. The screening section selects out the emergency calls with highest priority and passes these on to the service desk for dispatching to repair crews. The information center also maintains a large "operation map" on which all the information pertaining to service restoration is recorded. Thus one of the main functions of the information center is to coordinate the recording of restoration information from field crews so that general sales and community relations personnel can compile restoration progress reports for the public and for specific priority customers. The electric distribution department can also use this information to coordinate service restoration within the company.

The plan also reassigns certain personnel, mainly from departments that become relatively nonfunctional in a disaster, to disaster-relevant departments. Thus, the new customer communications center is manned by personnel from the credit and collections, general sales, and the treasurer's departments. The electric distribution department receives the largest number of additional personnel because this department is responsible for the repair of most hurricane damage. Additional personnel transferred from engineering and sales departments usually make up the damage survey crews or at least provide transportation for observers on damage surveys; gas and transit personnel are assigned to clear debris in order to facilitate restoration.

With many of the public utilities tasks requiring specialized skills, "off-the-street" volunteers are not a potential source of additional manpower. Therefore, the Hurricane Procedure allows for the use of out-of-state repair crews. The executive department initiates the requests for such aid. While

the personal needs of these crews are handled by various other departments, the stores department arranges for billeting and feeding the additional men while electric distribution engineers are responsible for guiding them about the city and familiarizing them with NOPSI construction standards.

The disaster plan also establishes a priority list of customers whose power should be restored first. The highest priority goes to hospitals and the sewage and water board stations (operating water purification, sanitary, and drainage systems). Also at the top of the list are NOPSI electrical substations. Meat companies, cold storage firms, police headquarters, and TV stations are next in importance.

The main portion of the disaster plan is concerned with the assignment of pre-storm and post-storm tasks to the various departments in the organization. These task assignments and their execution will be the main focus of the chapter.

### Pre-Impact Tasks

While the public utilities department is normally concerned with the small everyday emergencies involved in providing gas and electricity, it is also sensitive to larger emergency tasks which could result from a hurricane. When it was determined that Hurricane Betsy would probably strike New Orleans, the executive department placed the disaster plan in effect. This occurred at approximately 2:00 p.m., September 9, 1965. The implementation of this plan initiated the adaptations of NOPSI to the impending disaster.

The major pre-impact tasks were the preparation and coordination of resources for the restoration of service should it be interrupted during the storm. Emergency supplies such as wire, clamps, pole cross arms, and insulators were taken out of storage, loaded on repair trucks, or placed elsewhere for easy access. Equipment such as trucks and cars was readied for use and arrangements were made to rent vehicles. Human resources were restructured to facilitate restoration by creating new departments, reassigning certain personnel, etc. A further discussion of these and other structural changes will appear later. We turn now to a discussion of the specific pre-impact tasks of various departments.

#### Executive Department

The executive department's main task during this stage was forwarding weather information concerning the progress of the storm to all department heads in the company. Also, in anticipation of the potential post-storm increase in demands upon the organization, they initiated discussion of the possible requirements for specially trained electric repair crews from out-of-state utility companies, and received assurance that such aid would be forthcoming if necessary.

### Building Department

The building department performed mainly maintenance and procurement functions. These tasks included such things as checking and procuring extra food for the cafeteria, rescheduling employees' hours to a twenty-four-hour operation basis, boarding up show windows, and tying down loose materials. This department also reaffirmed the telephone priority status of the company. This involves checking with the telephone company to assure that the purchasing department would have the necessary outside line to order supplies if the telephone company should find it necessary to institute line-load control (line-load control cuts off service to all but the most crucial agencies); arrangement had been made that NOPSI service would be maintained if line-load control was instituted.

### Communications Center

The customer communications center is an emergent department which is created by the implementation of the disaster plan. Employees from the treasurer's, sales, and accounting departments maintain this emergency department. This department is created to (1) receive and record customer calls on a twenty-four-hour basis; (2) forward these calls to the screening section of the information center which in turn disseminates the information to repair crews; (3) telephone emergency priority calls to sales department representatives for prompt attention; and (4) supply advice and restoration information to customers. Before the storm, personnel were assigned to each of three eight-hour watches: 8:00 a.m. to 4:00 p.m.; 4:00 p.m. to midnight; and midnight to 8:00 a.m. The first shift reported for duty between six and seven in the evening, September 9, and were prepared to receive and record customer calls regarding the loss of service, fallen wires, and the like.

### Community Relations Department

As the liaison between the company and the city, the community relations department advises the public of precautions that should be taken in the event of a storm. It maintains communications with the public through the news channels and advertising. As an example of planned adaptations characteristic of a disaster subculture, this department is a good case in point. When it was clear that the storm was headed toward New Orleans, news releases describing the probable effects of a hurricane on electric, gas, and transit services and recommended precautions were distributed to all news media. Even more indicative of the pre-storm adjustments was the fact that weeks prior to the storm, cards explaining the emergency use of dry ice in freezers were distributed to appliance dealers to hand out to customers. In addition, the July and August issues of the company's monthly publication, Homemaking, which is sent to over 200,000 residential and small commercial customers, carried articles on the use of dry ice and on storm precautions. The August 16 issue of Rider's Digest which is disseminated to approximately 100,000 transit riders, contained a similar article.

### Electric Distribution Department

As with the community relations department, the adjustments made by the electric distribution department began several weeks before the hurricane season. Its preparations for emergency included training personnel for storm activities, securing and distributing necessary maps, channeling weather bureau information to the executive department, reviewing priority lists for electrical restoration, and checking the availability of supplies and equipment in the stores department.

Beginning September 8, 1965, the electric distribution department distributed weather advisories to company executives; serviced vehicles, tools, and equipment; alerted personnel; and prepared maps of the electric system. The maps located feeders for the damage survey dispatcher and the information center so that restoration progress could be recorded. After the hurricane disaster plan was put into operation September 9, personnel not required for immediate tasks were sent home to rest until immediately after the storm when they were to report back to work.

### Electric Power Department

The main pre-impact task for this department was manning the three generation stations. Personnel from the power department as well as some engineering and maintenance employees manned the three generating stations and the eighteen substations which are normally under remote supervisory control. Food for six meals was provided for each man on duty on the assumption that they might be stranded on the job. This again is an example of an emergency adaptation indicative of a disaster subculture.

### Engineering Department

The main tasks of engineering personnel are coordinating with the electric distribution department for restoration patrols (patrols estimating post-impact damage), supplying maps for restoration work, and furnishing departmental personnel for other duties. This department supplies two men for the electric distribution screening section of the information center (a facility to coordinate information on the progress of restoration work) and, as previously stated, men are furnished to the power department to operate substations.

### Gas Department

The gas department usually does not have the same kind of problems as the electric distribution department and is not as vulnerable to major disruption in hurricanes (because their distribution system is underground). Therefore, many of the gas personnel are assigned auxiliary tasks which aid electrical restoration. The stated tasks of this department include making arrangements to furnish the electric distribution department with trucks and drivers to maintain supply lines with repair crews in the field, providing personnel to assist clearing transit and electric right-of-ways, and assigning personnel to the screening

section of the information center. In addition to carrying out these tasks, the department prepares a list of persons with boats available to transport men and equipment and checks radio equipment and emergency natural-gas-driven power units in the city.

#### Purchasing Department

The purchasing department is responsible for two tasks. The first is to coordinate the purchase of emergency supplies with the stores department. (Such materials as power saws, electric generator sets, batteries, etc. are frequently required in emergencies.) The second task is to maintain communication with the key personnel of all area suppliers of such equipment. This includes updating the lists of home addresses and telephone numbers of these suppliers, as well as obtaining agreements from them that supplies may be procured during any emergency period -- whether it be day or night.

#### Stores Department

The stores department is charged with maintaining the minimum supply of tools and material required by various departments. Extra quantities are maintained during the hurricane season from May through October. Stocks are checked each month to assure the availability of critical restoration materials. When it appeared that Betsy would hit New Orleans, emergency supplies were distributed to designated locations. Yard materials and equipment were lashed down or moved to safer places. The necessary power tools and generating sets were rented. Safe parking facilities were arranged and vehicles used for damage patrol operations were prepared for the storm. The stores department also arranged for billeting and feeding the men on duty at the electric distribution center. Linens were rented and food supplies were ordered for this purpose.

#### Transit Department

The main task of the transit department is to coordinate and prepare for the restoration of the transportation system after the storm. In line with this function, the emergency generator was tested, lanterns and flashlights were readied, rolling stock and movable property were secured, equipment for clearing routes of fallen trees and other debris were inspected, and other similar tasks were carried out.

### Organizational Structure: Impact Period

As with pre-impact tasks, emergency tasks are a continuation of the coordination and preparation of resources. In addition to these similar tasks, an attempt is made to maintain service as long as possible. Beyond this the company can do no more than stand by until the storm subsides allowing for actual restoration to begin. Since many departments could only wait until the storm was over, this discussion will divide departments according to the degree of this involvement in impact activities.

## Inactive Departments

Throughout the impact period the following departments were relatively inactive: community relations, electric distribution, engineering, purchasing, and stores. Limited service was provided by community relations personnel to newsmen who inquired about the extent of damage to NOPSI facilities. As primary circuits became inoperative, the electric distribution department attempted to re-energize them. At 8:30 p.m., due to the storm's intensity, an order was given to recall all field personnel and to discontinue attempts to re-energize the 13.8 kilovolt feeders. After 8:30 p.m. the electric distribution department stood by until after the storm. While two employees from the engineering department manned the public service office at the Civil Defense Emergency Operations Center, the remaining staff waited out the storm. Personnel from the purchasing department stood by in order to procure materials and supplies; however, they were not called upon to do so. Retaining only a few staff members on duty, the stores department sent the rest of its personnel home. While these five departments were inoperative during the storm, the following departments did become actively involved during the impact period.

## Active Departments

### Building Department

The building department operated the facilities which supplied lighting and air conditioning to the building during the storm and made temporary repairs when they were able. Also, they manned the cafeteria and supplied food to personnel in the customer communications center and switchboard room.

### Customer Communications Center

The customer communications center continued receiving and recording customer calls concerning electrical and gas system damage. The 4:00 p.m. to midnight shift, which reported between 6:00 p.m. and 7:00 p.m. September 9, had to remain until 8:00 a.m. the following day because the storm had made it impossible for their relief to arrive before that time.

