

DISASTER RESEARCH CENTER

Working Paper #47

COMMUNITY CO-ORDINATION FOR HURRICANE CAMILLE:

CRITIQUE OF A MODEL

J.Rick Ponting  
1970

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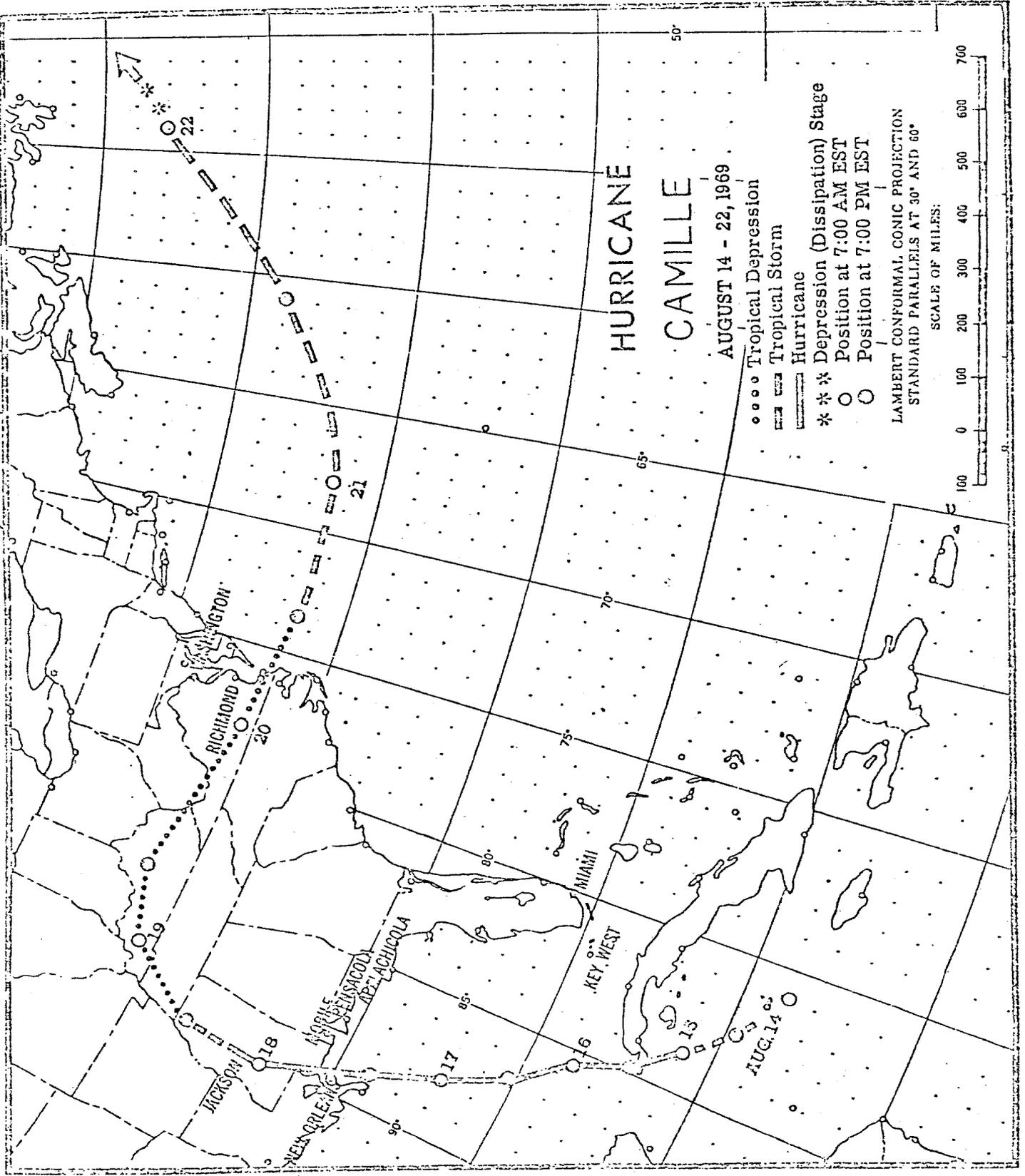
## Introduction

"I just had a hunch maybe that that thing wouldn't turn--it would keep coming this way. So instead of going home and going to bed, I stayed on the job until about two o'clock that morning...About 4:45 Sunday morning they dragged me out of bed and said the forecaster in New Orleans wanted to talk to me right away...They said, 'You're it! Pull out all stops!'"  
(A Mobile, Alabama meteorologist)

At that moment, on Sunday, August 17, 1969, the race against vicious Hurricane Camille was on for the people of the Mississippi Gulf of Mexico Coast. Camille, "perhaps the most severe hurricane in the history of man,"<sup>1</sup>mercilessly unleashed her fury as she swathed a path of death and destruction on her journey through Cuba, Louisiana, Mississippi, Tennessee, Kentucky, West Virginia and Virginia (see Map 1). With winds estimated at 190 to 210 miles per hour, tides of 20 to 33 feet above normal, and a barometric pressure of 26.61 inches, her eye slammed ashore at about 11:30 p.m. C.D.T. at Pass Christian- Bay St. Louis, Mississippi, dropping up to 11 inches of rain. Before dissipating, she snuffed out 255 lives, mostly drownings. The death toll on the Gulf Coast alone stood at approximately 135, with many more missing, possibly washed out to sea with the receding tides, or buried forever beneath the golden beach sands.

It is difficult to convey the extent of the damage and human misery involved. United States Vice-President Spiro Agnew, after touring the area, said that the destruction almost "defies imagination." A military General said, "I saw Hiroshima. There are parts of the beach (at Pass Christian) I can only describe by saying it reminds me of what I viewed at Hiroshima."<sup>2</sup> In fact, Harrison County was subsequently declared a National Disaster Area by President Nixon.

The winds were of such intensity that they lifted giant oil storage tanks from their foundations and rolled them down the road like marbles. Apartment buildings were completely levelled and their debris washed away, leaving only a naked slab. Three giant ocean freighters at Gulfport were torn from their moorings and deposited by wind and tides on "dry" land. Some homes were completely submerged--they were spared great wind damage. Others were folded by tornadoes spawned by the storm. Still others were blown and floated right off their piles, making a maze of streets. All structures within one block of the beach in Pass Christian were either torn and twisted skeletons or else completely erased from the map. Bodies were found "in trees, under roofs, in bushes, everywhere,"<sup>3</sup> sometimes not for weeks afterwards, thereby rendering identification exceedingly difficult. These were the people who, for the most part, were too old or too young to maintain their grip on some structure. They chose to "ride out" the storm, many believing that the sunny afternoon skies could not be harboring a worse storm than the hurricane of 1947 which some of them had also "ridden out." Other victims may have been tourists or newcomers to the area who lacked hurricane experience.



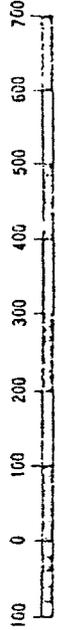
# HURRICANE CAMILLE

AUGUST 14 - 22, 1969

- ..... Tropical Depression
- Tropical Storm
- Hurricane
- \* \* \* \* \* Depression (Dissipation) Stage
- Position at 7:00 AM EST
- Position at 7:00 PM EST

LAMBERT CONFORMAL CONIC PROJECTION  
STANDARD PARALLELS AT 30° AND 60°

SCALE OF MILES:



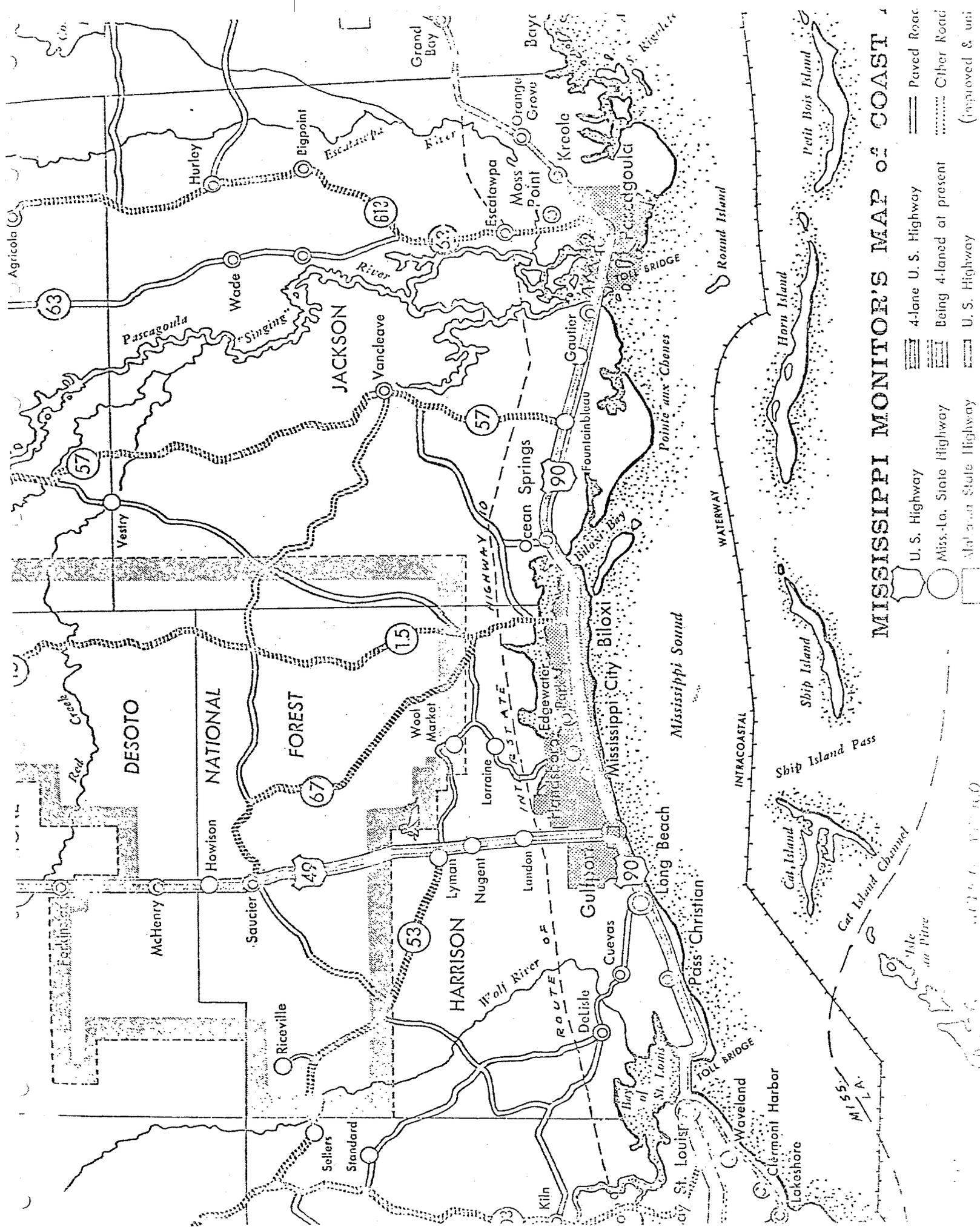
## The Community Context

The Mississippi Gulf Coast area (Map 2) is comprised of three counties: Hancock, Harrison, and Jackson, going from west to east, with populations of approximately 20,000; 150,000; and 72,000, respectively. The main communities affected by Camille were Waveland (1968 population 3,200) and Bay St. Louis (9,400) in Hancock; Pass Christian (5,500), Long Beach (10,000), Gulfport (51,500), and Biloxi (60,000) in Harrison; and Ocean Springs (8,400), Moss Point (8,300), and Pascagoula (38,000) in Jackson County. Our focus is on Harrison County, Gulfport and Biloxi in particular.

The 1960 United States census shows the racial composition of our study area to be approximately 79 percent white and 21 percent black. Among the whites are a small number of first and second generation west Europeans pursuing fishing occupations in the Biloxi area in particular. The census showed no marked irregularities in the Harrison County age-sex structure, except for the effects of the post-war baby boom which left a disproportionately large representation in 1969's 24 to 28 year old male cohort. Note that these men are at an age when they can render substantial assistance in immediate post-impact search-and-rescue operations.

