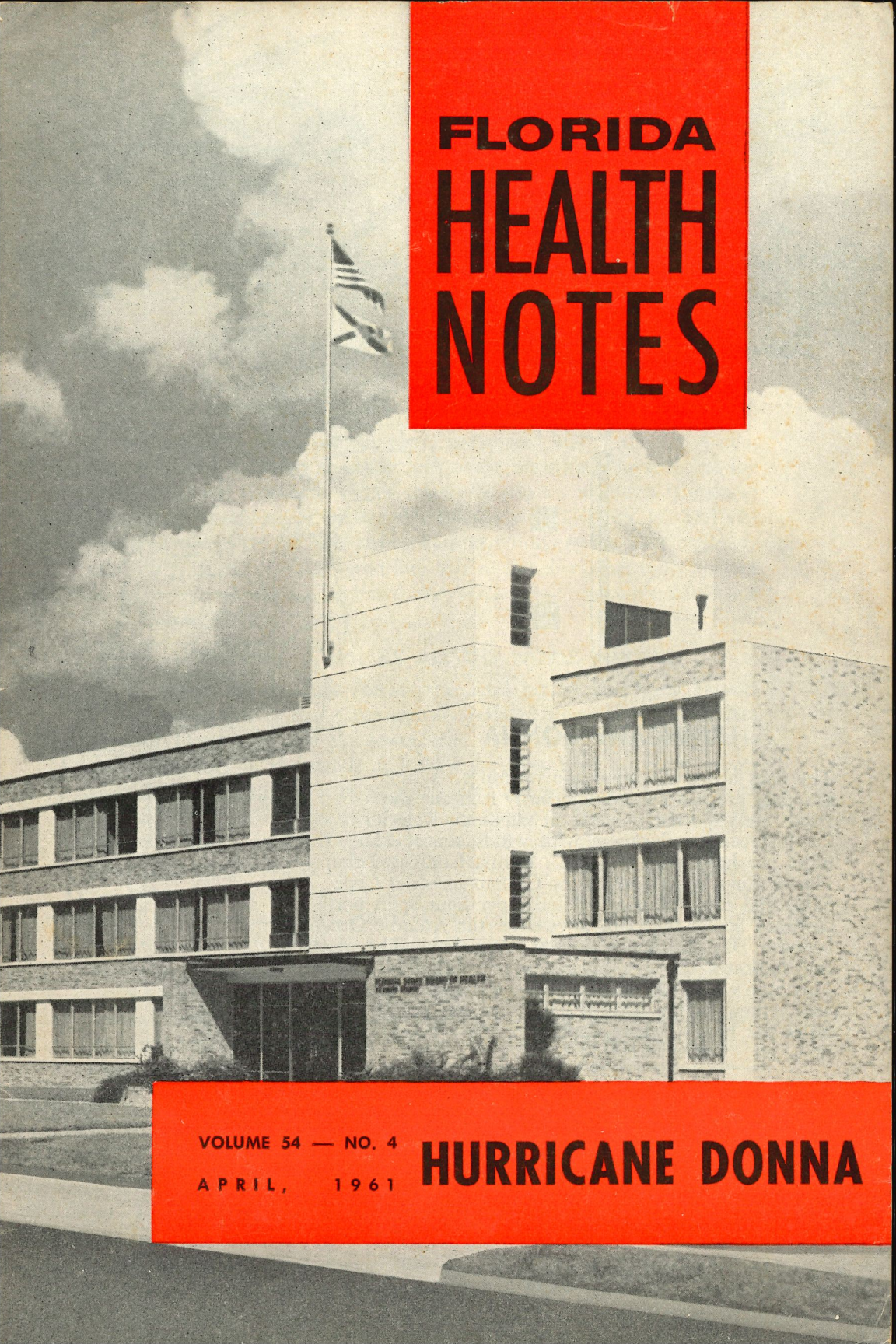
FLORIDA HEALTH NOTES



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