### Electric Power Department

As the hurricane increased in intensity, the number of main feeders which de-energized became so great that attempts to re-energize them were no longer made. Around 9:30 p.m. September 9, transmission lines started to fail, as this occurred, power department personnel de-energized the related feeders manually. At approximately 11:15 p.m. the 115 kilovolt transmission system split, separating all generating stations including two stations of the Louisiana Power and Light Company. Two stations remained in service, each carrying its own independent frequency. Throughout the storm ties between various stations were intermittently

lost and re-established. At about 3:00 a.m. September 10, a 115 kilovolt tie was established between NOPSI and one station. About two hours later this tie was opened manually at the request of an operator at Pine Bluff, Arkansas. Both he and the personnel from the New Orleans power department reasoned that there was a better possibility of the generating stations surviving independently and that the surviving station could provide the necessary back-feed to restart the others. More than one station survived, however, and this back-feed contingency did not arise.

Other problems that the department faced during impact arose due to the unexpected flooding that occurred. Early in the hurricane when word was received of rising water, a truck was dispatched to evacuate the operators from two substations. These operators were able to get out but those in three other stations were trapped by the rising water. The following comments by one respondent describe the problems faced by the personnel at these substations.

The men in three other substations, in the eastern section of the city, were trapped when the waters came up so fast that we couldn't get them out. Now, of course, we were not warned. There was no warning from Civil Defense or anyone that there was a flooding problem anticipated in that area. I think -- as it turned out later -- there were some levees and so forth that did cause this problem. So it was quite a problem with these men. We spent a lot of time communicating with Civil Defense to try to get some Army ducks out there to try to rescue these fellows. We were unsuccessful in that they (Civil Defense) weren't able to communicate with the ones they had out in the field. So these men had to shift for themselves pretty well. Two of them in our Gulf Outlet substation -- which is out in the New Orleans east area--actually were trapped inside the substation building when the water rose. They had to break a window and climb out on the roof -- and ride out the hurricane hanging on to the roof. Now we got them out the next day with a boat. We sent a boat out to get them and the boat capsized. We had to retrieve that and in the meantime another fellow connected with New Orleans East came along and he got them out -- and then our fellows picked them up. We had two other men at the Almonaster substation, another one this side of the Industrial Canal -- but down in the flooded area -- that were trapped also and they found two logs floating and tied them together to make a raft. They were able to paddle out to a railroad embankment that they could walk along to safety. The fellows in the Florida substation were trapped until the next morning. One of them hailed a boat and he swam out to the boat. The other one stayed down there that afternoon. On Saturday afternoon he decided to try to get out. He had to swim about two and one-half miles -- between swimming and touching bottom once in a while he got out to ground where he could walk.

These unexpected problems resulting from the flood point out the hurricane-orientation of the disaster subculture. There were no provisions in the disaster plan to deal with extensive flooding.

Loss of equipment further inhibited the electric power department from effectively responding to the unexpected demands of the floods. The fuel oil unloading dock was blown into the circulating water intake along with tons of marsh grass which blocked the screens, making them inoperative at the Michoud station. As the Paterson station, despite the sandbagging of basement openings to reduce water inflow, the condensate pump motors were covered with water. These were back in service on Sunday evening (September 12) after they were steam-cleaned, baked, and recoated; of course, this delayed restoration. Also, the link between the Paterson and the Michoud stations was re-established about 5:00 a.m. Sunday.

Communication problems were the major ones that arose for NOPSI's electric power department. These will be discussed more fully later but one example will be given here. A section of the microwave reflector on the Market Street stack pulled out during the height of the storm, disrupting microwave communication with Michoud station. In addition to this, all telephones were out of service at the system control room (the control area for remote control of substations). The only remaining communication was by FM radio. A communication link was established by telephone from Pine Bluff to Ninemile station and by FM radio from Ninemile to the system control room. This relay procedure was not conducive to the most efficient coordination of task performance.

#### Gas Department

The loss of communications and power systems due to high hurricane winds and the unexpected flooding were the main problems the gas department faced. At 9:30 p.m. Thursday the gas department lost normal power and the emergency power supply automatically went into operation. It is a natural-gas-driven power plant and supplied power to the dispatcher's office and the distributor's control board for the FM two-way radio system and accessory outlets. At one point during the storm there was no communication between NOPSI headquarters and the gas control station. The control station could not be contacted by telephone or radio. To alleviate this problem, a serviceman was sent in a radio truck to the control station to re-establish communication.

Around 1:00 the same night two men were sent to Number 2 City Gate in order to control the station manually. But, as a result of rising water, they had to evacuate about three and a half hours later. This station was abandoned with the knowledge that adequate gas pressure would be maintained from other sources in the system. Throughout the storm, the demand for gas never exceeded the available supply.

#### Transit Department

Line supervisors were told to observe their assigned routes closely and to expedite the movement of transit vehicles as long as the weather permitted safe operation. Due to high winds and flying debris, service was curtailed on most transit routes about 7:00 p.m., September 9. At about the same time, on certain transit routes buses were substituted for streetcars and trolley coaches when it was decided that the overhead electric trolleys should be de-energized to eliminate safety hazards if the lines should happen to be blown down.

Around 8:30 p.m. the intensity of the storm was such that all transit service over regular routes was discontinued and vehicles were held on standby at their respective stations in case the evacuation of residents from their homes became necessary. The transit department had been involved in evacuation as early as 6:30 that evening when in some areas flooding threatened some homes. During the impact period buses were making evacuation shuttle runs from 6:30 p.m. (September 9) to 1:15 a.m. (September 10). Evacuation and the transferring of persons from temporary to permanent shelters continued from Thursday September 9 through Friday September 17. These activities will be discussed further in the next section.

### Organizational Structure: Post-Impact Period

The various departments in the New Orleans Public Service Incorporated did not respond to the emergency in a homogeneous manner. Some departments continued in basically the same tasks they normally carry out while other others changed their tasks to fit the demands of the hurricane-flood. In response to these demands, new departments were formed to control and coordinate the restoration activities. For all of the restoration operation, NOPSI used more than 1,600 personnel including 185 men from various electric companies in Arkansas, Texas, and the Virginia-Carolina area, plus many men from local contractors. During this period the company also used 266 pieces of mobile equipment including helicopters, planes, and boats. The following discussion will consider departmental involvement in post-impact tasks according to the degree of change incurred in adapting their tasks to their emergency duties. Those which faced the least amount of change will be presented first.

#### Community Relations Department

One of the tasks of the community relations department, in both normal and emergency periods, was to maintain liaison between the company and other organizations in the city. During the emergency the department made arrangements with civil defense for the use of transit vehicles in evacuation. Another task was the preparation and release of restoration progress reports and safety precautions. Nine separate ads appeared in the two daily newspapers concerning the state of service restoration together with precautions against broken or downed electrical wires, gas leaks, and effects of the immersion of electrical or gas appliances in flood waters.

#### Gas Department

In the early stages of the hurricane, gas service was unaffected. Only in areas where flooding occurred did it become necessary to turn off the gas. The post-impact tasks were mainly ones of maintaining surveillance over areas served by the gas system and keeping records of water conditions throughout the city. A map was set up to record known gas problems. Gas department activities were concentrated in the flooded areas of the city where gas servicemen made house-to-house checks, and corrected localized problems, and took other safety precautions.

### Personnel and Purchasing Departments

The personnel department's main post-impact task was to arrange and coordinate the release of personnel from various departments for assignments as guides for out-of-state crews, as food preparers, as customer contact men, and so forth.

The purchasing department ordered any necessary additional materials and equipment for restoration and expended such shipments.

### Stores Department

The stores department had a number of tasks dealing with the acquisition and distribution of restoration materials. They tentatively scheduled extra material requirements based upon storm damage estimates. They also provided the staff for the gas, bus garage, and generating station storerooms; they made supply pickups and deliveries when requested by other departments. In addition to these duties which are similar to the ones carried out during normal times, the department had to order and serve the meals for company personnel outside the main office building and for out-of-state crews. This task involved an average of 2,000 meals a day for two weeks. They also guarded the equipment and billeted out-of-state workers.

### Transit Department

As with electric and gas, the transit department went about their post-impact tasks rather routinely. Task forces (including supervisory personnel, cleanup crews, and route inspectors) were sent out as soon as possible to survey damage and begin clearing away the debris. The first regular route was back in service at 6:55 a.m. on September 10 and by 6:35 p.m. the same day nine major and three secondary routes had been restored to service. The last two of the forty regular routes were restored September 14. These two lines could not be restored earlier due to high water on the routes.

One new task, the evacuation of refugees, was undertaken by this department at the request of civil defense. This began at 6:30 p.m. September 9 and continued until September 17. The company estimated that during this period, 157 buses were in service for 648 hours, evacuating over 600 busloads or 20,000 to 25,000 people. This evacuation during the post-impact period was mainly the transfer of evacuees from temporary to established evacuation centers.

### Electric Distribution and Power Departments

The major brunt of the storm was borne by the electric distribution system. During the peak of the hurricane, approximately 90 percent of the electric service of all city customers was disrupted. This meant that of 186,000 NOPSI customers, 168,000 had their service disrupted.

The storm had sufficiently subsided around 5:00 a.m. September 10 to allow crews to begin patrolling circuits for damage. At approximately the same time, the power department started re-energizing the 13.8 kilovolt feeders to ascertain

which ones were in service. They reported that 138 of the 170 distribution feeders were out of service (this figure included 16 underground feeders). With this information, line crews were dispatched to begin repairing the damaged feeders. The 115 kilovolt transmission lines and other 13.8 kilovolt feeders were patrolled by persons using aircraft, surface vehicles, or traveling on foot. Restoration continued according to the disaster plan, using (1) the damage reports for primary feeder and transmission line repair, and (2) an area-by-area repair mobilization technique for secondary lines.

A major problem was the flooding of certain sections of the city. The service to five sewerage and water board pumping stations was lost, thus making extremely difficult any attempt at control of the flooding.

In addition, the flooding around two NOPSI substations delayed the restoration of service to feeders served by the two substations. This delay affected approximately 30,000 customers. No feeders were re-energized in these two substations until September 15 and 17, 1965 respectively.

The unexpected flooding reveals one area where the "disaster subcultural" response of New Orleans and more specifically of NOPSI was inadequate in technological and social organization. The overall effectiveness of the sub-cultural response, however, is very well indicated by the restoration rate. At 3:00 a.m., September 10, it was estimated that 90 percent of 168,000 of NOPSI's customers were out of service; at 6:00 p.m. September 21 just twelve days later, all customers except for a few in the flooded areas were back in service.

#### Engineering Department

The personnel of the engineering department worked mainly with the electric distribution department as drivers and observers on damage patrol crews, as guides for out-of-state repair crews, and as dispatchers. They also worked in flooded substations.

#### Building Department and Communication Center

The building and communications departments continued their pre-impact tasks. The building department maintained the buildings and supplied food to on-duty personnel. The communications center continued to receive and to record customer calls on a twenty-four-hour basis. This emergent department was in existence from September 9 through September 21, 1965, during which time they received 43,498 telephone calls and recorded 27,266, the difference of 16,222 being duplicate and miscellaneous calls.