Socio-economically, the impact area is one of the richer areas of the entire state of Mississippi. A survey of the area conducted before Camille in 1969 for the Mississippi Power Company showed 7 percent of the working labor force in manufacturing, 10 percent in service and miscellaneous, 11 percent in trade, 17 percent in government, and 47 percent in "non-manufacturing." About 3.4 percent of the labor force was unemployed. In Biloxi, the main industry is tourism and conventions, with hundreds of the latter being held in the city each year. The second most important industry is fishing and seafood canning (shrimp and oyster), with the Keesler Air Force Base ranking third. Gulfport, situated almost exactly halfway between New Orleans, Louisiana and Mobile, Alabama, is more economically diversified than Biloxi. In the manufacturing arena it has a large number of workers in the steel, aluminum, glass, and garment industries. It has a fine shipping harbor and a huge new banana terminal. The tourism and military industries are also important in Gulfport. Pass Christian's main industry is garment manufacturing and weekend cottagers. Many residents of Harrison (and Hancock) County are employed at the new National Aeronautics and Space Administration's Mississippi Test Facility.

Politically, Harrison County is governed by a county board of supervisors, one elected from each of five seats. The cities of Gulfport and Biloxi are governed by a mayor and two commissioners. Pass Christian has a mayor and five aldermen. However, in terms of long-term rehabilitation and development after the storm, tremendous power was vested in the governor's emergency council, appointed by the governor on September 6, 1969. Originally composed of ten prominent white Mississippians, it was expanded at the request of President Nixon on January 1, 1970 to include an additional two whites and three blacks. By order of the President, all federal agencies giving disaster aid to Mississippi had to



# MISSISSIPPI MONITOR'S MAP OF COAST

- U. S. Highway
- 4-lane U. S. Highway
- Miss.-La. State Highway
- Alabama State Highway
- Being 4-laned at present
- U. S. Highway
- Paved Road
- Other Road
- Improved & unimproved

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coordinate their efforts and activities through this body. The council also oversaw all applications for federal assistance under Public Law 875.

Geographically and ecologically, our study area is "bounded" to the south by the Gulf of Mexico (Mississippi Sound), to the east by the Bay of Biloxi, to the west by the Bay of St. Louis, and to the north by the city limits of each municipality. It is important to note that the elevation of the area ranges from zero to 18 feet above sea level and that Biloxi is a peninsula bounded on three sides by water. Bayous extend inland from both the Bay of Biloxi and the Bay of St. Louis. Islands off the shore of Biloxi were the home of deer and other wild-life whose carcasses were washed into the mainland contributing to the pollution of the artesian well-based water system.

A 28-mile magnificent golden sandy beach about 100 yards wide stretched the length of the Gulf Coast from Biloxi to Pass Christian. Interstate Highway 90, a major four-lane artery, paralleled the coast, seldom more than 150 yards inland. It was "guarded" by a 5 to 11 foot-high seawall. Between the coast and the highway were the canning factories, docks and marinas, and tourist recreation spots. Immediately north of the highway were the gorgeous tourist hotels and the stately ante-bellum mansions. In Biloxi a residential district was between this beachfront property and the commercial heart of the town. On the northern side of the business district the towns had more residential districts. A railroad line running parallel to the coast about a mile or less inland represented a benchmark to local authorities. North of the railroad tracks was considered safer ground.

Harrison County contains three military bases. One is Keesler Air Force Base, located in the geographical heart of Biloxi. It houses a Pilot Training School and an Electronics Communication Center. Its runways received many military flights bringing relief supplies to the area. Gulfport Airport, situated in the northcentral part of the city, handled the majority of the incoming mercy flights. Its hangers were used as storage warehouses. In addition, the Air National Guard headquarters there was converted into the state emergency operations center (EOC). The second military base in the stricken area is the Naval Construction Battalion Center located in western Gulfport. It possesses vast resources of heavy construction equipment useful in clean-up operations. The third military installation is the National Guard which has an engineering and a transportation battalion in the impact area. In addition, the NASA-MTF complex is located just west of Bay St. Louis. It contributed medical and management resources to the initial recovery effort in Pass Christian.

In terms of disaster experience and community preparedness, the study area has to be considered fairly well prepared and knowledgeable, despite the peculiarities of the warning process for this particular storm. Hurricanes are a common phenomenon in the Gulf of Mexico, and the Mississippi Coast has often been on the fringes of hurricanes which passed through Texas, Louisiana, or Florida such as Hurricane Betsy in 1965. More recently, in 1968 a small tornado ripped through the Ocean Springs area, killing four persons. Going further back in history, the Harrison County area also experienced severe hurricanes in 1915 and 1947. The 1947 storm came the closest to Camille in terms of amount of damage, but Camille was by far the most devastating.

Both the Biloxi and the Gulfport-Harrison County Civil Defense organizations were salient and generally legitimated community organs, as indicated by their role before and after the storm. In terms of interorganizational integration, it is important to note that the Harrison County and Biloxi Civil Defense directors are a husband-wife team and that the Biloxi mayor and Civil Defense director form a brother-in-law/sister-in-law team. More generally speaking, it is probably safe to assume that due to the size and number of organizations in each community and the size of the communities themselves, interorganizational integration is likely conducted on a very informal, interpersonal level.

A civil defense exercise simulating EOC activity for a nuclear blast had been held a few months prior to Camille, involving Biloxi city government department heads, utilities companies, etc. The officials reported that the exercise helped them during Camille since the extent and location of the actual damage of Camille was very similar to that of the simulation.

Given the existence and cooperation of the local military institutions, the human and physical resources of the coast were enormous and would have represented adequate preparation had the storm not been so extremely powerful.

The existence of written hurricane plans by such organizations as Civil Defense, the local television station, Keesler Air Force Base, the Seabee base, and others is another indication of the disaster subculture present on the Coast. (The Biloxi hurricane plan had been revised one month before the storm, but not yet mimeographed and distributed.) Other elements of the disaster subculture included widespread distribution of hurricane tracking maps and county hurricane shelter and elevation maps, as well as the possession by many residents of camping stoves, lanterns and flashlights.

#### Methodology of the Study

The Disaster Research Center sent a two-man team of observers to the stricken area two days after the impact. Their activities consisted mainly in observing the operations of the Emergency Operations Center and in making contacts with local Civil Defense and Red Cross officials.

Five weeks after the storm, DRC sent a six-man field team (composed of experienced, white, male, sociology graduate students all of whom had a Northern background) to the Mississippi Gulf Coast. For four days these researchers conducted tape-recorded, open-ended interviews with selected respondents (informants) in the communities of Pass Christian, Gulfport, Biloxi, and Pascagoula, as well as with several Harrison and Jackson County officials. These interviews, combined with other tape-recorded interviews with several state government and military officials in November 1969, constitute the bulk of our data. Interviews were conducted with about fifty respondents occupying a high level position in the following types of organizations: weather bureau; radio and television stations and newspapers; local police, mayors and Civil Defense; county sheriffs; Governor's

office; state Civil Defense; and Highway Patrol, National Guard, and local military installations. Other data sources include documents provided by the Chambers of Commerce and the organizations interviewed, as well as publications listed in the bibliography.

Due to the magnitude of the response to the storm and in the interests of data manageability, the present study has a very specific focus. We are concerned with obtaining a detailed descriptive account of activities in the realm of three disaster-related task areas: warning; evacuation, search and rescue<sup>4</sup>; and community order. On the basis of these detailed accounts and responses to further structured probing, we shall conduct an analysis of community coordination from an inter-organizational relationships perspective.

Our major focus will be on a comparison of the responses of Gulfport and Biloxi. One reason for this is that we have better data from these two communities. Also, these communities are larger than Pass Christian and Pascagoula and, hence, a broader spectrum of organizations exists in the former. Also organizations in the larger cities are more likely to be larger and more complex than in the smaller towns and we encounter fewer cases of "organizations" consisting of merely one individual. A further factor determining the focus of this study was an effort to hold relatively constant the pattern of damage and disruption in the communities studied. Biloxi and Gulfport suffered comparable damage and disruption whereas damage and disruption were much more severe in Pass Christian and much less severe in Pascagoula. In fact, Pass Christian was so severely afflicted that a total evacuation of the community was carried out on Wednesday, August 20, 1969, and the Naval Construction Battalion was assigned responsibility for emergency clean-up and recovery. Thus, intraorganizational relations assumed greater significance and interorganizational relationships did not exist on a level comparable to those in the other afflicted communities.<sup>5</sup> However, where appropriate data is available, reference will sometimes be made to Pass Christian and Pascagoula for illustrative purposes.

The study is also focused on a specific temporal period extending from four days before impact to one week after impact. Although many organizations did not resume normal operations until four, five, or more weeks after impact, it is felt that our eleven-day time span captures the essence of the critical emergency phase.

Some comment on the reliability and validity of the data is necessary. It is the opinion of the author that reliability and validity were threatened by two prime factors: elapsed time between the storm and the data collection, and the physical and emotional strain experienced by the interviewees during the crisis period. The rapidity with which events occurred, long periods of time with little or no sleep, and the necessity of making numerous on-the-spot decisions all contributed to a sense of strain which impaired the memory of some respondents more than others. In particular, most respondents found it impossible to specify times and dates of events, as standard social definitions of time lost their meaning, as they do in any large-scale disaster. Another limitation of the study may be in the realm of community conflict. An intense spirit of community pride, determination, and solidarity emerged in the wake of the storm. This was at least partly a response to the

criticism and convergence of "outsiders" (particularly newsmen who often filed inaccurate reports). It is possible that this emergent community solidarity may have unconsciously influenced the recollection process for some respondents, thereby introducing response bias which tended to minimize community conflict. This is illustrated by the contradictory reports from officials regarding the extent of looting, and the almost universal laying of responsibility for looting on "outsiders."

To counter some of these tendencies, concerted efforts were made by the field staff to obtain cross-validity; written records or logs of events and meetings were referred to where possible.<sup>6</sup> Also, due to the magnitude of the storm, many of the events registered an indelible impression in the minds of the respondents and even five weeks later many events were conveyed to us in vivid detail. Thus, although a totally accurate assessment of the validity and reliability of the data is not available, the author does conclude that, from the perspective specified, the data do provide a general understanding of community coordination.

And finally, the Disaster Research Center wishes to express its appreciation to the officials of the Mississippi Gulf Coast whose cooperation made this study possible. Despite being busy, they gave generously of their time in the hopes that knowledge of their experience might benefit others in similar positions. Their spirit and determination to fight back in the wake of Camille were truly remarkable.

#### A Note on the Location of Organizational Interrelationships

The geographical location of respective organizations which interact has implications for the coordination of the community response as a whole, in terms of vulnerability to the disaster agent, familiarity of boundary personnel, knowledge of the local environment, etc.

Our analysis takes community coordination as the variable in need of explanation. In doing, we define "community" in terms of established municipal boundaries. This arbitrarily narrow definition of the term is more manageable in terms of the model under study. However, for a disaster of this magnitude so-called "extra-systemic units" must be considered if the community response is to make sense at all. At the same time, the breadth of the disaster agent was such that, pragmatically speaking, the definition of community to those organizations involved, varied from the entire tri-county area, to the Harrison County area, to the specific municipalities involved.

The point is made that the fact that, say, organizational regional headquarters or state capitals may have locality-relevance during a disaster, is argument enough for their inclusion as a systemic component. This is a point well taken. However, due to limitations in the data obtained at the state government level, we must regard the state forward EOC as an extra systemic unit.

## Warning

### Controversy

A great deal of controversy has arisen concerning the adequacy of the warning for this storm. The warning process was the object of federal government study which concluded that the forecasting abilities of the Environmental Sciences Services Administration (ESSA) are inadequate and that the residents of the Gulf Coast were "lulled into a false sense of security"<sup>7</sup> by the weather warnings preceding Camille. The report indicated that not enough penetrations into the "eye" of the storm had been made by reconnaissance aircraft. In addition, the Air Force was said to have had good planes but inadequate equipment for such purposes, while the Navy is said to have good equipment but poor planes for flying into the eye.

The weather warnings and advisories under-estimated the strength of Camille and the height of her tides,<sup>8</sup> even as late as the 1:00 p.m. bulletin issued on Sunday. In that bulletin the highest winds were estimated at 160 m.p.h. and tides of up to 15 feet were predicted. An additional complicating factor was that Camille did not take a north-by-northeast turn, as predicted. Thus, it was not until 3:00 p.m., or 8½ hours prior to impact, that the residents of Gulfport received official notification from the weather bureau that the eye was expected to hit at or near their city. One meteorologist speculated that the reason why this turn didn't materialize was perhaps that Camille was so strong that she created her own environment, overpowering the forces in the environment which would have caused the turn.