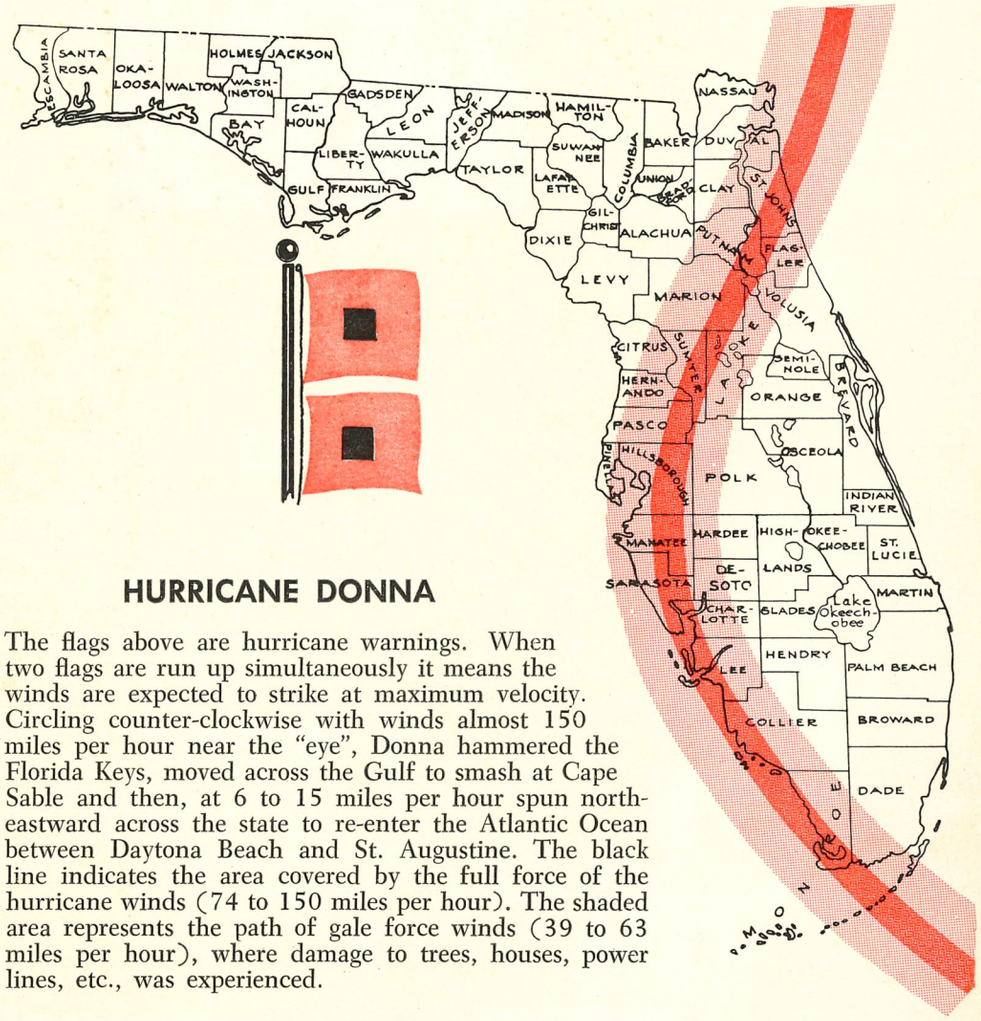
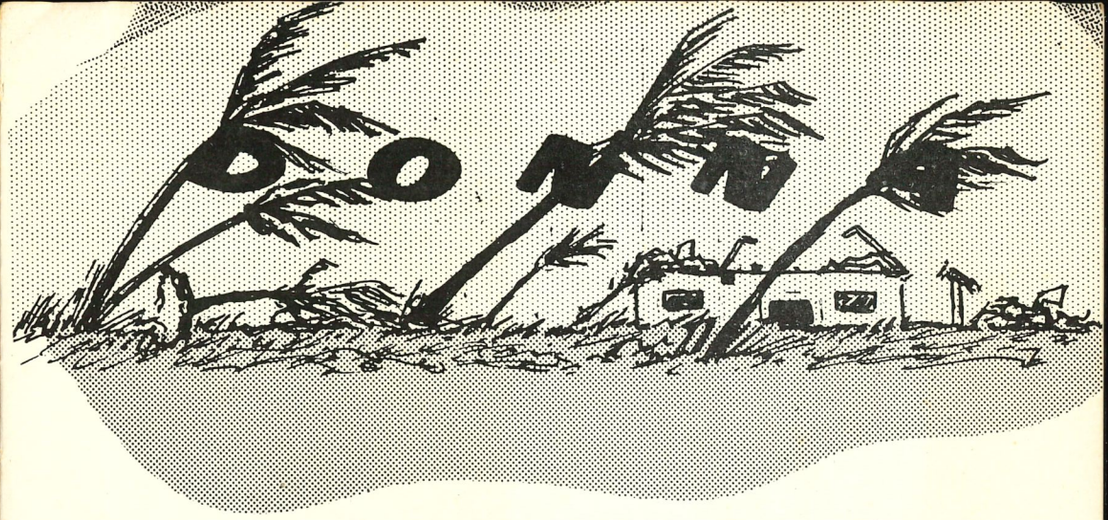
HURRICANE DONNA