#### Problem and Adaptations

When a disaster strikes, the demands placed on an organization may change in quality as well as quantity. With this change in demands, adaptations usually occur. These adaptations can take various forms: rejection of demands, a

postponement of usual tasks, the adding of new personnel, etc. We will now discuss some of the adaptations NPSI made with respect to four problem areas: authority, decision making, tasks, and communications. These four areas are presented according to the degree of difficulty they presented, from the least to the most problematic area.

### Authority

It seems to be the consensus, from the data collected, that the authority structure operated much as it was set forth in the Hurricane Procedure plan. For example, all personnel assigned to electric distribution came under this department's authority structure, while specific individuals from the electric department were assigned to head the information center and customer communication center. In addition, certain managers were assigned to act as heads of restoration. Coordination personnel from the electric distribution department were in charge of supervising out-of-state crews. In authority adaptations as well as other organizational restructuring, the disaster plan was quite clear as to the emergency lines of authority. These new authority patterns appear to have been followed without great difficulty. However, problems did arise concerning conflicting commands and duplication in orders. Problems of this nature are often expected in large-scale disasters which place strains on both authority figures and the normal channels of communication.

### Decision Making

The most striking difference in decision making from normal times to the emergency period was the increased amount of "short circuiting" of the chain of command that occurred during the emergency period. "Short circuiting" refers to the skipping of certain members in the chain of command when making a decision. The head of a department or a member of higher management may be skipped when making a decision. For example, two freezer trucks were rented and filled with ice cream for the crews by one person who felt that "the men would enjoy it." No authorization or consultation with his boss preceded this decision. One of the reasons for the increase in this type of incident during the emergency period is the lack of time usually available for consultation. The emergency period is seen as a time of increased activity when decisions are made faster and more often by lower echelon personnel than would normally be the case.

### Tasks

The task demands on public utility companies usually increase quantitatively after a disaster but do not vary greatly qualitatively. This is true because these types of organizations have a focused area of expertise and usually stay

within its boundaries. This is especially true for certain of the departments within the companies such as overhead line maintenance crews or street lighting crews. This continuity between daily tasks and emergency duties was indicated by one respondent. When asked what outstanding thing his department had done during the disaster for which it should receive commendation, he stated: "We don't any of us deserve that, we did what we're supposed to do." Thus, for certain departments at least, task demands were not problematic due to qualitative changes, although sheer increase in quantity did create problems.

Hurricane Betsy caused more damage to New Orleans than any previous hurricane. This vast increase in demands required an adaptation by the company that had never been necessary before. To cope with this problem, additional personnel and equipment had to be brought in from out-of-state utility companies. Even though this contingency had never arisen before, a procedure for calling in additional personnel was provided in the disaster plan. This use of additional personnel and equipment as an adaptation had further repercussions for the organization in that a restructuring of the organization was necessary to provide guides for the out-of-state crews who were unfamiliar with the city. Also additional auxiliary tasks had to be undertaken such as making arrangements to feed and house these persons.

In anticipation of an increase in certain other demands, such as an increase in customer calls, damage survey teams, etc., restructuring had already occurred in the organization. For example, credit and collection, sales, accounting, and treasurer's department personnel created a communications center to handle the increased customer calls. Engineering personnel and gas personnel were used as drivers and observers on patrols estimating and pinpointing damage. Personnel from the general sales department acted as messengers and liaison between the field office and field crews.

This restructuring created a qualitative change in the demands that were placed on personnel in newly created sections. These changes sometimes resulted in problems. For example, immediately after the storm crews were assigned to do a street-by-street damage survey indicating the type and location of such damage on maps using a set of standardized symbols. Many of the personnel composing these patrol crews came from other departments and were unfamiliar with the electrical distribution system and its language of symbolic reporting. Problems arose concerning the appropriate symbols for particular problems. This in turn confused the repair crews when they tried to read the maps.

The most unanticipated contingency was the flooding of certain electricity-producing substations. A NOPSI employee indicated the lack of preparation for such an occurrence in the following statement: "We never anticipated, I don't think anyone in New Orleans anticipated this flooding situation." NOPSI, knowing from past experience that the overhead supervisory remote control lines to these substations were vulnerable to hurricane winds, had stationed two men at each substation so that manual switching could be carried out if the automatic system was lost. This emergency procedure was functioning well until flood waters made it necessary to evacuate five of the eighteen substations composing the system.

The unexpected flooding caused rescue problems and electrical distribution problems. The men from two of the substations were rescued before the flooding worsened. However, the men at the other three substations were trapped by the water. Even though the electric-producing capability of the flooded substations were lost, the other substations in the system were able to handle the demands until the water receded and the flooded substations could be dried out and re-stored. The last substations were put back into operation on September 17, 1965.

Another task problem encountered was due not so much to either qualitative or quantitative demands, as to lack of coordination. Some of the crews, especially those with rented vehicles, had difficulty getting around certain areas. They were stopped by National Guard and police because they were not easily identifiable. Later, signs were put on all the vehicles identifying them as NOPSI equipment and this problem was alleviated.

### Communications

Of the four demand areas to which the organization had to adapt, communications was the most problematic. The organization experienced problems in both intraorganizational and interorganizational communication. The intraorganizational problems were mainly coordination difficulties such as being unable to communicate with field units or different sections of the company. This was due to the failure of the communications equipment or to exceeding the equipment's capacity to handle communications traffic.

Interorganizational communication problems in reaching priority customers to advise them on when service would be restored arose mainly from losses in the telephone system. Explanations for the problem vary: the telephone company indicated that it was simply due to an overloading of the switchboard with incoming calls; others suggest a breakdown of the system, or a purposeful action by the telephone company for maintaining line-load control. The actual explanation is not as important, however, as the repercussions for NOPSI due to the situation. NOPSI was not able to call out, nor were they able to use the telephone for calls within and between various departments of the company. Therefore, it was necessary to set up a system of runners to maintain communication between various floors of the same building and between different buildings. This caused delays in restoration response in that a high priority message would have to be physically carried from the communications center to the information center before action could be taken. The information could not be telephoned from one point to another.

The telephone problem also affected overall coordination in that it was especially difficult to stay abreast of the current state of restoration of service. The status of restoration work was indicated on a large operations map in the information center. This information was to be sent back to the communications center by telephone, but this procedure was impossible for a couple of days, again slowing down response effectiveness.

Another reason for interorganizational communication problems was the jamming of the company's radio frequency. The company only had one radio frequency to communicate with field crews and this was jammed most of the time making it difficult to coordinate field work. To compensate for this, messengers were used from the general sales department.

Another communication problem arose from the fact that out-of-state crews had different radio frequencies from NOPSI making it impossible to use this means of communication for coordination purposes. Also, many of the vehicles used for damage patrol purposes and messenger purposes were rented and were not equipped with radios.

### Conclusion

Highly experienced organizations such as public utility companies are usually capable of effectively handling small emergencies and are more adequately prepared for larger disasters. Moore points this out in the following:

One other advantage utility workers have in disaster situations is their experience in dealing with minor emergencies. Since hail storms, high winds, floods, and other destructive natural phenomena very often interfere with the smooth functioning of public utilities, workmen are trained to meet such crises. Hence, when they are called upon to cope with a major disaster, their very considerable training stands them in good stead.<sup>2</sup>

However, when demands exceed capabilities and when loss of equipment, manpower deficiencies, etc. decrease normal capabilities, problems arise even for these highly experienced types of organizations.

In the case of NOPSI, demands did exceed capabilities mainly due to the dual nature of the disaster. Both hurricane winds and flooding occurred in New Orleans. The hurricane winds were expected and planned for, but the flooding was a completely unanticipated occurrence which placed restoration demands on the organization which it was not immediately capable of handling effectively. These problems included a shortage of manpower, mobilization problems, and damage to the underground portion of the electrical system.

Due to the magnitude of the disaster, demands exceeded the manpower capabilities of NOPSI. A public utility company such as NOPSI is a specialized type of organization and therefore cannot call on aid from just anyone. They need skilled repair crews; arrangements had to be made with out-of-state companies to obtain extra personnel and equipment thus slowing down restoration.

Due to the flooding, NOPSI also had mobilization problems. Crews and equipment could not be moved into certain substations to begin repairs until the water receded. Also the flooding damaged the underground electrical system, normally assumed to be relatively safe. Pre-impact planning had been mainly concerned with the potential damage from hurricane winds and restoration procedures had been developed to repair the overhead lines of the electrical system under the assumption that the winds would not damage anything underground. But, with the flooding an unexpected contingency arose in that damage was incurred by the underground system.

Thus it seems that NOPSI was fairly well prepared for the hurricane portion of the disaster but the unanticipated flooding caused difficult restoration problems for the organization.

Notes: Chapter VI

1. New Orleans Public Service Incorporated, Hurricane Procedure, rev. (June, 1965)
2. H.E. Moore, Tornadoes Over Texas: A Study of Waco and San Angelo in Disaster. (Austin: University of Texas Press, 1958), p. 41.

## CHAPTER VII

### Southern Bell Telephone and Telegraph Company

As each of the previous chapters has focused upon the structure and adaptations made by a specific organization to the threat and impact of Hurricane Betsy, so too will this chapter focus upon the structure and adaptations made by the Southern Bell Telephone and Telegraph Company. In addition, a special emphasis will be placed upon the public relations department which is the department that generally handles many of the interorganizational contacts-- a particular interest of this monograph. In understanding the overall community response, it is imperative to be aware of the important role that adequate communications can play in affecting the community's restoration activity. Our previous chapters each emphasized the fact that adequate communication became problematic during and immediately following the storm. This chapter will further delineate the nature and scope of the problems confronted by one major communication source, the Southern Bell Telephone and Telegraph Company in New Orleans, Louisiana.

#### Introduction

The condition of the telephone system during and after Hurricane Betsy was vitally important to the community as well as to the company, since methods of relaying information became sharply limited. Streets were hazardous or impassable. Initially, television and many radio stations could not broadcast because they lacked power. The need to communicate -- especially by telephone -- was greatly increased because the speed with which community and individual rescue and rehabilitation efforts could be carried out partially depended upon it.

Hurricane Betsy was the worst natural disaster in Southern Bell's history. According to company sources, the telephone system was heavily damaged but operative both during and after the hurricane. Company damage estimates for the state and for the New Orleans area indicate the extent of the restoration work that the company faced. In Louisiana, 48 central offices and 48 exchanges were isolated; 1,559 of the 6,532 long distance circuits were interrupted; and 382,378 out of 1,250,000 telephones were out of service. In the New Orleans area, a minimum of 211,000 out of 419,000 telephones -- roughly 50 percent -- were out of service. Early estimates placed the cost of restoration at \$8 million for the entire state. The flood which followed the storm submerged telephone equipment for so long that Southern Bell raised the estimated cost to over \$12.5 million. About one-third was spent in New Orleans. Most telephones were restored to service by the weekend of September 19, ten days after the hurricane. The majority of the telephones not yet working at that time were in flooded areas.