### Adequacy of Warning

However, despite the criticism of the government report, officials of the stricken area generally felt that the warning was adequate. They credit responsibility for the saving of thousands of lives to one man -- a Mobile, Alabama meteorologist. He had a "hunch" that, despite predictions to the contrary from the New Orleans weather bureau, the Mississippi Gulf Coast, rather than the Alabama-Florida coast, would bear the brunt of the storm. Enjoying a close personal relationship with officials on the Mississippi coast, he decided to step outside his legal jurisdiction and advised evacuation of the low lying areas along the Mississippi Coast. Thus, at 5:00 on Sunday morning, he telephoned that message to the Harrison County and Pascagoula Civil Defense Directors, the Biloxi TV station manager, the Red Cross, and the Biloxi mayor. This enabled them to meet that morning and step up the pace of their preparations and commence their evacuation program.

### Problems

Several problems complicated the warning process. The first was that the most recent of the local papers were published on Saturday before the change of events. Thus, while they listed precautions for the civilian population to follow, they contained out-dated information and failed to convey the sense of urgency which developed Sunday. Secondly, the morning's weather on Sunday was not at all

indicative of a hurricane. Many of the locals were seafarers who regarded themselves as weather experts. The deceptively clear and sunny weather contributed to a certain reluctance to evacuate. Third, many of the locals had a certain allegiance to a New Orleans television weatherman. Unfortunately, some of his data were not as up-to-date as those being supplied by the Biloxi television station. Thus, those people tuned to the New Orleans station were receiving less "accurate" warnings. A fourth problem was that of counter-acting the disbelief of the civilians. Many had successfully "ridden-out" a severe hurricane which struck the area in 1947, as well as others since. They felt themselves to be experienced and could not conceive of a storm of greater magnitude than that of 1947. Thus, they felt safe in not evacuating inland. Also, many could not conceive of tides of the predicted heights.

### Positive Features

However, there were several positive features of the warning process. One was that the Mobile Weather Warnings were given high credibility by the Mississippi coastal residents. This was because the Bureau had made it a practice in the past not to "over-warn" the people -- that is, to keep the confidence of the people by issuing conservative warnings which would not needlessly alarm the people. A second positive feature of the warning process was that the Harrison County Civil Defense unit had distributed ten thousand maps of the county to residents. These maps showed 10 and 20 foot elevations and were useful in allowing citizens to determine if they were in a dangerous area for flooding.

### Procedures and Agents

The procedures for warning the residents revealed both similarities and differences among the cities affected.

The agents of warning were numerous. The electronic media broadcast evacuation appeals from the various local mayors, sheriffs, Civil Defense directors, station managers, and even the state Civil Defense Director and the Governor. WLOX Radio Station in Biloxi made tape-recorded copies of appeals by these government officials and delivered them to other coastal radio stations via State Highway Patrol cars.

In Pass Christian and Biloxi, sound trucks made the rounds of the streets three times, disseminating warning and evacuation information. In Pass Christian a house-to-house check was conducted before dark. The fire whistle was also blown several times during the day for the prescribed length of time, and the police rode around the community issuing warnings until 9:30 p.m. In Gulfport we were unable to determine if sound trucks were used. However, it is known that the police department was out on the streets before, during, and after the storm. In addition, sheriff's deputies went into the outlying county areas warning the people there.

The Gulfport mayor thought that, to ensure consistency of content, it would be advisable to restrict the source of warnings to one person and called upon the

Harrison County C.D. Director to fulfill this role. However, due to the greater familiarity of the mayor in the eyes of the people, he now feels that the mayor should fill this role in the future.

The Biloxi mayor served as a role model to many when he removed his father from his beach-front home. This served to emphasize the gravity of the storm to the people. In addition, Biloxi officials made every effort to use as warning messengers people whom the beach-front home-owners knew and trusted.

### Policy

The policy of all the warners seemed to be that of conveying the immense seriousness of the storm while avoiding "panicky" tones.

### Content

The content of the warnings was not particularly unique, except maybe for the use of the maps. The standard procedures for civilians to follow were detailed and evacuation centers were listed. The 1947 storm was used as a reference point and detailed comparisons (especially in terms of tidal heights) were made between it and the predictions for Camille. Weather advisories gave the latitude and longitude of Camille so that citizens could track her themselves on tracking maps obtained from local gasoline stations.

### Role of Mass Media

Different news media followed different policies with regard to abandoning regular programming. A Biloxi radio station retained its regular Sunday programming but interrupted every 5 to 10 minutes with bulletins. One Gulfport radio station carried warnings and public service information on Saturday and then completely abandoned its standard programming at noon on Sunday. Another Gulfport radio station ceased regular programming at 3:00 p.m. Sunday. They carried 5 minute reports by the Harrison County Civil Defense Director every 45 minutes and read lists of shelters every half hour. The Biloxi TV station followed a similar format to the radio stations. It and its sister radio station stayed on the air broadcasting hurricane messages until the power was cut off at approximately 10:30 p.m.

### Summary

In summary we note that the storm was originally predicted to hit Florida and that not until the 5:00 a.m. Sunday advisory was Biloxi officially moved from "Hurricane Watch" status to "Hurricane Warning" status. Gulfport was still not predicted to receive the brunt of the storm until 3:00 p.m. Sunday (Note that the eye did not hit Gulfport but rather Pass Christian.). However, through informal communications with the Mobile weather bureau, evacuation warnings were instituted all along the coast and the shelters were open to receive refugees by 9:00 a.m. Some local officials would have liked earlier warning but almost all had high praise for the weather bureau and considered the local warning task to have been adequate and thorough. Casualties and refusal to heed warnings were attributed to disbelief and lack of experience.

## Search and Rescue

"Search and rescue" as the term is used here includes: (1) the finding and freeing of injured and entrapped persons in the disaster area; (2) the transporting of injured to hospitals or emergency first aid stations; and (3) the providing of essential search-and-rescue tools and equipment. The freeing of persons trapped by high waters usually also involved their evacuation to designated shelters.

Search-and-rescue activities were conducted mainly by the following organizations: National Guard (Biloxi unit), the Naval Construction Battalion ("Seabees"), Keesler Air Force Base, Gulfport and Biloxi Police Departments, Pass Christian volunteer fire department, a Pass Christian teenage boys rescue group, and neighbors. It is apparent that many more lives would have been lost had it not been for the close proximity and massive, willingly-rendered assistance of the local military organizations.

Our discussion of search and rescue activities will focus on two time periods: first, before and immediately after the storm; and second, from Tuesday onwards.

### Sunday and Monday

Due to the warnings discussed earlier, many residents of the Gulf Coast either evacuated inland, or sought protection at designated Red Cross shelters. For instance, a taxicab company evacuated about 1,500 persons (free of charge) immediately before the storm. However, many people were reluctant to leave their homes. This was particularly true of three types of persons: some males, the elderly, and members of some ethnic groups. An official hypothesized that some males defined evacuation as an unmanly act, and thus resisted. The Biloxi area also attracts immigrants from other fishing countries all over the world. It was suggested that because they and the elderly had worked so hard for so long to acquire what they had, they were reluctant to leave it unattended. In short, it was all they had. Thus, from a human perspective, evacuation operations were not operating at peak efficiency due to the fact that many of these evacuees refused to leave until valuable possessions (e.g., stove and refrigerators) had been moved to a higher and safer place in the house by the evacuators. It was the policy of most organizations involved to evacuate persons only, not possessions.

Legally, a resident cannot be forced to evacuate his premises. For instance, Pass Christian officials pleaded with a group of people at the beach-side Richelieu apartments to evacuate. Some did, but the police were powerless to arrest those who insisted on remaining behind to enjoy a "hurricane party" while riding out the storm. The apartments were leveled and all twenty-three persons were killed. Citing incidents such as this, a police officer recommended the invocation of Martial Law before impact so that persons could be legally, forcibly evacuated.

Search-and-rescue operations began with the pre-positioning of men and equipment at strategic points along the coast. As calls for assistance came in to Civil Defense Headquarters the rescue unit (either Civil Defense or National Guard)

would be dispatched to the scene. Biloxi Civil Defense placed rescue teams at four locations which were expected to be hard-hit. The Harrison County Civil Defense rescue equipment consisted of five teams of which Biloxi had two and Long Beach had one. There were two light-duty teams consisting of four men each and equipment, and three heavy-duty teams each comprised of eight men and equipment. The men possessed needed skills, such as welders, plumbers, carpenters, and riggers. Equipment consisted of trucks, lifting devices, ropes, one Biloxi-owned "duck" (amphibious vehicle), etc. One heavy-duty rescue truck was totally ruined (and thus out of service) when it was trapped by rising waters. Around 9:00 p.m. the Harrison County rescue units were ordered to "batten down" and cease rescue work as the wind was blowing them off the roads. Thus, the onus was put on the police and National Guard units to do rescue work for the remainder of the night.

Fortunately the only amphibious unit in the National Guard system in the United States is located at Ocean Springs. This company has a full complement of about thirty "LARCs" which are amphibious vehicles capable of operating on land or water. Official reports indicate that 16 LARCs were available for use during Camille. The National Guard also has a light truck unit at Pascagoula, a platoon of LARCs at 135th Transportation Battalion Headquarters in Biloxi,<sup>10</sup> and light-to-medium truck companies at Bay St. Louis and Poplarville, with platoons at Wiggins and Pascagoula. All this equipment is obviously of immense importance to rescue capabilities. Fortunately, the 135th Battalion had been on drill that weekend, so formal activation of the Guard was not problematic. After activation men and equipment were pre-positioned at strategic points<sup>11</sup> along the Gulf Coast and assigned the basic mission of evacuation prior to the storm. At about 9:00 p.m. the Adjutant General ordered that all personnel be put on a volunteer basis. However, most of the LARC unit remained on duty and picked up an estimated total of 2,200 persons from roof-tops, tree-tops, telephone poles, etc.

The usual rescue pattern that developed for the National Guard was that a message would be received that a person or persons were in need of rescue. An LARC or truck would be dispatched, but before reaching its destination it would encounter other victims en route in need of rescue. It would proceed thus, sometimes making several stops to lend assistance. Sometimes it would be filled to capacity and so would have to return the evacuees to safe shelter before setting out again on its original mission. We have reports of an LARC and a truck returning carrying 12 and 35 evacuees, respectively.

Communications were a problem throughout the National Guard's rescue operations. Without telephones or direct contact with units in the field, information often was passed along in a multi-step relay process. However, the communications difficulties were partially alleviated by local ham radio and Citizen's Band operators who relayed rescue and equipment requests to and from police, Civil Defense and other organizations.

The National Guard also had an engineering unit at Gulfport. However, this unit was used solely post-impact for security and community order.

The Gulfport and Biloxi police were also out in the community all during the storm. Biloxi policemen worked with the National Guard relaying rescue requests to

them via ham radio and accompanying them in the LARCs and trucks on search-and-rescue missions. In fact, they brought approximately 200 civilians to Biloxi Police Headquarters for shelter around 11:00 p.m. Sunday. However, the Biloxi Fire Department made only a few rescues as it restricted its role to fire protection. The Gulfport Police Department did not have a special rescue squad. Instead the policemen patrolled their beats in more than 20 cruisers (each containing 2 to 4 men) and performed rescues as they encountered persons in trouble. In addition, as calls for rescue came into police headquarters, groups of four or five volunteers from the auxiliary police force were dispatched. The police department evacuated many citizens at the "last minute" to shelters, hospitals, or friends' homes, although their rescue efforts were severely impeded by numerous flat tires on their cruisers. Police headquarters never lost radio communications with the cruisers all throughout the storm, although telephone service at headquarters was restricted to incoming calls only. Both the Biloxi and Gulfport Police Departments suffered damage to police vehicles during the storm. Biloxi was left with only 8 cruisers, several others having sustained severe damage, while Gulfport incurred about \$10,000 damage to its automobiles and another \$7,000 damage to its radio equipment.

On Monday transportation and communications capabilities were drastically reduced,<sup>12</sup> thereby preventing any large-scale coordinated rescue effort. An official described it as a "scattershot operation" whereby rescue teams (both pre-established and emergent) literally went out looking for trouble. It couldn't have been any other way. For instance, communication was so bad that one official declared, "There could have been a woman in a tree three blocks from here and I would not have known, let alone be able to dispatch pieces of equipment to her." Many people were trapped in trees and bushes, on roofs, under collapsed buildings,<sup>13</sup> or in other desperate situations. Thus, the emphasis was on saving the living rather than attending to the dead.

In Pass Christian some local officials were temporarily unavailable to assist in search-and-rescue operations. Thus, extensive use was made of the volunteer fire department and a group of teenage boys who one month earlier had formed specifically as a rescue group.

Men from Keesler Air Force Base also became involved in search-and-rescue activities. As soon as the winds had safely subsided on Monday morning Keesler put its two helicopters into operation assisting the civilian community. After receiving requests from local officials helicopters would be dispatched on specific search missions. They would evacuate sick and injured to hospitals by air since the roads were impassable. In addition, they were used to help evacuate ambulatory patients from damaged hospitals in Long Beach and Gulfport.