HURRICANE DONNA

The flags above are hurricane warnings. When two flags are run up simultaneously it means the winds are expected to strike at maximum velocity. Circling counter-clockwise with winds almost 150 miles per hour near the "eye", Donna hammered the Florida Keys, moved across the Gulf to smash at Cape Sable and then, at 6 to 15 miles per hour spun northeastward across the state to re-enter the Atlantic Ocean between Daytona Beach and St. Augustine. The black line indicates the area covered by the full force of the hurricane winds (74 to 150 miles per hour). The shaded area represents the path of gale force winds (39 to 63 miles per hour), where damage to trees, houses, power lines, etc., was experienced.



Several years ago a violent hurricane roared out of the Caribbean, feinted at the southern coastline and swept northward to strike at the nation's capitol. Floridians smiled tolerantly when a northern newspaper flashed the headline, FLORIDA HURRICANE STRIKES WASHINGTON. Tropical storms have struck hard at Florida in the past but many other parts of the country would find it hard to believe that for a number of years several eastern seaboard states have had far more hurricane trouble than Florida.

HOWEVER . . . . . AS ALL THE WORLD KNOWS

In September of 1960 Florida was hard hit by Hurricane Donna. The storm struck at the comparatively isolated Keys, as well as other parts of Florida, notably the lower west coast. Low-lying and open to the raging fury of the winds and tides the Keys have no water supply of their own but receive it in pipelines from the mainland. Other health facilities are somewhat limited due to the nature of the Keys though the Monroe County Health Department, with headquarters in Key West, gives excellent service to its 100 mile stretch of separated communities.

When Donna was known to be headed for our coastline the State Board of Health and the County Health Departments on both the east and west coasts mobilized on a round-the-clock basis to begin preventive measures to insure the health of the people.

This issue of HEALTH NOTES is not intended to be a disaster manual. Instead, it is meant to show the necessity for and the response of the various health and related agencies, who mobilize and function in times

FLORIDA HEALTH NOTES

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of disaster. Therefore, the story we have to tell will dwell more on the *health aspects* of the aftermath of this particular storm.

Hurricane Donna was spawned in the Leeward Islands and began her 3000 mile trek with winds around 135 miles per hour. The first advisory on Donna was at 5 p.m. EST, September 2, 1960. She left 23 dead in the Lesser Antilles, moved north of Puerto Rico where she claimed nearly 100 lives and swept across the Bahamas.

PREPARATIONS

Two days before Donna struck Florida, a Central Office Disaster Committee of key State Board of Health officials was formed to operate on an around-the-clock schedule to answer inquiries on preventive health measures, relay messages to agencies and departments concerned and arrange transportation of emergency drugs and supplies. The path of Donna was charted almost hourly on a large map of Florida and the names of personnel stationed in specific locations posted. Contact with "ham" operators was set up for the lower part of the state. Telegrams were sent to all County Health Departments requesting personnel to make themselves available on immediate notice.

County medical societies, the Red Cross, the Salvation Army, Civil Defense and other agencies planned similar protective programs. For example, four days before Donna arrived, the Lee County Mosquito Control District installed mobile radio units in seven of their trucks and erected a concrete base station which "went on the air" Thursday night, September 9. An alternate station was established in the City Hall at Ft. Myers. Other radio installations were placed at the Community House shelter in Sanibel, a private home, the Tice shelter and in the business office of the Lee Memorial Hospital. Anticipating a tidal wave, arrangements were made for helicopter evacuation of residents on Sanibel and Captiva Islands. Many were evacuated this way, but some elected to remain because they did not wish to abandon their pet animals and birds. In St. Petersburg, the Pinellas County Health Department coordinated their activities with the Civil Defense authorities to maintain pumps and chlorinate water supplies. In Dade County a staff of nearly 100 public health nurses was recruited to assist in American Red Cross shelters with county sanitarians arranging for food, water and sanitary facilities. News media released information on emergency personal health, stocks of food, water, lamps and candles. As Donna came closer, health department employees moved into Civil Defense Centers. At Islamorada (one of the Keys) a shelter was established at the Coast Guard Building.

And so it was throughout the state—the Florida Department of Agriculture, the Department of Public Safety, the State Road Department and many others—all made preparations to meet Donna's fury.