To put Southern Bell's pre- and post-disaster activities into context, the company's pre-disaster structure and resources will be reviewed briefly. In both the pre-disaster and disaster portions of this report, public relations and public information efforts will receive special emphasis. They affected the company's speed in restoring facilities, particularly after the rehabilitation period.

### General Organizational Structure

Southern Bell is a wholly-owned subsidiary of American Telephone and Telegraph and operates in nine states: Louisiana, Florida, Tennessee, Mississippi, Alabama, Georgia, North Carolina, South Carolina, and Kentucky. The Southern Bell system headquarters is in Atlanta, Georgia. The Louisiana organization is directed from the state headquarters in New Orleans. The state is divided into three divisions which supervise a total of thirteen districts. The northern division office in Shreveport oversees three districts and the central division office in Baton Rouge is in charge of four. The southern division headquarters and five of its six districts are in New Orleans.

Both out of desire and necessity, Southern Bell makes a great effort to establish and maintain good relations with its publics. Good public relations are necessary both to fulfill the company's policy objectives and to overcome some of its inherent structural handicaps.

Southern Bell is a public service organization whose objectives are to give the best possible telephone service at the least cost to the public while providing for the fair treatment of employees and the financial safety of the business. This means supplying the public with pleasant and continually improved and broadened service at the lowest cost, paying and treating employees fairly, safeguarding the investors' money, and operating the company so that it yields a fair return.

Public relations committees exist on the local, district, and division levels. These groups meet periodically to discuss local problems and to design corrective programs. Summaries of these meetings are sent to the next highest level for review. In the southern division, the committee is made up of the leading department heads, with the public relations manager acting as secretary.

All departments have public relations responsibilities which are based upon a department's function. Thus, all employees are trained and receive continuing guidance in customer relations. Installers, for example, are periodically checked for that ability as well as for technical competence. Operators are imbued with proper call-handling procedures -- trained to be as helpful and considerate as possible.

At the state level, public relations is a staff rather than line department, encompassing all company functions that could be defined as specialized public relations activities. An assistant vice president is responsible for

public relations on all levels of Louisiana's operating departments. His department consists of a director and seven staff members. The district public relations activities are reported to the division and the division forwards information to the state department.

One of the assistant vice president's major duties is acting as consultant to the vice president and general manager of the Louisiana company on the public relations aspects of policy decisions. Another important part of his job is public affairs -- interpreting the telephone company and its policies for legislators and government agencies. He also spends much time working with district managers because he feels that they are the key to good day-to-day public relations.

The state defense manager is specifically assigned to liaison work with other organizations and works in the plant department. His prime function is to keep in close touch with all civil defense organizations in the state, acting as communications advisor. Many such groups, especially on the parish level, have no other access to communications specialists. He advises them of innovations applicable to their particular situation and budget, and of federal matching funds available to implement improvements. His salary is fully paid by Southern Bell and when not engaged in CD work he helps the plant department. The position of defense manager is one of the more formalized efforts on Southern Bell's part to cement and personalize relations between the company and outside groups.

In the southern division, the commercial department has prime responsibility for business transactions between Southern Bell and the public. This department is in charge of coordinating interdepartmental public relations and customer relations objectives, and of carrying out specific plans for such activities. It maintains contact with local government agencies and regulatory bodies, community organizations, non-Bell telephone companies, and the news media. For example, when the company is asked to provide speakers, movies, demonstrations, school programs, and the like, the commercial department fulfills the requests. The department advises on advertising and on informational material needs. Wherever feasible, media and organizational contacts are kept on the lowest possible level with the local manager acting as the company representative. However, almost all of the southern division's districts are in New Orleans, so no one district encompasses the entire scope of local media and governmental organizations. Thus, the commercial manager in the southern division is the spokesman for Southern Bell on local issues and is the man quoted in the news releases. He is responsible for many public speaking engagements and appears in commercials which apply to the New Orleans area.

The commercial manager has contact with the major organizations, and was chapter chairman of the New Orleans Red Cross at the time of the disaster. His district managers and other staff members further cultivate the groups and government agencies within their territory. It would seem that much of the commercial manager's work entails direct public relations. However, his job

performance is measured on the condition of internal indexes such as collections, customer service, critical comments, billing service, and the number of applications for installation being held -- i.e., those not processed within the acceptable time limit.

In addition to the public relations functions of the commercial department, this department is charged with handling orders for service and changes in service, selling equipment and service, keeping customer service records, initiating the monthly billings, coping with customer complaints and inquiries, collecting customers' accounts, and performing allied tasks.

There are six departments in the southern division: accounting, marketing, engineering, plant, traffic, and commercial. In the accounting department, several hundred people are responsible for paying the company's bills, rendering statements for amounts owed to the company, and other related duties. The marketing department handles sales involving major customers such as commercial firms, military establishments, hospitals, and power companies. The twelve men in the department keep clients advised of new services and analyze their communications needs.

Engineering keeps itself apprised of future needs for telephone facilities, ranging from major customer equipment installations to new exchange equipment for Southern Bell. The 105-man department determines the most economical way to fill the needs, develops the plan and budget for them, orders the material, and serves in an advisory capacity during construction. Internal facilities are turned over to the plant department to operate after they are in working order.

The plant department is responsible for installing, operating, and maintaining all physical properties. This includes installing and servicing telephones and selling additional equipment; constructing and maintaining outside equipment; maintaining central office equipment, telephone buildings, and motor vehicles; and buying, maintaining, and distributing supplies. Plant is one of the largest departments with about 1,400 employees.

Traffic also has roughly 1,400 people, 1,100 of whom work in New Orleans. All but eight are women. Most employees work as information and long distance operators. Work shifts overlap so that there is maximum coverage during the three busy periods of a normal weekday. The call load is heavier during fall and winter than in summer. In slack seasons, fewer operators are hired to replace those who leave -- a process that is reversed during the busy time. Because of its relatively high turnover rate, this department hires an average of one hundred girls a month. During the months prior to Hurricane Betsy the tight labor market made it difficult to obtain as many operators as were desired.

## Pre-disaster Preparations

### The Disaster Plan

Southern Bell has two disaster plans -- one for natural disasters and one for enemy attack. The plans were devised for the Bell system as a whole but had been adapted specifically for the Louisiana area. One employee commented that Southern Bell was probably better prepared for disaster than most organizations because it had available all the experience of the other Bell companies. Successful emergency innovations used in one area are quickly passed on to all companies. Too, equipment and work procedures are uniform nationwide.

The plan for natural disasters, "Continuity of Service and Restoration," is fairly broad and general in its conception. Each department is assigned specific responsibilities, but plant and engineering carry the main burden of the restoration effort.

As soon as Hurricane Betsy was sighted in the Atlantic Ocean on August 27, Southern Bell began taking some initial steps to prepare for the storm, such as checking the supplies on hand. By Monday, September 6, Betsy was heading for the coast of Florida and the company began tracking the storm on an hourly basis. When it struck Florida, activities were accelerated. By Wednesday, as the hurricane moved into the Gulf of Mexico, all preparatory plans were fully activate and staff meetings were being held daily. According to a southern engineer, the procedure followed during the two days before Betsy arrived was the same as that done in dozens of emergencies.

### State Preparations

#### State Defense Manager's Department

The state defense manager and another telephone man assigned to liaison work with civil defense were basically a part of the CD staff. One man was assigned to stay overnight in the CD control center to take care of the telephone equipment. According to the telephone company report issued after the storm, the telephone facilities at the center consist of

one position of manual switchboard with 57 telephones served by 12 Central Office telephone trunk lines. For maximum protection the trunk lines are divided, with four going to each of the Lake, Mid-City, and Metairie Central Offices via underground cables. Two additional straight lines are provided -- one for the Civil Defense Director, the other for Telephone Company maintenance and coordination. Teletype writer service is als provided. (In addition to telephone company provided services, there are also radio facilities available in the Center, such as Fire Department, City Police, State Police, and taxi cab companies.)

The mayor called a meeting at the civil defense emergency operations center on Thursday afternoon, hours before the storm. The meeting included representatives of all affected agencies. At this meeting a situation arose which caused both a strain on the center's telephone equipment and on Southern Bell. As one executive explained,

a considerable number of news media were present, and quite a bit of publicity was given to the fact that civil defense would be operating at that location. . . . As a communications man this caused me some considerable concern, because there was an invitation to overload all incoming lines into the center. And that is actually what took place.

The ultimate results of this incident were also affected by an earlier discourse between the telephone company and a civil defense administrative assistant. About noon on Thursday, September 9, the assistant asked a company manager to send an experienced PBX operator to the control center. Although it was rather late to put through such a request, the manager called traffic.

At that time the only people willing to serve had dependents or small children and for some reason someone chose not to accept them. As a result, their operator was drawn from city hall. We're in an area there which you may have already heard was subject to some criticism because later on the civil defense center did take on (people with) dependents. We feel that our experienced operators were rejected for a reason which was later abandoned. However, then it was too late to change it.

#### Division Preparations

##### Plant and Engineering Departments

Plant department personnel do the bulk of the ground survey work as a rule, because there are not enough engineers to put one on each team. For survey purposes, New Orleans is divided into sections and each section is divided into smaller units. A complete survey packet is made up for each section: a small mounted map, forms needed for survey information, pencils, and other equipment.

Specific personnel for the survey work are designated down to the supervisory level and the names, addresses, and telephone numbers are listed on the survey packets. During the two-day pre-storm period, staff members were brought up to date on personnel changes made since the last survey review, and these changes were made on the packets. By the time the storm arrived, personnel knew of their section assignments. A supervisor in charge of a section did not necessarily know the exact individuals who were to make up his two-man survey teams, but he did know that he would have, for example, twenty-five survey teams to cover his territory.

Other preparations of personnel and facilities were carried out. All engineering quarters were secured. Supplies and equipment were ordered and suppliers were asked to locate items which might be needed. Plant personnel checked all motor vehicles and made sure that central offices had emergency generators that were fueled and tested. In low or vulnerable areas, pits were dug and sand bags brought in to keep water out of the buildings. Windows were boarded up, and structures were lashed if they could not withstand 125 mile-per-hour winds. All personnel were alerted to take precautions to keep facilities running during the emergency.