### Tuesday Onwards

On Tuesday the disaster response was just beginning to acquire a planned and organized division of labor. One lane of the main traffic arteries was made passable where possible to facilitate the movement of emergency vehicles. Most of the people who were trapped in accessible and readily visible places had been rescued. Police and National Guard units were occupied mainly in traffic and security activities and most citizens went about their own salvaging operations.

This meant that search-and-rescue activities were mainly the responsibility of the Seabees and Keesler A.F.B., although the National Guard did keep 6 LARCs and crews on call for 8 to 9 days post impact. These units were used to search for bodies along the coast and in the Back Bay and Bay St. Louis areas.

By fortunate coincidence these military installations were well equipped to handle search-and-rescue activities. Keesler had a team of scuba divers, especially trained in body recovery. They were also used in the Back Bay area as well as along the front waters. Their helicopters were useful in spotting isolated stranded survivors north of Biloxi, and in dropping c-rations, medicine, clothing, and bedding to them. Additional helicopters were obtained from the Navy, the Army, and the Coast Guard (Mobile, Alabama). Airmen were also used not only to help in debris clearance but also on foot search-and-rescue patrol. The Naval Construction Battalion at Gulfport is one of only three of its kind in the entire United States Navy. Among its resources are amphibious tanks ("amtracs") used principally for on-base rescues, heavy construction equipment such as front-end loaders, 400 recruits, a staff of 150, and the staff and students of its Disaster Recovery Training School.

The Seabees suffered extensive damage to their huge base. Thus, Monday was spent in emergency restoration on base. In addition, unlike Keesler A.F.B. which had extensive, closely-coordinated pre-emergency relations with local Civil Defense, the Seabees did not have a pre-existent definition of their role in the community's disaster response efforts. Not wanting to impinge on the functional domains of Civil Defense, Red Cross, OEP, National Guard, etc., and lacking sufficient information inputs as to the severity of the impact on the civilian community, the Seabees spent Monday attending to their own problems and waiting to be requested to render assistance. On Wednesday the governor of Mississippi did request their assistance in the evacuation, search and rescue, and restoration of Pass Christian. Officials of the nearby National Aeronautics and Space Administration - Mississippi Test Facility had voluntarily deployed men and equipment to Pass Christian on Tuesday and the NASA-MTF manager played a large role in the organization of the town's response. However, the Seabees were called in to replace them.

The Seabees committed four battalions (over 700 men) to Pass Christian, Long Beach, and east Gulfport areas. They were on search-and-rescue operations for about one week. The procedure was to divide the area to be covered into sections. Within each section they lined up men 4 feet apart and started walking, trying to detect odors. Eventually, Army "sniffer dogs" were brought in to try to find bodies. Amphibious vehicles were used in the beach area as the possibility could not be overlooked that bodies may have been washed out to sea or buried in the beach sand when the tidal waters receded. In fact, a helicopter pilot did report sighting about 40 human bodies afloat at sea, but boats were unable to locate them.

#### Summary

In summary, then, we note that search and rescue activities occurred in two distinct phases. In the first, Sunday and Monday, rescue often involved evacuation of persons trapped by rising waters. Of particular importance in these activities

were the amphibious vehicles of the National Guard, as well as heavy trucks from the Guard's local transportation battalion. Some coordination of the police, Civil Defense, and National Guard rescue response was apparent in the division of labor which emerged here. However, the breakdown of transportation and communication facilities on Monday was reflected in that day's uncoordinated rescue effort. Helicopters from the Air Force base were helpful in overcoming the barriers to ground transportation.

The second phase, after Tuesday, witnessed a reconstruction of social order, illustrated in the search and rescue task area by the full deployment of the vast disaster-relevant resources of the Naval Construction Battalion and the Air Force base. The initial ambiguity of the "Seabees" role was clarified when the governor assigned them to the Pass Christian area.

#### COMMUNITY ORDER

"Community order" is used here to refer to the major tasks of (1) guarding property, (2) patrolling danger areas, and (3) directing traffic in and near the impact area.

The prime organizations involved here and their manpower commitment were the Mississippi National Guard (4,000 - 4,100 maximum), Gulfport Police Department (about 200 regulars and 50 auxiliary), Biloxi Police Department (50 regulars and 25 auxiliary), Harrison County Sheriff's Department (70 including 12 deputies). The Pass Christian Police Department also had a force (4 regulars, 2 part-time, and 20 auxiliary) involved as did the other small municipalities (e.g., Long Beach) who were not interviewed. In addition, some civilian volunteers were used in the daytime to direct traffic. Neither the Navy Seabees nor Keesler Air Force Base was involved in community order operations, except for some unarmed volunteers offered to the National Guard by Keesler. The Mississippi Highway Patrol was involved mainly in traffic control on state and federal highways during both the evacuation and recovery phases. They did not become involved in other community order tasks unless requested to do so by the local law enforcement agency. Even then, their participation was only of a temporary nature until the National Guard could replace them.

At 10:00 a.m. on Tuesday the Harrison County Civil Defense director called and chaired a meeting at Civil Defense headquarters in Gulfport. Among those present were mayors and the executive branch of local governments in the tri-county area; the state governor, adjutant general, and attorney general; representatives of the local military installations; and the county sheriff.<sup>14</sup> (No local police or fire representatives attended.) Among the resolutions passed at this meeting <sup>15</sup> was that a "partial" martial law, limited to law enforcement only, would be instituted for one week.<sup>16</sup> It appears that there was less than total consensus on this matter, with both local and state authorities contending later that the other requested it.<sup>17</sup> In Harrison and Hancock Counties martial law was in effect from 11:35 a.m. Tuesday, August 19th until 11:59 p.m. August 27th.

\* "Martial law" was never declared. Martial rule, the official name, was ~~never~~ never in place. Apparently local officials never understood what the term <sup>incorrectly</sup> ~~meant~~ legally means and used the phrase ~~incorrectly~~. Also, the author, a Canadian, did not understand its meaning in the United States.

Jackson and other inland counties came off martial law earlier. Although the adjutant general, under martial law, was technically in command, relationships between the National Guard and local police departments varied as to the degree of cooperation-subordination.

One of the problems which arose in the realm of community order was profiteering by local businessmen. There were reports of ice being sold at one dollar per pound and bread at fifty cents per loaf. Another report indicated that water was being given away at one location but the recipients were taking it and selling it one block away. Thus, the adjutant general issued a proclamation under martial law requiring prices to return to their August 16, 1969 level.

A basic responsibility which the National Guard shared with local police was that of protecting against looting. Most mass media reports of looting were apparently exaggerated or completely unfounded. Many people labeled as looters were merely trying to salvage their own goods. Also, National Guardsmen who were accused of looting were apparently only helping a citizen recover his possessions. Several reported looting instances were clear-cut cases of simple burglary before the storm. Other articles reported as looted may have been blown away or swept away by the strong tidal waters. It was even suggested that some residents may have reported storm losses as cases of looting in an attempt to collect insurance, since most insurance policies did not cover losses due to water.

Some Gulf Coast officials flatly deny that there was any looting. Others suggest that looting existed but was carried on by outsiders. These statements may reflect the community solidarity following the storm (e.g., "Together we build the Mississippi Gulf Coast!" and "We shall rise again!") and may even be an overreaction to the mass media looting stories. On the other hand, there were many "negative cases" of looting reported, whereby goods would be returned to owners. However, there was unquestionably some looting in some communities, as the Disaster Research Center spoke to individuals who knew of verified incidents. In addition, the Biloxi Police Department reported about 25 arrests for looting and the Gulfport Police Department reported 10 looting cases <sup>18</sup> One of the problems that was faced in apprehending looters was a lack of coordination. Other cities' police departments would come in to help with security, but would sometimes actually get in the way, using such tactics for apprehending looters as driving with lights off along the beach and then suddenly turning the lights on.

Another community order problem involving a lack of coordination was the whole matter of passes. There was a duplication of function here as passes were issued by several agencies (at least three, some respondents say five), including the city police, the National Guard, and the sheriff. Sometimes passes issued by one agency would not be honored by another agency, creating interorganizational tensions. Sometimes the pass system was perhaps too rigidly enforced, as in the case when a convoy of four official Air Force trucks carrying milk was stopped and the two trucks without passes were turned back. In Gulfport the entire pass-issuing operation became such a burden on the police department that it was transferred to city hall.



came across a window or door which had been blown out in the commercial districts, they immediately boarded it up, thereby alleviating the necessity of posting a guard there. During the storm cruisers were damaged by flying debris and weapons and equipment were damaged by the salt water spray. Thus, the assistance rendered by outside police agencies such as Baton Rouge, Morgan City, Mobile, and New Orleans was greatly needed and appreciated. In total, the New Orleans Police Department sent about 15 vehicles and 35 officers to the stricken area, including a communications van for the Gulfport Police Department. The Mobile Police Department sent men, 8 motorcycles, and an automobile.

The Gulfport Police Department attempted to maintain a high degree of autonomy within the local organizational environment. In general, it appeared that the Guard did not impose its full authority on the Gulfport police and their relationship was of a cooperative nature.

The police and National Guard worked much more closely in Pascagoula and Pass Christian. During the evacuation, search, and rescue operations, the Pascagoula Police Chief was reported to be in charge of his own 50-man regular force and 22-man auxiliary force as well as the National Guard unit which was working with him. During the post-impact security phase the police and National Guard sometimes worked separately and sometimes together in mixed teams. In the latter case, there was no one individual officer exercising authority over the entire mixed team, despite the National Guard's mandate under martial law. Auxiliary police were used mainly to guard the shelters and answer calls coming into the police station, thereby freeing the Guard and regular police for roving patrols and shopping plaza security. The lines of authority and communication were headed by the police chief and a National Guard captain at police headquarters. At the armory were stationed a police officer and a Guardsman who were responsible for dispatching the police and Guardsmen out of the armory and transmitting the decisions and policies of the chief and captain to the men. The upward flow of communication also followed the same channels. The police chief felt that this was a very effective means of operating.

In Pass Christian the local police were supplemented by civilian volunteers for daytime traffic control, and by the Harrison County Sheriff's Department, National Guard, and (after the Guard left) the highway patrol for security operations. Looting was a severe problem and at night Guardsmen were placed on every street corner. While martial law was in effect the Guard made most decisions regarding troop deployment locations, but afterwards, there was a closer, cooperative effort with the town police. The town police also patrolled outside their jurisdiction in order to assist the one-man police department of neighboring, low-lying, and severely damaged Pass Christian Isles.

#### Summary

The major features of the community order operations, then, were the invocation of martial law and the establishment of curfews and pass systems, the nuisance of sightseers, and the problems of traffic congestion and looters. Profiteering was quickly checked by executive order. The already depleted resources of the local police departments were unable to meet the demand for their services, so extensive outside aid was brought in, in the form of men and equipment from other police

departments. The National Guard also was deployed in traffic and security functions and although the Guard held authority under martial law, relationships varied between municipalities with regard to the degree of superordination or cooperation with the local police. The Harrison County Sheriff's Department was at first involved only in traffic control, unlike the Jackson County Sheriff's Department which was active in security operations.

### Community Coordination

#### An Overview

According to the Weller and Kreps model<sup>21</sup> for the study of community coordination, interorganizational relationships are viewed as the dependent variable, the existent pre-disaster organizations within a community as the independent variable, the community as ecological and social unit as the contextual variable, and the disaster event as the intervening variable. We shall try to employ this perspective and test it for "goodness of fit" by performing a comparative analysis involving five selected organizations. However, as the need for modification of the model becomes apparent, we shall suggest appropriate changes.

In general, the model is perhaps better suited to the pre-impact<sup>22</sup> and impact stages of the Camille disaster, than it is to the post-impact emergency stage. This is because the model was designed for a localized rather than a diffuse, regional, or national disaster such as Camille. That is, in terms of the model, the breadth and intensity of Camille were such that the demands placed on the Biloxi "community system" and the Gulfport "community system" were far in excess of the systems' supplies of available human and material resources. Thus, we observe in the post-impact stage that every community organization studied included within its organizational set at least one salient extra-systemic component. But the specific criticisms of the model and features of the selected focal organizations are better understood in the broader context of the total coordinated response, to which we turn first.