#### Marketing Department

The marketing department made plans to lend most of their account managers to the plant department, if necessary. Although it was not part of the disaster plan, the account managers drew up priority lists of large customers who might have the most need for emergency restoration. They were to get in touch with these customers as soon as possible following the storm.

#### Commercial Department

Commercial personnel reviewed disaster procedures but could do little concrete preparation. They mostly served as liaison personnel, especially with outside organizations. As such many employees routed requests for added service and equipment checks and followed these requests through to make sure the services were performed. For example, the commercial manager was asked by the Red Cross to check equipment and have six direct lines installed between the chapter and the newspapers, TV, and radio stations. The commercial manager and four other telephone employees attended the 4:00 p.m. meeting at the civil defense control center on Thursday.

#### Traffic Department

The southern division's largest traffic operation is located in two back-to-back buildings in New Orleans, one fronting on Baronne, one on Carondelet. The Carondelet building houses information and assistance operators and Baronne has the long distance operators. Three small traffic operations are located north of New Orleans and a small information office is just south of the city.

Storm planning was done by the traffic management team which met on Wednesday, September 8. The team consisted of the division manager and three district managers who worked in New Orleans. One district manager was in charge of long distance. Another headed operator assistance and information, including the small southern office. The third was responsible for local dial administration and was moved into the Baronne-Carondelet buildings for the duration of the storm. The division manager also closed his regular office and moved into the operating department for the duration.

On Wednesday, plans were reviewed. Because of the cost involved, many decisions were held in abeyance until Thursday when there was more clear-cut

evidence that New Orleans would be struck. An intense storm would mean employees staying overnight and eating, plus more demand on the equipment requiring more operators.

On Wednesday night, someone spent the night in the building housing the direct distance dialing equipment so that overload precautions could be taken if necessary. No overloading took place that night or Thursday morning. By Thursday the department's activities were put into high gear. Much more food -- such as staples that needed no refrigeration -- was brought into the cafeteria. No provision was made to bring in water. Arrangements were made to rent all the beds available, and two hundred beds were delivered by 5:00 p.m. Thursday. About twenty rooms were rented in a nearby hotel and were later used as dressing facilities for the women. In addition, the management team arranged to stay overnight in the building. Their families were brought to downtown hotels so the men could concentrate on their jobs without worry.

Unlike many departments which experienced heavy involvement after the hurricane passed, traffic was under pressure even before the storm hit. The calling pattern was relatively stable until the weather forecast at 2:00 p.m. Thursday, which said New Orleans would be hit. Customer usage on all equipment soon built up. In spite of this increasing traffic load, it was decided that only regular employees would be used in the New Orleans office. They would be familiar with the operation and more efficient.

During that afternoon, management began asking personnel to work overtime and calling in off-duty operators. Women who were to report during the evening were asked to come in early while they were still able to travel. By the end of the day, traffic had an estimated one hundred extra operators working. Management decided that no one would work more than eleven hours. Longer shifts would leave the employees too tired to work the next day. Many would have to remain in the building overnight since they were unable to get home. They would be immediately available for work the next day.

Dialing equipment for operator-handled long distance calls began to slow down at 6:00 p.m. on Thursday because of the number of calls. Southern Bell instituted standard operating procedure for such conditions, called "Operator Attempt Spacing." (When an operator tries to complete a call, she makes one attempt. If she cannot get the line, she tells the customer and asks him to place his call later. During the less busy times the operator will try several times to put a call through while the customer is still on the line.) For the day, operator-handled calls were 152 percent of normal. The load began building on the direct distance dialing (DDD) equipment during Thursday afternoon, also. The crew monitoring the machinery was reinforced to make sure the control apparatus was fully watched. Provisions were made for all-night coverage again on Thursday.

Both DDD and operator-handled long distance equipment surpassed their estimated overload point. One official stated:

The equipment held up exceedingly well and carried what we would have felt previously was a bigger overload than it could handle. It was reported that the equipment was operating at such a heavy load that it was practically rattling the building with the volume of calls that it was handling.

Local dial equipment operated under a heavy burden with the peak coming at about 3:00 p.m. on Thursday and continuing to be heavy for the remainder of the afternoon and evening. The district man in charge of dial administration kept close contact with plant personnel concerning the condition of the machinery. The apparatus continued to function, although the dial tone slowed to as much as ten seconds instead of the normal three.

Emergency Period: 9:00 p.m. Thursday to  
Daylight Friday

Although Hurricane Betsy did not arrive officially until nearly midnight, storm conditions were extremely bad by 9:00 p.m. Through the evening, more and more telephones ceased to function. The traffic and plant departments were most active during this emergency period.

Traffic Department

One traffic official explained how the storm affected local assistance operators:

We had no idea that so many telephones would be knocked out. As the telephones were knocked out, this caused problems to people trying to call those telephones and (not reaching) them. Then they would call the operator and ask for help. And this just further magnified the number of calls that the operator would have to handle, which normally the customer would have dialed.

Dial traffic reached such overload proportions in some areas that management felt line load control was warranted. In this procedure, switches are operated so that nonessential users can be cut off from making outgoing calls; they can receive incoming calls. But all previously designated essential users such as police, fire, civil defense, hospitals, and so forth are assured of outgoing calls. Within an area line load can be used in two ways. Almost all non-essential customers can be cut off or, depending on how badly the equipment is jammed, control can be alternated between two groups of nonessential users, giving each a chance to call out. Line load control was used Thursday night and on Friday until so many telephones went out of service that equipment was no longer so overloaded.

Long distance and information operators also had heavier workloads because telephones were being knocked out by damage. One official commented:

Concern about the well-being of relatives here by relatives in other cities caused a heavy influx of incoming calls, most of which could be dialed into the city by the distant operator or customer. But as the telephones began to go out of service, the distant customer or operator couldn't complete his call to here. So they would call the operator, which is a normal procedure, and ask her to call for him. But everything tended to magnify the number of calls our operators had to carry.

The work overload did taper off somewhat after midnight.

Both during and after the storm when the call load was heavy and the operators were slower than normal in responding, there was no customer criticism. Customers were very understanding and appreciative, even when their calls did not go through. Normally many would have complained. Management made no effort to measure work efficiency; they felt that the operators were exerting maximum effort and no more could be asked of them.

In addition to the work load, operators' working conditions on Thursday night were less than ideal. The wind was howling and the rain leaked in around the windows. At one point, the wind blew the rain hard enough so it came over the top of the switchboards, spraying the operators with water. In the makeshift dormitory -- the women's lounge -- chief operators were in charge of getting the off-duty women to rest. Many of the young operators were nervous and worried about their families. When the bulk of the building's outside telephones went out, traffic managers used special devices in order to enable operators to make calls.

#### Plant Department

During the storm, plant was also an active department. A disaster restoration center was set up on Thursday and twenty-four-hour coverage was maintained for roughly a month afterwards. The department manager spent the night there, keeping in touch with his staff at various locations. When commercial power failed at 9:30 p.m., emergency power was turned on in all sixteen central offices. Water seepage in buildings had to be controlled. Plant staff members assigned as liaison to organizations such as civil defense, weather bureau, and others monitored equipment to make sure it continued to work.

#### Public Relations Activities

State and southern division public relations personnel moved to the plant department's emergency restoration center for the duration of the disaster and rehabilitation period, since that department was the primary source of news.

In the office assigned to public relations, additional telephone lines were installed and the numbers were given to the media. These lines were manned on a twenty-four-hour basis so that newsmen could call at any hour for progress reports.

Post-Storm Period: September 10 through  
September 19

As Hurricane Betsy moved out early Friday morning, several sectors of New Orleans began to flood. In some places the water stayed for days and weeks, which compounded the damage and slowed telephone service restoration. Three exchanges in heavily flooded towns south of New Orleans had water in the equipment, but sandbagging prevented similar incidents in the city. Nevertheless, when a levee broke, forty-five trucks were submerged in the plant department's Gentilly garage.

Commercial power was out for varying lengths of time in different sections of the city. State and division telephone offices had no power until Sunday. Only the central offices had generators which, with the exception of a temporary malfunction in one office, worked well. Thus, office work was hampered because of the power failure. Public transportation did not function for several days, which made it difficult for employees to get to work. Many streets were almost or entirely impassable because of debris, fallen power lines, and deep water.

The extent of the storm and flood damage came as a shock to telephone personnel. One executive commented, "While we were sitting here that night, we knew it was tremendous, but we had no idea of the destructiveness of the storm. The magnitude was fantastic." Plant surveys would later show that half or more of New Orleans' 419,000 telephones were out of service. High priority telephones worked for the most part because they were located in heavily built-up areas serviced by the protected buried facilities.

The most crucial days for the company were the first four or five after the storm. Losses and needs had to be assessed, extra personnel and equipment brought in, restoration work started, innumerable repair requests coped with, the public informed of progress, and special problems handled. Many activities were going on simultaneously under the handicap of a debris-strewn and battered city.

In the second part of the ten day restoration period -- from Tuesday, September 14 through Sunday, September 19 -- most telephone company efforts could be directly applied to rebuilding. By Sunday, except for the flooded areas, almost all New Orleans telephones were back in service. (The seriousness of the damage is partly indicated by the length of restoration time involved. Usually, "normal" disasters are cleared up in three or four days.)

On Friday morning the final steps were taken to shift the operating emphasis from normal to emergency procedures. The following portions of this chapter will be divided into three sections: call handling, survey and restoration, and inter-organizational relationships. Call handling mainly involves traffic department

problems -- keeping up with the call load, finding personnel, and solving equipment requirements. Survey and restoration activities will be discussed first, in terms of problems encountered; determining the extent of damage, cost of replacement, and locating the personnel and equipment needed to restore services. Secondly, we will focus on the manner in which repair and additional service requests were handled. All such inquiries are theoretically channeled through repair service to a priority-establishing section in the plant department. Problems developed because of the extensive damage, the time needed to repair it, and the great number of people who considered themselves top priority telephone users. Many, if not most, departments became entangled in repair appeals, especially during the first five post-storm days. The third and final section focuses upon interorganizational relationships and the role that the public relations department played. The most tangible task was the public information job. Both the public and the employees had to be told what the telephone company was doing, mainly through mass media.

## Call Handling

### Traffic Personnel Problems

Traffic personnel on duty during the hurricane had spent all of their time just trying to handle the calls, so they paused in the morning to review procedures and assess needs. They had prepared for a storm comparable to Hurricane Hilda but it was quickly obvious that Betsy's ramifications were far more extensive. One initial step taken was to issue a radio news bulletin asking all traffic personnel to come to work if they could do so safely. The management team knew that many employees would come to work if they had transportation. Public conveyances such as buses did not operate until Monday, and taxis were not available until Friday night. Early on Friday, management arranged to have more company cars assigned to them in addition to the regular supply. When an operator called, a company car was sent. Taxis were used to take them home. This dual system was used until Sunday when company cars were needed for repair work. Taxis took over the two-way trip where necessary.

Many operators came to work despite personal hardships, but some were unable to get there at all. The traffic manager began early on Friday to solicit help from other departments. Then because schools were closed, he used some of his part-time students on a full-time basis. Women who intended to leave the company were persuaded to stay on.

Beginning on Friday or Saturday, traffic had the public relations department run ads asking former telephone employees who had worked within the past three years to return for the duration of the emergency. Due to the traffic management's early recruiting efforts on Friday, the work force was two percent above normal in spite of storm conditions. On Saturday and Sunday the force was substantially higher than usual. By Monday, the first normal business day for the city since the storm, the department had everyone working that it could find.

More operators could have been used had they been available. Every switchboard in the city, on both sides of the river, was filled. Employees worked overtime and on normal days off. The heavy scheduling remained in force for ten days after the storm.

The traffic manager had other problems, too. It was announced Friday that city water was contaminated. The company was able to get 200 gallons of bottled water to set up at fountains. When the President surveyed the damage on Friday, Southern Bell had to make sure that a special circuit was set up and that service was instantaneous. When he left, the President's assistant stayed to report on restoration progress. A communications center was set up for him in the traffic department so he could relay messages to the White House. These were only a few of the problems faced by this department.

### Work Load

On Friday, the consistency and quantity of the traffic department's work load was affected by an assortment of factors. Long distance circuits were interrupted in areas outside the city, which hampered the completion of outgoing calls. Over half the telephones in the city were out and many businesses were either not open or not operating normally. Some areas had been evacuated. The inoperative telephones reduced the calling load, but many persons were using pay stations. These people could not receive calls. Normal business calling was greatly reduced, but more calls were placed between relatives and friends and for restoration help.

Local customers or those calling from outside the city who tried to call out-of-service numbers or unoccupied buildings often contacted the New Orleans information or assistance operator for help. Many out-of-service customers tried to call repair service and when they could not reach it, contacted the operators. Sometimes customers called commercial's customer service for repair help. This section normally refers customers to repair, but because of conditions the service representatives often took the information and forwarded it. The result of such activities put a much greater burden on the operators who had to handle the calls and referrals.

Although the following statistics are by no means comprehensive, they do indicate some of traffic's work load on Friday. Calls to the assistance operator were 30 to 40 percent above normal; to information, 20 to 30 percent higher. Although operator-handled long distance calls completed were only 73 percent of a normal Friday, the figure does not indicate the effort involved in attempting to place the calls that could not get through.

Direct distance dialing equipment carried well over double the calls of a normal Friday; local dial service was even more taxed. The central office equipment operated well despite overloads, which caused slowness in the dial tone at times. Customers sometimes thought the slow tone -- which they did not wait long enough to receive -- meant their telephone was out of service and some called repair, which further clogged the lines.

All traffic maintained high levels throughout the weekend. Management anticipated that conditions would worsen on Monday, which would be the first business day. In addition, there was a heavy influx of people and goods into the city to help with community rehabilitation.

### Long Distance Equipment

Long distance service was a major problem. The best solution seemed to be to find a way to increase the use of direct distance dialing equipment. The problem had multiple aspects.

First, an operator can handle more calls via DDD than through the older method because she has only to ask the customer his number, which is then recorded on tape. Management determined that it would not have all the personnel that it would like to have, so a greater use of DDD would mean more calls could go through faster, and other types of operator-handled calls could be covered too. Customers would use DDD if they had to wait for service from operator-handled long distance service.

Secondly, enough operator-handled switchboard positions could be made available to respond to the added DDD calls. The basic problem was lack of additional DDD equipment. This was partially solved by adding forty trunk lines. In addition, circuits were modified and outgoing rather than incoming calls were favored. In all 143 outgoing circuits went into service before Monday morning. Southern Bell began to cut back on the 100 modified circuits about ten days after the disaster, but kept 40 new DDD trunk lines.

Rearranging and adding the circuit facilities required fairly complex procedures. The first move taken was the circuit modification. This involved not only changing circuits, but adjusting the standard operating procedure used during periods of heavy traffic. (During heavy traffic periods incoming rather than outgoing calls were usually favored in New Orleans.)

The New Orleans traffic office's prime objective was to protect its customers' ability to make outgoing calls. To do so, they blocked off a portion of incoming calls so that about 75 percent of the available lines carried outgoing and 25 percent carried incoming calls. This reversal of procedure was granted on the basis that it was more important for New Orleans customers to be able to call out for help or to reassure relatives. Incoming calls were basically nonproductive and they often reached out-of-service numbers. On Monday, September 13, DDD usage was well over 200 percent of normal and operator calls were also up. Long distance traffic continued to be very heavy for the remainder of the week.

## Survey and Restoration

Survey work began at daylight Friday and continued through most of Saturday. The two main obstacles were the inaccessability of the flooded areas and the hundreds of unresolved power hazards, especially on Friday. Personnel were not permitted to go into the flooded sections until the water went down. Service needs there were not pressing because the people had been evacuated.

Survey teams did go into areas that had power problems. To some degree their ability to gather information was limited by the hot power lines, particularly those draped over telephone installations. The engineering department was eager to start work on engineering problems, but was held back by the power situation. Instead, some engineers served in an advisory capacity to the plant department. On Friday, twenty engineers were assigned to key plant survey teams in downtown New Orleans. Restoration activities had to wait until power hazards were eliminated.

The plant department had made advance preparations to deal with power trouble. Before the storm, telephone people met several times with power company personnel. A direct line between the two companies had been installed. Bell engineering personnel who knew both facilities and how they were coordinated were assigned to work with the power company during and after the storm. Each company did its own surveying but pertinent information was exchanged, saving both companies many problems.

### Personnel for Restoration

Because of the survey situation, manpower and equipment needs could not be fully assessed on Friday. Some plant and engineering personnel were not able to come to work. Plant department acquired all the help possible from other departments in the division. Based on the loss of the forty-five trucks under water and some initial survey figures on Friday, personnel and equipment were requested from northern Louisiana and five nearby states. As reports poured in on Friday and Saturday, it became apparent that more help would be needed as quickly as possible.

To speed the restoration work, Southern Bell used a new method for importing help from distant companies. Through contacts with the federal government, the company paid to have forty Air Force flying Boxcars fly in entire units -- repair trucks, equipment, and the men to operate it. Initial shipments arrived during the first weekend and more came in during the following week.

Although some of these additional personnel worked outside the New Orleans area, more than 800 repairmen supplemented the southern division's plant staff. About 100 came from northern Louisiana. Others came from Alabama, Kentucky, Mississippi, Florida, Tennessee, Texas, Illinois, Indiana, Ohio, Georgia, South Carolina, and North Carolina. Several hundred employees of outside contractors also assisted plant people, working mainly to repair damaged buildings.

In order to cope with the increased number of repairmen, and to make up for the restricted activity during the first day or two after the storm, engineering requested and got twenty-three more men. When the hundreds of survey sheets began coming in the engineers had to transform the information into working construction sketches from which plant people could make repairs. The engineers had never before worked on such a mass production scale; but no plant people were kept waiting.

Standard emergency procedure required engineering to turn in a fully detailed, written estimate specifying the actual amount to be spent in restoration. The estimate was due one week after the storm. But approximately six towns south of New Orleans were still under water at the time the estimate was due. A southern division engineer said that the estimate turned out to be a "wild blue yonder guess." The initial estimate of \$8 million was escalated to \$12.5 million when the full extent of the damage was revealed. Salt water which stood for some time corroded buried cable, which was thought to be safe. Thousands of telephone sets were lost, an unusual and unanticipated loss. The public relations department supplied pictures and other material to supplement the engineer's report to the Board of Directors in Atlanta, helping to illustrate where the money was going.

#### Rate of Restoration

Apparently there were some difficulties in determining the exact number of telephones out of service during the early days after the hurricane. For this reason, the following restoration figures gathered from company publications and community newspapers are offered only as a gross indicator of the restoration rate. It should be kept in mind that reports were often a day behind the actual work. It is probable, too, that the definition of the New Orleans area varied somewhat, since the southern division encompasses a much greater area.

On Monday, September 13, a newspaper report stated that of the 228,361 telephones originally out of service in New Orleans, 24,269 had been repaired and 204,092 remained out. (Later, probably more refined figures gave the initial outage as 211,000.) On Tuesday, the company's "News Flash" said 183,000 telephones were still out. A Wednesday newspaper report said that about 153,000 were out; on Thursday, only 25 percent remained out; on Saturday 85,000 were out. The following Monday and Tuesday newspapers said that almost all repairs had been completed, except those in flooded areas.

#### Restoration Priority

In the days after Hurricane Betsy, as after other emergencies, procedures for handling repair and additional service calls were changed. Normally repair calls are taken and scheduled by the repair department and calls for additional service or changes are received in commercial's customer service section.

The repair department had seventy-two telephone lines, but was not equipped to cope with all the calls engendered by a disaster. As usual, all departments received restoration requests after the storm. These appeals were channeled

through the coordinating section of the plant department's emergency restoration center. The coordinator determined the order in which the requests were to be fulfilled, then forwarded the information to the plant personnel for implementation. Calls for "normal" installations and changes were handled by customer service on an "unrelated" basis -- no date could be specified because of restoration work but it would be done as soon as possible.

Top Priority Essential Users. -- As part of the company's disaster planning, an essential users list had been drawn up to assist the coordinator in establishing the priority of a request. Persons and organizations so designated were dealt with before other customers were given service. Essential users were defined as those persons and organizations whose activities and ability to communicate affected the community's well-being. Because of their nature, some organizations had highest priority on the list: government agencies, Red Cross, power companies. Southern Bell people either worked in such organizations' offices or checked with them during and after the storm.

The plant department began servicing the needs of high priority organizations early on Friday after the storm, concurrent with the company's survey activities. Most priority organizations' communications systems were intact, but although many had additional telephone equipment installed prior to the storm, they needed more afterwards.

#### Interorganizational Relationships

The close liaison between community organizations and Southern Bell, which was fostered by the company's public relations policy, proved its value after the disaster. Although such liaison did not completely prevent problems from occurring it certainly accelerated their discovery and solution. The following examples illustrate this.

##### 1. Red Cross

The southern division commercial manager, as chapter chairman of the Red Cross, served as chief liaison with that organization. When more lines were needed at various locations, he made sure the request was acted upon promptly.