The first hint of Camille's formation as a tropical storm located south of Cuba came on Thursday, August 14. From then on the National Hurricane Center (Miami) and other U.S. Weather Bureaus in New Orleans and Mobile issued advisories and bulletins which were monitored and plotted by the Gulf Coast Civil Defense organizations, military bases, and mass media. Despite the fact that initial predictions showed Harrison County to be in no great danger, the Harrison County Civil Defense office began precautionary preparations on Friday. At approximately the same time, the local Navy and Air Force bases activated their hurricane count-down plans. On Saturday morning a meeting was called and chaired by the Harrison County Civil Defense Director in order to review hurricane plans and determine what actions would be taken. Present at this meeting were the county mayors and board of supervisors, county civil defense officials, representatives of local police and fire departments, National Guard, highway patrol, and Red Cross. It was decided that precautionary press releases would be issued that day, due to the lack of local newspapers on Sunday.

On Friday and Saturday many organizations, both public and private, met with their own personnel to review their own organizational plans. Friday and Saturday also saw meetings between the Gulfport city government (the mayor) and the police department and between the Biloxi Civil Defense, City Council, and department heads.

On Sunday morning, after several coast officials had received a special weather advisory from Mobile, the Harrison County Civil Defense Director called a 9:00 meeting at his office. Present were representatives of the executive branch of all local governments as well as the Red Cross. The decision was made to commence evacuation of the low-lying areas of the coast at 8:00 that morning and to open the shelters at 9:00 a.m. The officials left this meeting and returned to meet with and/or activate their own city personnel who had been put on the alert. The news media were contacted and urgent warning of the public began.

At 1:00 p.m. on Sunday a meeting of security forces including local police was held at the National Guard base for the purpose of defining specific realms of responsibility.

During the storm, coordination became problematic as communication difficulties arose. For instance, for those few telephones which were operational, it sometimes took 30 minutes to get a dial tone. Gulfport Police Department and mayor could receive telephone calls but could not call out. Even such an important organization as Keesler A.F.B. lost communications with Harrison County Civil Defense, and the equally important highway patrol district headquarters in Gulfport had their transmitting tower blown down. In addition, many city radio-equipped vehicles were lost to service due to water damage. Fortunately, the radio communication system between police and civil defense organizations remained functional.

Several Emergency Operations Centers were either intentionally or coincidentally activated. Intentional EOC's were established at Harrison County C.D. headquarters in downtown Gulfport, at the new EOC in a fire station in west Biloxi, and, of course, at the military bases. When the Biloxi National Guard headquarters had to be evacuated during the storm an ad hoc EOC developed at Biloxi City Hall. Similarly, when the Gulfport mayor learned that the Gulfport Police Superintendent's office was constructed out of reinforced steel, an EOC involving the two men emerged there. It is interesting to note the pre-impact autonomy of the Biloxi Police Department, which established its own command post at police headquarters and maintained only radio contact with the city EOC.

After the storm there was little in the way of coordinated activity until Tuesday. Monday was spent pretty much in uncoordinated main artery clearance and rescue activity by most communities. Unlike most disasters, where a community coordination meeting of local officials usually occurs within a few hours post-impact, this meeting did not occur in the Harrison County area until Tuesday morning. This was the meeting called and chaired by the Harrison County C.D. Director, as described earlier. The more important resolutions of this meeting, from our standpoint, were the invocation of martial law and the assigning of a representative of all the local military installations and executive branches of government to the EOC at Harrison County C.D. headquarters for liaison purposes. Thereafter, most "meetings" were small, informal, and hurried, as in an official "running into" someone to whom he wished to speak as that person left someone else's office.

At the state level, a forward EOC (consisting of representatives from every state governmental department) was established at the Gulfport Airport on Wednesday morning, August 20. Thereafter, it became a salient element of the community system.<sup>23</sup>

It should also be noted in passing that at least two local emergent groups appeared after impact to conduct community coordination activities. Both were civil defense-type operations, one in Pass Christian and the other in D'Iberville, north of Biloxi. The former one was led by the manager of the NASA-MTF, whose position enabled him to commit substantial vital resources to Pass Christian. In many ways he functioned like a mayor until the Navy Seabees took over on Wednesday.

### Examining the Model by Case Studies

The examination of the model will be conducted by means of three detailed comparisons. One involves the Gulfport and Biloxi Police Departments with the emphasis on the community order task area. Another comparison involves the Gulfport-Harrison County Civil Defense organization and the Biloxi Civil Defense organization with the task area focus being rather diffuse. The other involves a Biloxi television station, both pre-impact and post-impact. The pre-impact task area focus here is on warning. The selection of these particular organizations is attributable to their relevance to our three main task areas, their community-level (as opposed to state or federal) nature, and the more extensive data which we have pertaining to them.

These six organizations, then, comprise our focal organizations, whose organizational sets are of prime interest to us. Each member organization of an organizational set is termed a counter organization of the focal organization.

Table 1 portrays the overall picture of the involvement of our focal organizations in activities relating to Hurricane Camille during our eleven-day time span. The table merely indicates whether there was, in fact, contact between two particular organizations. It does not give any indication of the nature of the contact. Note that "contact" is given in terms of "reported" or "inferred." Blank cells indicate that no contact between those organizations was reported and the author was unwilling to infer that it did occur.

(i) Let us now examine the activities of a television station<sup>24</sup> in terms of the model and our proposed revisions. First, anticipating a proposed modification of the model, we discuss only the pre-impact organization set of our focal organization. This lays the groundwork for our first criticisms. We then proceed to the post-impact set.

Our model specifies several requisites for organizational action, which in general were possessed by the station during the pre-disaster stage. First and foremost, being the only TV station on the Harrison County coast, the manager adopted a "service" orientation towards the community, whereby he sensed an implied obligation to remain on the air as long as possible.<sup>25</sup> There was no question that the area of responsibility of the organization could only be warning and the issuing of precautionary instructions and that this was a domain to be shared by all mass media by means of mutual cooperation. The nature of the crisis did not call for any

TABLE 1

Organizational Sets of "Six" Focal Organizations

Contact	Focal Organizations											
	WLOX-TV <sub>1</sub>		WLOX-TV <sub>2</sub>		Biloxi Police		Gulfport Police		Gulfport-Harrison Co. Civil Defense		Biloxi Civil Defense	
	R <sup>a</sup>	I <sup>b</sup>	R	I	R	I	R	I	R	I	R	I
FEDERAL												
Office of Emergency Preparedness												
Office of Civil Defense												
Office of Housing & Urban Development												
Office of Health, Education & Welfare												
Corps of Engineers												
News Wire Services	X			X								
Non-Local Media	X						X					
Radio & TV Networks	X			X			X					
National & World Audience	X			X			X					
STATE												
Governor of Mississippi												
Attorney General												
Adjutant General		X										
National Guard												
"Health Department"												
State Div. of Law Enforcement Asst.												
Employment Security Commission												
Mosquito Control Commission												
State Emergency Operations Center												
Other state and federal agencies												
Other Civil Defense officials												

<sup>a</sup>Reported

<sup>b</sup>Inferred





human or physical resources which the organization did not already possess, and its ability to show the public which areas to evacuate, etc., was a particularly disaster-relevant resource. Its uniqueness as the only TV station served to define its relationship to various authorities and organizations. That is to say, other organizations recruited the station to act as a mediator in relaying the warning messages to the public in visual (and audio) form. While this was a mediating relationship, it can also be seen as a facilitating relationship in that the station facilitated the transmission of the warning message from the warning officials to the coastal citizens. And the final organizational "requisite," operational procedures for action, was also present, in the formal, written, very detailed hurricane plan based on a 48-hour countdown through various stages in which the actions of every individual in the organization are explicitly stipulated. However, it should be noted that the plan had to be abandoned in its later stages.

The visibility of the station tended to structure its role in the warning process. That is, it was sought out by other organizations whose requests defined relationships for the station with still other organizations. For instance, the governor telephoned the station and had the station record his appeal to evacuate. He also asked that the station disseminate copies of the tape recording to the other coastal radio stations via the Highway Patrol. Thus, we have a double mediating relationship.

Another case of the station being sought out by other organizations involved its relationship with outside radio and television stations across the country who would telephone to ask what the coast was doing to prepare for the storm. These relationships were a burden to the focal organization, as they tied up scarce personnel resources.

Reciprocal relationships existed between the focal organization and the news wires, as well as the television (and radio) network.<sup>26</sup> The news wires would request information on the situation on the Mississippi Gulf Coast, while the focal organization would supply this and in turn request information on Camille's effects in Cuba, etc. Thus, the focal organization can be seen to be acting in a facilitating capacity to the network and news services, who in turn mediate between the focal organization and national and international audiences.

Our focal organization had a very close relationship with the Mobile Weather Bureau based on the past relationship between an official of each organization. These two boundary personnel kept in close and frequent contact from Friday on. This was seen as a more satisfactory arrangement than one-way communication through official advisories and bulletins over the teletype channels. That is, use of the telephone channel of communication permitted probing and specific informal comparisons on the basis of past hurricanes (bench marks).

Another close relationship of the focal organization was with the county Civil Defense office. This, too, was a reciprocal relationship. Perhaps an indicator of the closeness of the relationship was the use of a secret code known only to the organizations involved. This code served to legitimize information received over the telephone from CD headquarters as authentic and fit for broadcast. (Similarly, an indication of the closeness of the relationship above between the station and the

weather bureau was another confidence-sharing scheme whereby the station was given access to unlisted telephone numbers of the weather bureau.) Like the local mayors and sheriffs, the county CD Director met the station's request to come to the studios to broadcast a personal appeal to the audience.

There are several factors to be noted in these pre-impact relationships. First, we note that most are "extra-systemic" relations in that they involve non-local organizations (e.g., tapes being sent to Gulfport stations). Secondly, some were non-repetitive relations in that they involved a single instance of interaction. Thirdly, some were important to the focal organization's task area, whereas others were irrelevant to it. And finally, of course, all of the relationships occurred prior to the impact of the hurricane.

These features form the basis of our first criticisms of the model. That is, it does not take into account the fact that different members of the organizational sets have different goals, resources, and needs at different periods relative to the time of impact. Nor does the model address itself to the variability of the member (counter) organizations in terms of the nature of their interactions with the focal organization. (Sometimes the fact that a counter organization is spatially located outside the community will account for some of this variability, e.g., as with the outside stations who called the focal organization.) Since an expressed objective of the model is to identify and account for the variations in interorganizational relationships it is felt here that a specification of these dimensions of variability is needed.

Thus, we propose that organizational sets be studied in relation to a particular time in the history of that disaster. We tentatively suggest seven time periods which may be characterized by distinctively different interorganizational relations. They are:

1. Pre-Disaster Period - This period sees the focal organization in its ordinary daily routine before receiving any warning of impending possible disaster.
2. Pre-Impact Period - The time between receipt of first warning and actual contact of the disaster agent with the territory in question.
3. Impact Period - The duration of the actual disaster agent. This may range from something as instantaneous as a single explosion to something as prolonged as a week-long smog crisis caused by a temperature inversion.
4. Post Impact - Essential Services Restoration Period - This period extends from the cessation of contact to the time at which essential services have been at least temporarily restored.
5. Secondary Recovery Period
6. Tertiary Recovery Period

The fifth and sixth periods may be collapsed into one phase, depending upon the magnitude of the disaster. The periods, if distinct, will be characterized by different community goals or objectives. The tertiary recovery period is seen here as involving long-term objectives.

7. Post Disaster Period - This period is marked by a "return to normalcy" as it existed in the pre-disaster period. Thus, it may become the pre-disaster period for the next disaster.

These categories are appropriate for a hurricane as the disaster agent. The schema obviously does not exhibit a close fit for other disasters such as a localized plane crash or a persisting oil slick. The development of a temporal schema suitable to most disasters would be a worthwhile contribution. However, Weller contends that rather than combine several dimensions into one scale (as we have), it is useful to employ several different time scales, each one relative to a specific task area.<sup>27</sup>

Secondly, we propose to make a gross distinction not only between a focal organization's input and output sets,<sup>28</sup> but between the members of a particular input or output set. We distinguish between "primary," "secondary," and "tertiary" members of a focal organization's set. The basis of this distinction might be the frequency, duration, or content of the interaction. In keeping with the functional approach of the model, however, we single out the content of the interaction exchange as the most valid indicator of the "primacy" of a counter organization in the focal organization's set. That is, an interaction whose content has a high degree of relevance to the performance or definition of the focal organization's task responsibilities is said to be a more central or primary member of the organizational set.<sup>34</sup> This is admittedly an arbitrary criterion. For instance, take the case of a counter organization which interacts frequently with the focal organization, taking up much of the latter's scarce time resources and preventing that time from being used for the execution of task responsibilities. Indeed, this was the case with the outside non-local news stations, but under our scheme they would not be classified as primary members of the organizational set.