An unexpected situation arose. Although the Red Cross had fifteen official shelters in the city, storm evacuees were numerous and in many cases established their own shelters by breaking into schools. When some dignitaries visited one of these make-shift shelters, evacuees complained of inadequate telephone service. One man had broken open the coin box in the only pay telephone because it was so jammed with coins that no one could call out. The telephone company promptly made sure that pay stations were installed. Government regulations state that the company cannot provide free service. It was decided that because of the emergency, free stations would be installed at the Algiers Naval station shelter. As one employee commented, many evacuees fled from the floods and had little with them. They were too proud to ask the Red Cross for money for telephone calls, but were eager to let relatives know they were safe. From a humanitarian standpoint, Southern Bell felt it had to provide free service.

A week after the storm, Red Cross officials asked the company to provide a night operator. The regular girl was sick and they desperately needed one. The telephone company contacted a girl who had worked all day, but was willing to run the switchboard all night.

## 2. Civil Defense

Civil Defense proved to be a different type of problem. At some point soon after the storm the mayor and the CD director claimed that the civil defense control center's communications were inadequate. As one official explained it:

A civil defense official made a statement that communications were entirely unsatisfactory during the evening (of the hurricane). That blanket indictment has been perhaps misinterpreted by many. This civil defense officer has repeatedly said that it was not his intent to indicate that the entire telephone system was not operating.

However, this latter attempt to rectify the situation did not help Southern Bell much after the initial statement was made. The company felt that CD had been provided with the necessary communications and protection. (Some incidents prior to the disaster which may have affected CD's calling capability were discussed earlier in this chapter.) Various company sources commented on items which might further have affected CD's ability to make outgoing calls. For example, when the control center's power went off, CD personnel could not tell which telephone was ringing. On push-button sets, a light goes on to indicate which line has a call on it. That light, unlike the telephone bell, is connected to the power supply. As a result, the telephone company decided to review the control center's communications to see if improvements could be made.

The control center had many problems on the night of the hurricane other than the alleged communications difficulty. For this reason, the center was abandoned during the night and operations were moved to city hall. Liaison men from the telephone company worked there, assisting CD in communications and other areas.

## 3. Local Government

Southern Bell supplied help over and above telephone aid in the mayor's office. One of the southern division's district managers is normally assigned to city hall, so he served as an on-the scene liaison man after the storm. Thus, when the mayor's clerical staff did not report for work on Friday, the district manager was asked to furnish personnel to man the office, which he did. When the mayor's staff returned, the telephone people indicated that they were only there on the mayor's instructions and that they had to follow orders. Then, Southern Bell's liaison man suggested to the mayor's administrative assistant that the regular personnel should go back to their own positions. By Monday evening, the telephone personnel had been phased out of the mayor's office. During his sojourn at city hall, the district manager himself helped by handling calls where telephone facilities were involved. For example, the school board had a flooded warehouse with books in it and needed telephone service promptly.

In addition to the foregoing examples, other priority customers received similar help, mostly in the nature of communications equipment. As help poured into the battered city, groups such as insurance adjustors had to be considered priority customers. Pressure on the plant department continued to build.

Handling Requests. -- Because of the tremendous number of telephones out of service, the company was literally besieged with calls. Customer repair requests received by the repair service were apparently sent directly to the plant emergency coordinator who checked them against the essential users list. Calls coming into other departments were graded by their degree of need before being sent to the coordinator. These calls were often from people who knew someone in a department through mutual membership in a community organization. Many of these persons felt they had top priority for early restoration -- and quite a few had. The method for handling these calls varied.

Marketing Department. In the marketing department, account managers called or visited the previously designated high priority customers before they reported to work on Friday morning. As information about needed services came in from these account managers, it was assembled in the marketing office and given a priority rating on importance. The data were passed on to the plant coordinator. Then, eight of the personnel were loaned to the plant department.

Operating with a staff of four, the marketing department began calling large accounts whose involvement was important but less pressing, such as insurance companies, oil companies, and large industrial concerns. The staff told these customers the company would restore service as soon as possible but would take pressing needs into account immediately. Next the department reviewed the pending work schedule. Because of restoration, much of this regular work would have to be postponed. If one of these organizations had sustained major damage and would not need the new facilities on the established date, the schedule was changed. This permitted more critically needed installations to be moved up or at least kept more nearly on schedule.

Engineering Department. Many customers contacted friends in the engineering department and asked for service. These customers ranged from doctors and politicians to less important customers in terms of priority, but almost all felt they were essential users. While many requests were assigned priorities and sent to the plant coordinator, in some cases the customers were so upset or so important that engineers were sent out to troubleshoot. This was especially true during the first two days after the disaster, before the engineers were able to be fully involved in restoration sketches.

Commercial Department. The commercial department's involvement was similar to the marketing department's. Many of the staff worked directly or indirectly as liaison with organizations.

Changes in the Priority System. -- About four or five days after the storm, it seemed apparent to many division managers that the priority system required changes on several counts. First, there were too many essential users out of

service to handle within a short period of time. Second, too many special appeals came in. One official explained:

The breakdown point finally came -- I changed the whole procedure -- when I got an appeal from a secretary for her hairdresser out on Veteran's Highway. These ladies couldn't call to make their appointments. Everybody was confusing everyone else by the volume of appeal cases that were coming in.

A more rigid priority system was followed fairly closely after it was set up. The basis was community need in three categories. In the first priority group were persons like doctors or organizations with urgent needs. Making up the second priority were requests which had some urgency but did not qualify as life or death. Category three was for the remaining customers. Third priority customers were fully restored by the end of September.

Besides tightening up the priority system, Southern Bell pre-empted the commercial on its regular TV news program on Tuesday, September 14. The commercial manager went on the air and asked customers not to call: The company knew the telephones were out of order and would take care of them as soon as possible. The message was effective in cutting down the calls. As a whole, telephone personnel felt that the customers were quite understanding and patient about telephone company troubles and the efforts being made at restoration.

Customer service representatives, who were taking orders on an "unrelated" basis that week, found customers to be very patient. On Monday, ten days after the hurricane, customers became more restive. By that time most of the city's rehabilitation work was done and things looked more normal. The power worked, so they wondered why the telephone did not. However, proportionately few customers were still out of service. Throughout the period after the disaster the commercial department did receive some complaints.

#### Other Operating Problems

Adjustment of customers' bills to compensate them for the time the telephone was out of service proved to be one of the most well-received disaster procedures. The adjustments were made as a matter of Southern Bell policy rather than from customer prompting. Each adjustment was calculated on the average number of days that an area was out of service. It was not possible to determine the extent of the outage during the first ten days after the hurricane. For bills issued during this period, two inserts were enclosed. The inserts said that Southern Bell knew the customer was out of service and he would be notified in the next bill the amount of credit to be given. At that point, those who were out of service longer than the allotted time should call to inquire about additional credit. In all, approximately \$500,000 worth of adjustments were made. The response to the credit was very favorable.

Another problem that the company faced was what to do about customers who had not returned to their flooded homes. The company cannot arbitrarily disconnect them, but must advise the customers to contact the company so the instrument can either be disposed of or reconnected. If the customer was not home, an employee left a card asking him to contact the company within fifteen days if the customer wanted service. One reason for not cutting off service permanently before contacting the customer was that he would not be in the forthcoming directory. Displaced disaster victims were eager to be included in the directory. Complicating matters was the fact that the New Orleans directory was due at the printers about two weeks after the storm. Between the power failure, which temporarily closed down the directory office, and the number of changes brought about by customers' hurricane-instigated moves, the directory department was soon far behind in work. In addition, the company decided to assign telephone numbers to persons whose telephones had not yet been connected, to enable them to be in the forthcoming directory. Five directory clerks were imported from other cities, and the personnel worked long extra hours to meet the deadline.

An activity of a slightly different nature was the relief center for telephone employees who had lost much in the storm. The company set aside a room which was stocked with clothes and other items contributed by Bell people from many different states. The free "store" was run mainly by retired telephone personnel. The use of the relief center was slow at first, but increased as it was pointed out in company publications that this was not charity, but help "in the family".

#### Summary

The study of natural disasters has shown that adequate communication is a decisive factor in determining the overall community emergency response. By the nature of the service that Southern Bell Telephone and Telegraph Company provides, its effective operation in time of natural disaster is critical for the successful carrying out of emergency activity and overall community restoration. The New Orleans office of the Southern Bell Company was confronted with a severe disaster of an unprecedented magnitude.

As an organization, the New Orleans office of Southern Bell has several distinct advantages with respect to disaster related operations. First, it has the ability to draw upon the knowledge and resources of the entire Southern Bell Telephone and Telegraph Company. Since many of the offices of Southern Bell are located in cities that are periodically threatened and struck by hurricane and floods, it has accumulated valuable disaster related experience which is passed on to branch offices to be used in disaster planning. Similar to the New Orleans Public Service Inc., discussed in the previous chapter, Southern Bell has a unique and highly technical function to perform which requires highly trained personnel. Consequently, unlike civil defense, Red Cross and Salvation Army it can not rely upon ordinary volunteers in emergencies. It must draw upon its own technically

tra  
mar  
of  
s/

sonnel within the larger organization to provide the supplementary  
eded to carry out restoration activity. This was done by the airlift  
repair units and personnel to the New Orleans area shortly after the  
ubsided.

Like all of the organizations discussed in this monograph, Southern Bell was faced with a situation in which the demands placed upon it far exceeded its capability to respond. To adjust its existing structure and resources a shift in priorities had to be instituted. Because of its critical link with the larger community such priority adjustments had to be made with respect to the needs and dictates of the greater community need. A restoration priority system was thus established which gave top priority to those organizations which performed life services (hospitals, Red Cross, Fire and police), and community coordination (civil defense and the mayor's office). By providing this vital communication link, Southern Bell was intricately involved in overall restoration activity.

## CHAPTER VIII

### Conclusion

This report has presented a descriptive account of the activities involved in confronting the effects of Hurricane Betsy's attack upon New Orleans. We have pointed out so far that disasters present communities and organizations with unique stress situations which demand quick adaptation and adjustment if the community or organization is to survive and adequately handle the problems imposed by the disaster agent. As Drabek states:

In a community struck by disaster what we find is a rather clear image of a general end and an effort by the community to accomplish that end. Previous sets of relationships, applicable to non-disaster conditions, must be modified to fit changed conditions created by the disaster, and new relationships often emerge.

Disasters act as an impetus prodding organizations to set into motion a new pattern of response. Often these new pattern responses become infused into the ongoing organization reflected in an identifiable structural or procedural change. Some organizations found it necessary to deal with a number of new contingencies, coupled with discovering that operations were handicapped by equipment deficiencies. In light of such experiences, long-term changes are made. Hurricane Betsy had a strong impact upon the long-term operational adjustments of the organizations we have discussed. The discussion that follows will focus briefly upon some of the organizational changes that occurred.