In ideal type terms it may be possible to define a primary member of an organizational input set as supplying a "raw material" (information, material, equipment, or personnel)<sup>30</sup> which is directly dispensed to the focal organization's public in the performance of its task activities.<sup>31</sup> Examples here would be the weather bureau supplying data to the news media, a food manufacturer supplying food to the Salvation Army, and Keesler A.F.B. supplying a rescue team to civil defense.

A primary member of the focal organization's output set is an organization which is receiving the direct benefit of the focal organization's task efforts. An example here would be a police department receiving law enforcement assistance as a member of the National Guard's output set.

By a secondary or support member of an organizational input set we mean an organization which supplies raw material which is defined by the focal organization

as necessary or useful to its own functioning or survival. The critical difference here is captured in the difference between an organization as a goal-seeking entity and an organization as a microsystem with its own internal needs and goals. A secondary member of the focal organization's output set may be a logically void category under our scheme. However, where a focal organization's disaster-related goals (task responsibilities) are quite different from its non-crises (pre- and post-disaster) goals we may define a secondary member of its output organizational set as an organization which receives outputs (from the focal organization) which are related to its non-crisis goals. An example of a secondary input set member is a television station's advertisers and equipment suppliers. An example of a secondary member of an output set is a non-crisis customer organization of an industry (say, a dairy), which still expects to receive that dairy's milk even though the dairy may have taken on disaster-related tasks such as packaging and supplying drinking water to the stricken area. It is apparent from this example that the likelihood of the occurrence of a secondary output organization is dependent upon the degree of disruption caused by the disaster agent, as well as whether or not the focal organization is an "extending" organization.<sup>32</sup>

By a tertiary member of an organizational input set we mean an organization whose inputs are irrelevant to the task responsibilities and the survival functioning needs of the focal organization. A tertiary member of a focal organization's output set is one which receives outputs from the focal organization but these outputs are irrelevant to both the focal organization's disaster-related goals and the focal organization's survival needs. An example of a tertiary member of an organization input set is a foreign news station which telephones a television station in the target area of a hurricane requesting a human interest interview on that station's preparations for the storm. If this information is supplied, the calling station becomes a tertiary member of the focal organization's output set.

Note that because our focus is on community coordination, we take the circumscribed viewpoint that only disaster-related tasks performed for the community as the public can be regarded as involving primary interorganizational relationships. Thus, the organization which defines its role as being a supplier of information to non-threatened organizations is regarded as engaged in tertiary relationships (unless his fulfillment of that role frees other organizations to perform disaster-related tasks for the community). Note also that the primary-secondary-tertiary designation may apply to relationships, organizations, or even tasks.

It is apparent, then, that most of the relationships which we have discussed for our television station to this point are located in the pre-impact time period, with some, by implication, also slipping over into the adjacent pre-disaster time period. Let us now turn to later time periods.

For purposes of the focal organization, the impact period can be considered to have begun at approximately 10:30 or 11:00 p.m. when the electrical power was shut off. Since the emergency power supply was inoperational, the organization ceased to act as a warning task-oriented organization for the duration of the impact period. Thus, we now turn to the interorganizational relationships in the Essential Services Restoration Phase.

The utility of distinguishing between the different time phases becomes immediately apparent as we note the radically different composition of the post-impact organizational set as contrasted to the pre-impact set.<sup>33</sup> The counter organizations of this post impact set are the local morgues and funeral homes, whom the station contacted for casualty lists; a New Orleans engineer who supplied electronics equipment; an electronics corporation which supplied a transmitter; and Civil Defense which supplied generators. In addition, there was a form of interaction with a quasi-organization, the outside news media, who had converged on the coast after impact. In this interaction, the manager of the focal organization suggested in an editorial that these newsmen were welcome to leave the coast area if they persisted in filing inaccurate, sensational reports which were having a divisive effect on the community.<sup>34</sup>

We note that the relationship with the engineer, Civil Defense, and the electronics corporation were all supportive or secondary relationships. They were also facilitating relationships in terms of the Weller and Kreps model. We have here examples which first of all point out the difficulty of distinguishing whether some relationships are primary or secondary and which, secondly, point out the need for specifying whether facilitating relationships refer only to disaster-related goals or also to survival maintenance goals of the organization. Because the generators and electronics equipment are not directly passed on to the focal organization's public, we arbitrarily exclude them from the primary category, despite their relevance to disaster-related goals. We also note that three of the five relationships here were with extra-systemic components. This again underscores the need to broaden the focus of the model.

Two interesting questions may be addressed by the model. First, does the model account for the mediating role which the focal organization played between the funeral homes and its public (audience)? And secondly, does the model account for the task role selected by the station after impact and for the intensity with which it played this role?<sup>35</sup>

With a minor exception, the model would predict that the station would take the unusual step of violating professional norms by notifying the next of kin, over the air, of the death of their relatives. This would account for the relationship with the funeral homes. The modification needed in the model is a broader conceptualization of the welfare task area. As it stands, the model only accounts for the physiological welfare of the disaster victims and workers. We suggest that if it were expanded to encompass the psychological welfare of these persons, then the information supplying and mediating role of ham radio operators, citizen's band operators, and mass media would be predicted as a part of welfare services.<sup>36</sup> Psychological welfare was a paramount factor in the decision to perform this mediating role as indicated by the following question from the station manager:

We actually read the names of the casualties on the air...the main reason being that there was a lack of communication and people in Biloxi were worried about people in Gulfport, friends and family, that had been killed or rumors had started that, you know, thousands were dead.

Another indication that the station adopted the psychological welfare task area was an earlier statement by the manager to the effect that:

...My instructions to every person working the microphone (were) that there would not be one word of anything negative. Everything must take the positive approach. It must be positive all the way through...

By the "intensity" with which the station played its role of "morale-booster," we refer to the vast amount of time and personnel resources devoted to this task, as well as financial gains foregone in order to perform the role. Again, we note that some other mass media returned to regular programming earlier than our focal organization. The behavior of our focal organization is predictable if viewed in terms of an extension to post-impact times of what the model designates as altruistic community service orientation. However, the model does not account for the differential definition of role obligation on the part of different electronic mass media organizations as occurred in this case.

(ii) Let us now turn to a consideration of the interorganizational relationships experienced by two police organizations whose main task was community order. We shall first present a chronological summary of each organization's interactions.

Representatives of both departments attended the initial county coordination meeting called by the county CD Director and held in his office on Saturday morning. In addition, the Gulfport Police Department reported a meeting on Friday and another on Saturday between the mayor and key police personnel. The next meeting occurred on Sunday morning and involved the Mayor, Superintendent of Police, and the county CD Director. After evaluating the latest weather data, the police contacted the broadcast media to initiate evacuation procedures for the public. In Biloxi the police attended a 7:30 a.m. Sunday meeting of the city's Civil Defense Board (including the Mayor, City Commissioners, and Fire Chief). The police set up their own command post at police headquarters and initiated communication with the National Guard in order to solicit their help in evacuation and traffic control. This is an important point, since a similar request was not forthcoming from Gulfport and perhaps as a consequence, the National Guard battalion in Gulfport defined their role as post-impact security rather than pre-impact evacuation and traffic control. This lack of communication and concomitant lack of pre-impact and impact involvement on the part of the Gulfport-based National Guard battalion may account for some of the later strain in the relationship between them and police in Gulfport.\*37

During the impact stage, which for these organizations can be defined as lasting from approximately 9:00 p.m. on Sunday until daybreak on Monday, both organizations became involved in evacuation, search, and rescue operations. The Biloxi Police worked with the National Guard in a coalescing-type relationship, as some police rode the trucks and LARC's with the Guardsmen. The police also served in a mediating capacity for the National Guard, relaying messages to them. (However, in general, the Biloxi Police attribute the main responsibility for coordination of search and rescue to the Biloxi Mayor and Civil Defense.) The

Biloxi police and Gulfport police were also both out on their streets in their cruisers performing evacuation, search, and rescue activities autonomously to other organizations. When these victims were transported to hospitals or shelters, the police departments can be seen as acting in a mediating role between the public and the receiving organizations. It is also important to recall that (a) the Gulfport department never lost radio contact with its cruisers and (b) Gulfport police headquarters could only receive incoming telephone calls and could not call out. This peculiarity enabled the development of several tertiary relationships, as headquarters was receiving calls from all over the world asking for eyewitness descriptions of the storm.

One of the most important relationships entered into by either police department during the essential services restoration phase was with the National Guard. The local police departments requested National Guard assistance in security operations. However, the relationship between the Guard and our focal organizations exhibited distinct differences. Biloxi police listed the Guard as the organization with which they had the most frequent contact. In the first week, post-impact Biloxi police reported five or six meetings held with a local National Guard major to coordinate their traffic and security operations. Some of these meetings were called by the Police Chief and some by the National Guard major. A pattern developed whereby the Chief and Major would get together almost every morning. However, in Gulfport no pattern developed, as only two meetings were held between the police and the Guard. These meetings were held at National Guard headquarters but called by the police for purposes of clarification because there were "too many ambiguous rules out." The ranks present were a colonel, a lieutenant colonel, and several captains from the Guard, and the superintendent and two captains from the police department. The authority relations between the Guard and the police are particularly noteworthy under martial law. Although legally in command, the National Guard reported that they allowed the Biloxi Police Department to retain much authority because Biloxi was not as hard hit and "municipal government was pretty well intact." The Gulfport police reported and/or perceived that "We were still the boss.... They would coordinate with us." What in fact appears to have been the case was that a type of informal contracting-autonomous hybrid relationship developed whereby a division of labor was established in each community. That is, in Biloxi the Guard took responsibility for traffic and also for looters in the beach area, whereas the city police provided security for the business districts. In Gulfport the Guard did some traffic duty in addition to handling passes (especially at night) and providing security for the areas of total destruction (including the beachfront). The city police were responsible for the remainder of the city, day and night, regardless of the task.

As mentioned in the section on community order, both departments received men and equipment from outside police forces, and a few of these men were deputized in each case. This coalescing-co-opting type relationship is to be distinguished from the above relationship with the National Guard, in which the Guard maintained authority itself over the men and equipment which it supplied. The Gulfport Police Department also served in a facilitating capacity to several other organizations, as they serviced and supplied fuel for the emergency vehicles of other organizations.

An interesting comparison involves the relationship between our focal organizations and their respective Civil Defense organizations. Next to the Guard and the Mayor, Civil Defense was named as the organization with which the Biloxi Police had the most contact. The police had sent a communications van to the city's EOC and this provided close contact with Civil Defense. By contrast, Gulfport police reported that their main relation with Civil Defense was an indirect one whereby the police would direct incoming supply vehicles to Civil Defense. The police also report having received generators from C.D. and using C.D.'s locating services for messages. Apparently communication with C.D. was minimal.

The Gulfport police also had relations with other organizations due to its involvement in a facilitating role in providing security for ice and water. This security role also involved contacts with the radio stations who mediated between the public and the police in notifying the former where ice was available for pick-up.

And finally, with regard to transfer of supplies, the Gulfport department sent what supplies it could spare (plastic containers, water, flashlights, and batteries) outside the community to the Long Beach Mayor. This is to be contrasted to the department's refusal to meet a request from the state EOC for a radio, in that the former case involved excess resources whereas the latter involved scarce resources.

Addressing ourselves more specifically to the model we may well ask first, what accounts for the differences in the relationships with C.D. and secondly, whether the model would predict the difference. Part of the answer for the Gulfport relationship might lie in a blurred distinction in the eyes of the Gulfport police between the various levels of the Office of Civil Defense. That is, there is some indication that our Gulfport police respondent lumped the state and county Civil Defense organizations into one, despite the fact that they were operating out of widely separated headquarters (state at the airport, county downtown). The model does not seem to allow for such a stimulus generalization in the social perception process. What the model does say is that one of the requisites for organizational action is a knowledge of those aspects of the environment having relevance for organizational action, including knowledge of the functional domain of other organizations. We suggest that because the top-ranking police official was unable to leave his office and make a personal reconnaissance of the community for four days post-impact, he may perhaps have missed certain visual cues pertaining to the activity of county Civil Defense. These cues may have led him to define Civil Defense as a more disaster-relevant organization, thereby pre-disposing him to seek closer relations with Civil Defense. For instance, in response to the question "What did Civil Defense do?" this official answered, "I never seen (sic) 'em. I don't know what they do. That's what I say. I didn't hear anybody saying that they (Civil Defense) did something or say they saw them." This quotation also suggests either an intra-organizational communications gap or else a lack of visibility in the community on the part of the city-county Civil Defense organization. And finally, we suggest that the police department officials felt that they could perform their task responsibilities better in relative autonomy and that a

closer relationship with Civil Defense would have resulted in more burdensome tertiary obligations or a partial redefinition of the task role of the police.