### Organization Changes

#### Civil Defense

While many of the difficulties faced by civil defense were due to equipment deficiencies, the Hurricane Betsy experience indicated that several structural changes in the organization were necessary. These changes included the addition of new personnel, the relocation of an official and adopting an emergent organizational structure which proved satisfactory and could be used in future disasters.

It became apparent during Betsy that there existed a need for an additional engineer who would carry out preventive generator maintenance and maintain peak operating order on all other equipment at the Emergency Operating Center (EOC). Due to an apparent failure in the generator at the EOC, civil defense had to close its operation at the center and move back to city hall. This was a waste of a very expensive and highly equipped underground installation. While a surplus part was obtained for the faulty generator, it was felt that an additional maintenance engineer might provide assurance against any future power failure by being on hand as problems arise.

To facilitate writing and coordinating future planning it was necessary to move the planning officer from the city hall office over to the EOC. By operating out of the EOC, the planning officer could work closely with the EOC director to incorporate possible technical, personnel and logistic problems into emergency plans so that a more effective and efficient EOC operation could be insured.

Another long term change to emerge from the Betsy experience was a direct result of the success that the emergency task force structure had in effectively coping with recovery activity. Under the direction of the mayor and the civil defense director, rehabilitation committees were set up and headed by city councilmen. Each committee was responsible for a specific area of rehabilitation e.g. street clean-up, power, communication repairs, etc. It was up to each committee to coordinate and obtain the necessary men and equipment to carry out its assignment. The councilmen who headed these committees would report back to the mayor and civil defense director so that they would have the necessary information to coordinate the overall city recovery efforts.

The experience with Hurricane Betsy painfully pointed out several flaws in the physical facilities and emergency resources. As a result, several changes were made and additional resources were acquisitioned. The following changes were made:

1. A new operations room at the EOC was equipped with new maps, tracking boards, and seating arrangements for organizational representatives.
2. A new PBX system which doubles the capacity of the old telephone system was installed.
3. Direct underground "hotlines" were installed between the EOC and emergency relevant organizations.
4. The existing ham radio was replaced with a more reliable up-to-date model.
5. A three phase plan for an alternate power source was established which initially called for city power and if that should fail then auxiliary diesel power would be used.
6. To better facilitate communication with the public, an emergency broadcast hook-up into two local radio stations was established. This would enable civil defense to directly broadcast information to the public.

#### Salvation Army

Since it is the standard operating procedure that the Salvation Army revise its disaster plans every two years, no operational changes could be directly attributable to the experience with Hurricane Betsy. However, the acquisition of new resources did reflect the problems that were encountered with the power

failure that occurred during Betsy. Two auxiliary generators for use in field work plus a generator for the main building were purchased in order to meet any future power failure. In addition, following a civil defense recommendation, the Salvation Army installed a new radio communication network. This plus the establishment of an emergency telephone "hotline" between themselves and civil defense headquarters strengthened their emergency communication system. These changes induced by Betsy generally reflected the common need for better communication and a more reliable source of power.

### Red Cross

Unlike the Salvation Army, a number of operational changes occurred in the Red Cross chapter which could be directly attributable to the experience with Hurricane Betsy. A number of changes were made regarding shelter operations. First, there was a general increase in the number of shelters from 15 to 50. Accompanying this increase was a corresponding increase in additional personnel and supplies.

As pointed out in Chapter 5 regarding two specific Red Cross shelter operations, the most successful shelter operation involved staff members who had previously had contact before in working together. This was important because it facilitated the rapid adaptations necessary to an effective response. Reflecting upon this experience, Red Cross has attempted to make each shelter self-sustaining by establishing an internal core group which would have an established relationship with the shelter facility. Since most of the shelters were schools, an effort was made to get neighborhood residents to volunteer for service at the shelter. It was hoped that this would cut down upon the discipline problem encountered during Betsy and allow for rapid mobilization.

To avoid the necessity of cooking, a new feeding plan was developed using a liquid diet during the first 24 hours of operation. This new arrangement would also avoid food deliveries which are hazardous and often impractical.

In order to avoid the confusion regarding which authorized Red Cross shelters were open, all shelters in the future will be opened 12 hours before predicted impact. Also all shelters will not be equipped with radios to be used for emergency communication. So as to have their own independent radio operators, Red Cross had to institute a radio operator training program. In addition to this training program, two more training programs were initiated. One program focused upon training firemen in first aid so that in future emergencies, neighborhood fire stations could be converted to first aid stations. The other program was designed to acquaint social workers with official Red Cross policy and procedures for post-emergency rehabilitation work. During Betsy, many of the volunteer social workers were unfamiliar with the specific Red Cross policies.

Because of the communication problems that occurred during Betsy, several changes were made at Red Cross headquarters. A new policy was adopted so that only incoming calls will go through the switchboard and outgoing calls will be transmitted by radio and/or by a direct telephone "hotline" connection. To counteract the power failure, an additional generator was also purchased.

### New Orleans Public Service Incorporated (NOPSI)

The purchase of new equipment and a more explicit attempt to coordinate and expedite interorganizational relationships were the basic changes focused upon by NOPSI. Since the transit department was heavily involved in providing bus transportation for evacuees, the company decided to establish a liaison position between the transit department and the EOC. Additional liaison positions were also established between the gas and electric departments and the EOC.

To correct the previously faulty communication network, direct telephone lines were installed to the police and fire departments. In addition a portable radio set-up between city hall, the EOC and NOPSI was established. To further aid communication efforts, a policy change occurred which designated that all external communication to civil defense, police and fire be handled by the community relations department. Previously, each department handled its own communication which proved to be very inefficient.

In addition to the above logistical and communication changes, the Betsy experience pointed out that a new system of dry ice distribution was sorely needed. Because of the general power failure generated by the storm, the demand for dry ice became imperative in order to prevent food stuff from spoiling. Working closely with civil defense and the fire department, NOPSI endeavored to set up a better dry ice distribution system using neighborhood fire stations as distribution points for dry ice.

### Southern Bell Telephone and Telegraph Company

In general there have been no changes in disaster planning or personnel assignments during disasters. What changes that were made were purely in the form of purchasing portable generators to guard against future power failures. Because of the communication problems that many key emergency organizations faced, Southern Bell installed direct "hotlines" from the EOC to key city departments and agencies.

In sum, two distinct problems were encountered by each organization. First, the problem of a power failure left many organizations helpless since most depended upon electricity to run their equipment. Consequently to avoid being handicapped by any future power failure -- emergency generators were purchased. While the power failure made many people uncomfortable because of the lack of lighting and air conditioning, the communication problem had an even more direct effect upon the total emergency response -- impeding any coordination effort. Civil defense, the primary integrating body, had only access to incoming telephone calls which curtailed their attempt to keep in close contact to emergency organizations. Responding to this problem, many direct "hotlines" were established as well as the purchase of ham radio sets and walkie-talkies. While previous hurricane experience had help iron out many of the logistical assignments, the experience with Betsy pointed out sharply the technical problems that must be faced.

Organizational changes induced by Betsy illustrate the fact that organizations are capable of learning from their experience. Just as individuals learn to make necessary adaptations when confronted by a new situation, so too do organizations incorporate into their set of organizational procedures the necessary adaptative behavior in order to increase their disaster-related output. By learning from past experiences organizations do not have to devote time and resources in structuring their activity, but instead are able to focus immediately upon the tasks at hand.

Often a conscious effort is made to preplan an effective response. However, as in the case of Betsy, organizations may have developed a set of detailed plans they still are at the mercy of unique natural and ecological factors which can either minimize or maximize the problems confronted. In Betsy, this was illustrated by the fact that most organizational plans took into account a hurricane while neglecting the possibility of an simultaneous tidal surge with the accompanying extensive flood.

Another important fact illustrated in this case study is that disasters do not precipitate chaotic random behavior. On the contrary, just the opposite has been demonstrated showing that in disasters, individuals and organizations are capable of adapting their resources to cope with the new demands. However, when a community has not undergone an emergency, much of the behavior may be of a trial and error nature.

The previous chapters have emphasized the importance of an effective coordinating body. With the increased demands that accompany any disaster, it is necessary that men and material be directed efficiently to the areas of greatest need. Some central group must make decisions from a perspective that takes into account the total situations whether it be from an organizational or a community perspective. Until such coordinating groups are established there will exist a duplication of effort at a time when such duplication is so critically wasteful. We have also stressed that when coordination is hampered by technical difficulties, inefficient alternatives are employed which waste manpower and other resources. It was not until a coordinating body was formed at city hall did an effective and efficient recovery operation begin in New Orleans.

The preceding discussion have all emphasized that a disaster accentuates the interdependent nature of the elements composing a community social system. Problems could not have been handled unless there was a cooperative effort on the part of all organizations. No one organization has the sufficient resources and manpower to handle the situation alone. New relationships must be formed. As Drabek states:

...what we see is the emergence of an emergency social system which is a set of new relationships that more effectively fit the changed conditions produced by the disaster. Thus, individual and organizational behavior in disaster is not purposeless or random, but rather represents efforts to construct new relationships that meet new conditions -- to impose structure where the previous one has failed, is inadequate or simply inappropriate for the changed circumstances. (p. 145)

The construction of such new relationships allows a redistribution of resources which will more adequately cope with the problems. For example, in the flood rescue activity police and fire departments did not have an adequate number of boats to carry out rescue work. This necessitated that arrangements be made with the U.S. Army and private citizens in order that Army ducks and private boats could be obtained for rescue work.

In an emergency, a vast network of resources and personnel are made available through contributions and loans from individuals, groups and organizations on both a state and federal level. Disasters demonstrate the intricate interdependent relationships that exist in any social system -- in that communities are able to draw upon extra manpower and resources from various organizational and governmental levels. Left on their own, most communities could not adequately handle the demands that a large-scale disaster presents.

By way of summary, there are several points that should be re-emphasized. First, is that organizations often do learn from past experiences and take necessary steps to institute changes to better facilitate future responses. However, the likelihood that organizations will make these changes may be dependent upon whether their communities are faced with recurrent threats. Secondly, important for any emergency response is the amount of pre-planning that has been done. As was illustrated, disaster plans often enable organizations to more readily adapt to an emergency, however, no matter how well prepared a community may be there is always extra contingencies not taken into account that may impede an effective response, e.g., an unanticipated flood. Thirdly this monograph has presented evidence to dispell the myth that disasters create a chaotic situation with individuals behaving randomly. On the contrary, a fairly well-defined social structure emerges to carry out disaster-related activity. This report has also underscored the importance of establishing an overall coordinating body to effectively and efficiently integrate disaster related tasks. Lastly, the importance of an interdependent local and national network should be highlighted. It is this network which mobilizes resources to combat the disruption to the normal ongoing social systems.