As for the Biloxi Civil Defense and Police Department, it appears that the two main factors operating were a pre-existent definition of the relationship (due to a recent simulation exercise and annual disaster simulation training) and an inter-organizational communication channel which remained open. In fact, this whole matter of communications channels is one which deserves more attention in the model as a factor influencing interorganizational relationships. Three important dimensions are the vulnerability of the channel to overload, fracture, interruption or delay (e.g., underground cables for an unlisted telephone number versus short-wave radio); the length and structure of the communication chain (direct versus multi-step flow communication); and the formality-informality of the channel (teletype versus face-to-face). For instance, the Gulfport police were limited to incoming telephone calls, whereas the Biloxi Civil Defense and police had a backup channel, a walkie-talkie. In addition, the latter could make use of the NAWAS (National Warning System) line between police and C.D. headquarters. Even when their other commercial telephone lines would not allow outgoing calls, the Biloxi police were able to relay outgoing messages through Civil Defense over the NAWAS line.

We might also add that communications channels have significant implications for another topic addressed in the model, organizational effectiveness. Examples are particularly evident in the warning stage, where the weather bureau's communication to the television station was rendered so much more effective through the use of the telephone rather than the customary teletype. In turn, the station's warning messages to its audience were made more effective by their ability to pictorially portray elevation contours, shelter locations, etc.

A final aspect of the model to be examined here is the discussion of structural consequences of interorganizational relationships. Our first criticism is that a preoccupation with goal-setting and organizational recombination has biased the conceptualization of structural consequences in favor of an "authority relations" approach. It is apparent from the data that in many relationships authority relations are never an issue. We suggest that this is particularly so for relations dealing with the warning task area and for relations during the pre-impact stage. Authority relations may also be irrelevant in support-type ("secondary") and some facilitating relationships. The model does not handle cooperation-type relationships such as the food-supplying relationship between the Salvation Army and the police departments.

In focusing on the degree of control or power which an organization maintains over its operations as the important structural consequence of interorganizational relationships, the model ignores other salient features whose influence may in turn affect interorganizational relations. For instance, the topic of organizational cohesion and strain (intra - as well as interorganizational) seems to offer implications for effectiveness, yet this does not receive the attention it deserves.

(iii) We move now to our final comparison in which we focus on two Civil Defense organizations. The one is a city-county agency; the other is strictly a city agency.

A detailed chronology of the activities of each organization would only be redundant, so we shall emphasize the points which have not yet been discussed.

Both organizations were heavily involved in the warning and search and rescue task areas. The former involved a close relationship (via telephone) with the weather bureau, as well as close ties with the local mass media, particularly the broadcast media.

The Biloxi CD organization appeared to be more closely integrated with its city administration than was the case in Gulfport where county responsibilities were important as a "competing" factor. In fact, there is even an ordinance on the Biloxi statute books whereby the Civil Defense Director may assume control over all city vehicles and personnel. However, this was not done, as the female CD Director felt it wise to use the existing lines of authority in the city departments rather than have a woman giving orders to men. The Biloxi Civil Defense organization tended to perceive itself as being very much within, rather than above or apart from, the city government structure. Thus, we note that in one of her many dealings with the heads of city departments the CD Director called a Saturday meeting to discuss search and rescue; but she immediately transferred control of the meeting to the head of the Parks and Recreation Department, who normally handles search and rescue activities.

Another reason for (or indicator of) the closer integration of the Biloxi response effort is the annual simulation training exercises held by CD and involving the heads of all city departments and representatives of all the community's disaster-relevant organizations. In contrast to this we have the lament of the County CD Director that on Sunday night he was handicapped by a lack of management personnel at the EOC since they were directing the operations of their own departments. Present at the Biloxi EOC, however, were the mayor and the two city commissioners, the city attorney, the fire chief, the heads of city departments, and the Civil Defense Director, acting, in her own words as "chief advisor to the elected officials." This EOC was activated at 8:00 a.m. on Saturday on a 24-hour day basis.

The relationship between Biloxi CD and the Biloxi Port Commission apparently had no counterpart in Gulfport. This relationship involved a request from CD mediated through the head of the port commission to the effect that all small crafts be moved into the Back Bay area as soon as possible. This was necessary due to Biloxi's position on the end of the peninsula and the possibility of impeding evacuation from the peninsula if the small craft exercised their right of way at the bridges. Nor did there appear to be a counterpart in Biloxi to Harrison County CD's tertiary relationship with the representatives of the extra-local mass media who were in his office during the storm.

During the post-impact stage the differences in the organizational sets of the two focal organizations were even more marked. The difference is mainly one of levels and is to be expected on the basis of the public of each organization (city versus city-county). The Governor's request that the Harrison County Director assume coordination responsibilities for the entire tri-county area (until Thursday when the state CD took over this task) served to differentiate the two

even further. Thus, we see the Harrison County Director calling and chairing the Tuesday and Wednesday meetings involving organizations at the federal, state, regional, county and municipal levels.

The difference in the levels of involvement were accompanied by characteristically different problems of community coordination. Whereas both organizations were involved in channeling offers of outside assistance to the appropriate level organization (particularly police and fire departments), only the Harrison County organization had to contend with the problems inherent in the transfer of operational control to state officials. For instance, it was estimated that 24 precious hours were wasted in transferring control over the procurement and distribution of a particular resource from county to state hands. The problem was that instead of using the local management with the knowledge which they had built up, they were simply replaced by state personnel. There was a generalized concern about well-meaning, intelligent, state officials who were perceived by locals as having exceeded their authority in making decisions for local government. Explicit instructions were issued in other functional realms to try to prevent this jurisdictional "trespassing," as local officials were told to "Just stay alert and keep control of the resources in their particular jurisdiction." The locals perceived it as being particularly important to keep one of their own men in charge of the central distribution warehouse, and were successful in doing so.

This points out a limitation of the model. That is, its functional approach leaves little room for a consideration of community conflict and its implications for interorganizational relationships and community effectiveness. Such conflict may exist within the local level or it may be between levels. To the extent that the conflict or competition was a feature of the organized community structure in the pre-disaster time period it would be included in the model's discussion of the community as a contextual variable. Such was the case in Pass Christian where an official of a disaster organization perceived that he was phased out of the recovery operation early because his expressed political viewpoints did not agree with those of other disaster officials in the town. However, where the strains and tensions are an emergent phenomenon, as in the state-local relationships discussed above, the model seems to fall short. This is particularly so when the conflict spans two or more levels of organizational involvement, as may be the case in a regional disaster such as Camille.

Returning to our focal organizations, we note that each received management assistance from extra-local sources. The Harrison County Civil Defense organization received a management expert from the Governor, as well as Civil Defense Directors from the region and the country as a whole. However, two problems arose here. One was that they could only stay a few days and the second was that three of those who could remain longer were released to meet a request of the Pass Christian CD Director for management assistance. In Biloxi, the Civil Defense Director accepted valuable assistance offered by the New Orleans Civil Defense organization. In addition, the mayor of New Orleans made several visits to assist the Biloxi mayor, each time bringing with him a different group of advisors and department heads who had experienced Hurricane Betsy just a few years earlier.

Both focal organizations worked rather closely with the Red Cross and with the coast's military installations. After the Tuesday meeting, boundary personnel from the military organizations were a permanent feature at the Harrison County EOC.

Both focal organizations also followed a hurricane plan. The Harrison County plan was felt to be adequate as far as it went, but it was faulted by its author for not carrying the organization into the essential services restoration phase and beyond. Although the revised plan for Biloxi had not yet been circulated, the simulation training was still fresh in the minds of the key personnel.

It is informative to compare the relations of the focal organizations to their neighboring military organizations. Not only did Keesler A.F.B. in Biloxi work closely in coordinating the wording of warning messages (for its off-base personnel) with the Biloxi CD, but it also had a similar relationship with the Harrison and Jackson County Civil Defense offices. In fact, its "community service" orientation was institutionalized in the form of previous rescue assistance and a written mutual aid plan involving the base and all of the coast Civil Defense organizations. Thus, it was predictable that both Civil Defense organizations would establish primary relations with the Air Force, which supplied rescue teams, generators, clean-up personnel, helicopter reconnaissance, etc.

This was quite different from the relationships with the Navy Seabees in Gulfport. As pointed out in the section on search and rescue, the Seabees, although possessing a disaster technology, seemed to lack some of the other requisites for interorganizational action, as specified by Weller and Kreps. They apparently had no mutual aid provisions in their own hurricane plan; they lacked initial intelligence inputs as to the severity of damage to the community, and they lacked some definition of their disaster relationship to other organizations and their role in a community division of labor. Before the storm, however, the Seabees did coordinate with Civil Defense on the wording of warning messages and they did respond to immediate post-impact requests for supplies by referring the organizations concerned to Civil Defense in Gulfport.

This matter of dominant institutions existing in or near an afflicted community is an important point which deserves special attention in the discussion of the organized community structure. It presents special opportunities for inter-organizational action when there is a jurisdictional overlap between the institution and the organizations of the community proper. This was the case in the warning task area for Hurricane Camille in that the military institutions had civilian employees and their dependents as well as military personnel themselves, who lived off base. Such "jurisdictional overlaps" it may be hypothesized, will lead to interorganizational coordination in order to avoid duplication of functions. Coordination is likely to occur or support is likely to be offered by the dominant institution when it possesses disaster-relevant resources or when it has a vested interest in the community in terms of labor, raw materials or market. Examples of such dominating institutions are the military installations and NASA-MTF on the Gulf Coast.

And finally, another important sociological factor pointed out by the Biloxi CD director and which deserves special attention in the discussion of the community as a contextual variable is the community population itself. Value differences concerning the worth of personal property proved to be a significant factor in the contacts between evacuating organizations and their publics. Many people refused to evacuate without taking their furniture with them and this impeded the evacuation operation. Two other factors subsumed under the rubric "community population" and which came to light in this study are the linguistic composition of the population (necessity of bilingual communications) and pockets of transients, vacationers, or recent community arrivals, all of whom may not be inculcated with the local disaster subculture.

#### A Note on Response Effectiveness

The present disaster may at first appear to offer a rare opportunity to use a comparative approach for the assessment of response effectiveness on the part of two different communities. However, this is not so for several reasons, not the least of which is the fact that the data for this study were not collected with this objective in mind.

The primary reason is that the cities did not undergo an independent response to the storm. Rather, what often occurred was that the same organization performed or contributed to the task responsibilities in each community. For instance, in the warning area, the same television and radio stations served both communities. For evacuation, search, and rescue, the National Guard was active in all the coast communities. Similarly with community order tasks. The net effect of this is that the two communities essentially become one for the task areas on which we chose to focus, thereby eliminating the possibility of performing comparisons.

An additional complicating factor is that the counterpart of one organization sometimes performed different responsibilities in the other city. This was the case with Civil Defense, as the Harrison County CD Director was temporarily charged with coordinating not only all of Harrison County, but also the other two afflicted coastal counties.

As for the so-called "requisites of effective response," we find that they are not particularly appropriate here due to the magnitude of the disaster. For instance, integration was to a certain extent thrust upon the communities with the overlay of the state government structure when the forward state EOC was activated. Similarly, the local stability-flexibility was overshadowed, both by the overlay of state authority and by the fact that this was a double disaster for many organizations. (That is, the disaster also inflicted damage upon the responding organizations themselves.) And finally, voluntarism at the community level was superceded by voluntarism at the national level. This tended to obliterate any significant differences which may have existed in the voluntarism of each community.

Thus, we consider it unfair and unwise to attempt any assessment of community response effectiveness in this disaster.

## Summary and Conclusions

In summary, it is apparent that certain features of the Weller and Kreps model are very useful in explaining community coordination in Hurricane Camille. The conceptualization of the community as a contextual variable, the disaster agent as an intervening variable, and the requisites for organizational action were particularly powerful tools, although some further elaboration of the first of these would be helpful.

Of lesser utility were the mediating-facilitating distinction and the discussion of structural consequences of interorganizational relationships. Also, some explicit account of the role of the time variable is crucial. Conflict relations and coordination at the supra-community level are also inadequately handled by the model.

Some reconceptualization may be required to integrate our notion of primary, secondary, and tertiary relations with the model's coordinating, facilitating, mediating notion. A point of convergence of these two schemes may exist between facilitating and secondary (support) relations.

A general summary of community coordination in the Mississippi Gulf Coast's response to Hurricane Camille might take the form of a revision of the original model. On the basis of the Camille data, we shall sketch a crude model designed to arouse interest in developing a framework for the analysis of regional disasters of considerable breadth and intensity.

### A Different Model

Two of the most important determinants of disaster response are the existence of a disaster sub-culture and the pattern of existing relationships in the community during the pre-disaster period. Equally important to interorganizational relationships during the disaster response is the existence of institutionalized conflict and competition between organizations. Some degree of institutionalized conflict and competition is characteristic of some relationships, both at the intra- and inter-organizational level. This is the community as contextual variable as in the Weller and Kreps model. The intervening variable is the disaster agent as described in their model.

The advent of the warning and pre-impact stage witnesses a beginning of goal setting and organizational combination activities. This period is also one of intra-organizational expansion and inter-organizational constriction. By expansion we refer to the alert and/or activation of off-duty personnel and the incorporation of trained or trainable volunteers. By constriction we refer to the closer relations which develop between disaster relevant organizations, in terms of increased communication, exchange of liaison personnel, etc. With the passage of the impact agent, a restructuring or realignment of disaster relevant organizations occurs, and, for at least a short period, search and rescue activities may lack coordination. (A major determinant of the amount of coordination is, almost

tautologically, the extent of the disruption of the communications channels.)

We also attribute much importance to the channel of communication between community organizations, as well as to the boundary personnel. In addition, individual organizations may undergo a change in structure, function, or both. Such a change in structure is likely where a double-disaster has occurred, where the organization possesses a reserve or auxiliary force which it can activate, or when the organization is itself only a sub-unit of a larger, extra-local organization.

This phase also provides fertile grounds for strain to appear within the system. This may be emergent strain arising from incompatible expectations and definitions of the situation or from competition for task responsibilities. Or, it may be a reappearance of the pre-disaster conflict, competition, or avoidance behaviors.

Next there occurs a convergence of other organizations within the system as earlier disaster-relevant relationships are activated. As soon as contacts are initiated or received from outside the system, a similar convergence of services, supplies, and other "raw materials" occurs as organizations from the immediate extra-local environment become systemic components. Some of these organizations may serve as mediating linkages between the two afflicted communities.

Note that the notion of convergence marks a departure from the assumption of the Weller-Kreps model wherein the pre-disaster organizations within the community were seen as the major resource holding, allocating, and receiving units for the disaster response.

Another crucial departure from the old model occurs with the imposition from above of an over-arching structure, as it becomes apparent to officials at a higher level (county, state, or federal) that the resources of the local community organizations are inadequate to meet the demands created by the disaster. This is another fertile ground for conflict as it may bring together two incompatible communities or two communities which compete for the resources offered by the higher level organization. In addition, conflict may arise due to perceived jurisdictional trespassing or in the replacement of local management personnel by extra-local personnel. The promptness of extra-local intervention, as well as the smoothness (or lack of it) with which this transition is conducted have obvious implications for disaster response effectiveness.

Another factor influencing response effectiveness is the existence (or lack of it) of a dominant organization in the community. When such an organization with access to vast disaster relevant resources is a component of the community system or its immediate extra-local environment it is likely to attract a cluster of various smaller organizations. The dominant organization may then take on a role peculiar to large scale disasters, that of general supplies or procurer of "raw materials."

A final factor to be mentioned here as influencing response effectiveness is the ratio of time spent in tertiary ("irrelevant") relationships to time spent in primary (and secondary) relationships, on the part of the key functionaries of the system.

### Suggestions for Future Research

Several new directions for research are suggested by our examination of the data on Hurricane Camille.

The most glaring gap in our explanatory and predictive efforts was in the socio-political realm. Idiosyncrasies of this particular political system may be responsible for some of the features of the decision-making processes which we observed and others which we failed to observe. However, the whole area of conflict, competition, and avoidance relations in both the institutionalized and emergent settings is especially in need of specification as it relates to disaster response. Particular attention should be given to strain in state-local relationships. Similarly, a study of power relations involving ethnic groups in disaster would throw light on both the race relations and the disaster studies fields. A politically sensitive, yet for regional disasters, an immensely important study could be done of the Governor's Emergency Council and its relations to local groups in the tertiary recovery stage. Likewise, a follow-up study on community conflict surrounding suggested new building and zoning codes would be informative.

Another line of research could focus on what we have called dominant institutions, comparing their role to that of military organizations.

An area neglected by the Weller-Kreps model is the changing nature of an interorganizational relationship over time. Future research might address itself to the questions of what task areas are likely to be characterized by stable versus changing relations, what interactional problems arise from these changing relations (e.g., hesitancy, duplication of effort, strain), and the relation between flexibility and change, and leadership and dominance in a changing relationship, etc.

A final suggestion for research would involve a detailed and codified enumeration of several dozen dimensions of interorganizational relationships. This could easily be accomplished by a careful examination of some of the more detailed interview transcripts already on hand from various disasters. These variables could then be presented to selected future respondents in checklist form. By so doing we could obtain a detailed description of the relations between a focal organization and perhaps two members of its primary set. (Pains must be taken to avoid respondent fatigue.) Such data, obtained for many focal organizations, would offer exciting opportunities for quantitative research using matched samples. This approach would be productive in terms of generating specific propositions to fill in the concreta of the skeletal models considered in this paper.

APPENDIX A

Police Arrest Records  
For a Coastal Municipality

Charge	Period		
	August 13-25 1968	August 10-17 1969	August 18-25 1969
Trespassing and Looting			2
Trespassing		2	6
Larceny (Grand or Petty)	2	3	4
Trespassing and Assault and Battery			6
Curfew Violation			3
Material Witness (Crime Unspecified)			3
Sub Total	<u>3</u>	<u>5</u>	<u>24</u>
Traffic Related Offences	56	272	15
Bodily Crimes Against Persons N.E.S.	7	5	4
Disturbing Peace and/or Drunk	13	28	5
Carrying Concealed Weapon (C.C.W.)		1	1
Attempted Fraud		3	
Crimes Related to Theft, Stolen Property, Shoplifting		5	
Other	3	17	3
Grand Total	<u>92</u>	<u>336</u>	<u>52</u>

## FOOTNOTES

1. Herbert S. Lieb, Deputy Director of Public Information, ESSA, quoted by UPI May 13, 1970.
2. Also see Survive, Vol 2, No. 6. November- December 1969, for a comparison of Camille and a nuclear blast.
3. B-G D.H. p. 1.
4. Although these are analytically distinct activities, in the actual emergency situation they tend to merge together. Thus, for our purposes we consider them together.
5. This statement is by no means intended to convey the impression that the municipal officials of Pass Christian were not active or effective during the emergency clean-up and restoration stage. Rather, we merely wish to indicate that the response to the hurricane in Pass Christian does not lend itself very well to a comparative study of community coordination from the perspective we have chosen, that is, inter-organizational relationships.
6. Examples here include a verbatim transcript of Gulfport city council meetings, a copy of the official arrest log for a Gulf Coast police department, an official transcript of all weather announcements issued from the Mobile Weather Office, several after-action reports, etc.
7. UPI April 30, 1970.
8. See E.S.S.A. Preliminary Report, p. 17.
9. A Civil Defense official estimated that at least 15,000 people evacuated before the critical warnings were issued around 3:30 p.m. Sunday. Most of these people proceeded bumper-to-bumper, northward along Highway 49.
10. The Biloxi armory headquarters were demolished by the storm, creating severe communications problems and necessitating the movement of headquarters to the Biloxi City Hall.
11. The pre-positioning of equipment was as follows: 3 LARCs in Biloxi armory; 2 LARCs and 2 trucks in north Biloxi at county barn; 1 LARC and 3 trucks at Edgewater Shopping Plaza at the western Biloxi beach; 2 LARCs and 10 trucks at the Poplarville Air National Guard Base; 1 LARC and 2 (2½ ton) trucks at Long Beach Fire Station; 1 LARC at the supervisor's office in Pass Christian.
12. The URS Research Company's report on The Effects of Hurricane Camille indicated that the telephone company lost about 80 percent of its long distance circuits on the coast and about 75 percent of its public and domestic phones there. In addition, the long distance submarine cable across Bay St. Louis was lost. p.17.

13. For a first-person account of the horrors involved in riding out the storm while the house collapses around one's self, see Joseph P. Blank, "Face to Face with Hurricane Camille" in Reader's Digest, March 1970, pp. 62-67.
14. Also in attendance were representatives of several federal agencies such as OEP, HUD, and HEW; the Salvation Army and Red Cross; and the local mass media.
15. Other business conducted at this meeting consisted of the decision that the affairs of local government would remain in the hands of the executive branch of local governments, the delegation of responsibilities for need assessment and emergency resources restoration, the establishment of priorities (first, water; second, power; third, communications; and fourth, food), and the decision that all military installations and the executive branch of government would be represented at the EOC (Civil Defense headquarters) for liaison purposes.
16. For a verbatim copy of the governor's proclamations declaring and terminating martial law on the Gulf Coast as well as other executive orders, see Mississippi Civil Defense Council, After-Action Report - Operation Camille, Jackson, Mississippi, 1969, Appendixes I-VII, esp. pp. 24-26.
17. Some of the officials expressed the view that "the imposition of martial law and its resultant curfew, although wise in the face of possible breakdown of law and order, was too stringent on the local citizenry and rehabilitative missions." Mississippi Civil Defense Council, *Ibid.*, pg. 12.
18. The table in Appendix A was composed from the official arrest record of a Gulf Coast community hit by Camille. It shows arrests for the week before Camille, the week after Camille, and the corresponding week of the previous year. There was apparently some confusion as to whether some suspects would be charged with looting or trespassing.
19. A proclamation was issued by the governor permitting the highway patrol to function in a state police capacity rather than in its normal role as a traffic force only. This proclamation expired when martial law went into effect.
20. The last curfew mentioned for each city was still in effect when we did our interviewing, five weeks past impact.
21. Weller, Jack M. and Gary A. Kreps, "A Model of Community Coordination in Response to Disasters," Working Paper #29, Disaster Research Center, The Ohio State University, 1970.
22. "Pre-impact" refers to the time period following the receiving of the initial disaster alert and prior to the actual onslaught of the disaster agent itself.
23. Later, outside our focal period, the Governor's Emergency Council was established. It handled the coordination of long range recovery efforts for the entire afflicted area in Mississippi.

24. The station is a combined radio-television operation, but it did not broadcast on a "simulcast" (shared audio for both TV and radio) basis during Camille, nor does it ordinarily. Its studios and offices were located in a large hotel about 100 yards from the beach in Biloxi.
25. However, this "service orientation" is by no means to be taken for granted, as evidenced by the wide variability in the definition of their role obligations on the part of the other local broadcast media. This variability is indicated by the different decisions taken by different stations on the issues of when regular programming and advertising should be completely abandoned and how long the station should stay on the air broadcasting warnings. (Our focal organization was the first to abandon regular format). These questions are important because they have implications for the stations' relationships with their publics, for their advertising revenues, and for the security of their own physical plant in the face of the storm.
26. The network relationship could, of course, also be conceptualized as an interorganizational relationship with the local station merely being a sub-unit of the larger network organization.
27. In personal conversation with the author.
28. See Russell R. Dynes, Organized Behavior in Disaster, Lexington: Heath Lexington 1970.
29. It might also be useful to make a further distinction between types of input and output. Terreberry, for instance, distinguishes between "energetic" inputs and outputs (e.g. personnel and material) on the one hand, and informational inputs and outputs on the other hand. See her discussion of this and of organizations in "turbulent" environments in Shirley Terreberry, "The Evolution of Organizational Environments," Administrative Sciences Quarterly XII, 4, pp. 590-613.
30. However, the distinction may not be clear yet as disagreement can arise, over say, the relative importance of various raw materials to the focal organization's task responsibilities.
31. Of course, this is likely to involve definitional disputes as to what constitutes a public. For instance, is the public of Civil Defense the organizations it coordinates or the citizens of the community? We would argue that the former constitutes the public. This example also illustrates that the term "primary member" is applicable to more than just mediating relationships, since Civil Defense clearly is a coordinating body.
32. See Dynes, op. cit., p. 145 for a discussion of extending organizations.

33. We do not have detailed data on the post-impact output set.
34. This relationship was really a mediating relationship in that the station was mediating between the outside newsmen and a local military organization whose personnel had been accused by the newsmen of looting while on duty.
35. We are interested here in role selection and intensity of performance due to their implications for the content, frequency, and duration of interorganizational exchanges.
36. The intensity of the disaster agent, in terms of the resulting extreme communications disruptions, would also lead us to predict that this mediating role would emerge as a task area and the mass media are the logical occupants of that role.
37. The model clearly designates a further reason for this initial inactivity on the part of the Gulfport National Guard battalion. That is, compared to the Biloxi amphibious (LARC) and transportation battalions, the Gulfport engineering battalion did not possess the appropriate disaster-relevant resources.

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