For eight days while Donna's path was charted by Navy Hurricane Hunters and the Weather Bureau, strong gusty winds blew over south and central Florida. In three days 13 inches of rain fell and soils became soggy. Harvesting was interrupted. By Saturday, September 10, the gales had increased to between 70 to 90 miles per hour over most of the area. Communications to the Keys began to fail and in a short time contact had been broken over a 35 mile stretch from Tavernier to Marathon. Tavernier's last report to the mainland recorded 135 miles per hour winds early on September 10. Islamorada, nine miles south, once again became an island when bridges and approaches were washed away. The lighthouse on Sombrero Key, in the Straits of Florida south of Marathon, had wind gusts of 166 miles per hour velocity at 2 a.m. Barometric pressure dropped to 27.89. About 300 of Marathon's 4700 residents rode out the storm atop tables, beds and dressers in trailers and other dwellings. In the Marathon-Tavernier area, it has been estimated 85 per cent of the buildings were destroyed or severely damaged. Key Colony, the only incorporated community other than Key West, was totally demolished.

The storm blew up to 100 miles per hour across Cape Sable. Everglades National Park officials said later that the Flamingo section was submerged under 14 feet of water.

In the Gulf of Mexico, Donna veered northwest through Everglades City and an 11 foot tidal wave wiped out nearly half of the buildings and left mud and debris on the streets and inside houses. Some areas

were under seven feet of water for 10 hours. For three days during the storm evacuees huddled on the second floor of the Courthouse where an emergency clinic and immunization station was established. Collier County Health Department records were a total loss under five feet of water even though they had been placed high off the floor. Naples had winds up to 120 miles per hour. Shortly after the storm "eye" passed this point the wind action was reversed from northeast to southwest. This switch and the low pressure of the "eye" caused rapidly rising tides up to 12 feet, leaving at least three feet of seaweed, fish and filth inside homes and on the roads. Donna reached Ft. Myers about noon with the "eye" passing over the city at 2:30 p.m. Winds were constant and powerful. Tides rose to seven feet above normal and damage in densely populated Ft. Myers ran into many millions of dollars.

Taking a northeast course across Florida, the hurricane passed through the central citrus growing areas. At 7 a.m., September 11, Donna moved out into the Atlantic with winds of 99 miles per hour at Flagler Beach, midway between St. Augustine and Daytona Beach. Then she curved north on her destructive path.

After zigzagging through Florida she went up the coast and over the northeastern part of the United States from Long Island to Maine. Over 30 lives were lost in the various states, 11 of these in Florida. Deaths were unusually low considering the intensity of the storm and the extensively populated regions through which Donna swept.

THE AFTERMATH

Over the Keys and in Collier, Polk, Lee, Charlotte and other counties Donna left a mass of tangled trees and shrubs, smashed chairs, overturned automobiles, demolished trailers and boats and splintered and gutted buildings. Above all was the stench of rotting seaweed, animal and marine life. The odor became worse as foodstuffs in stores, restaurants and homes began to spoil because of lack of refrigeration.

As soon as winds had subsided enough for safety outdoors, rescue teams searched for bodies in the wreckage of thousands of homes, shattered vessels and upturned house trailers. Clothing, stoves, refrigerators, air conditioners, mattresses, crawfish traps and thousands of other items were a jumbled mass on the ground, in the trees and hanging from telephone and light wires. A week after Donna's visit some of these same items were seen adrift in the Atlantic and Gulf five miles from Florida shores.

TO WORK

The State Road Department began an immediate cleanup of the main road arteries. Telephone and power companies dispatched work crews. The National Guard, County Sheriff's Departments and State Highway Patrol went on duty to prevent looting and maintain order. City and County Commissioners met in emergency sessions. Inspections were made by air to ascertain the amount of destruction and the health needs. President Eisenhower declared Florida's hard hit sections major disaster areas. The Federal Housing Authority began to function for those holding FHA mortgages. The Small Business Administration began to arrange loans to assist those qualifying under their regulations. And so on.

But health authorities were concerned about outbreaks of food poisoning, amebic dysentery, infectious hepatitis, influenza, typhoid and other illnesses which may come after lands have been overrun with water, filth and debris. Teams of doctors, nurses and sanitarians from the State Board of Health, U. S. Public Health Service, County Health Departments, hospitals, county health and medical groups and private physicians entered the disaster area to establish emergency clinics and treat minor injuries and shock victims and to give typhoid and tetanus shots. The Red Cross, Salvation Army, Civil Defense and others also moved in. Undoubtedly, because of the immediate precautions taken not a single case of communicable disease was reported in the entire state as the result of Donna's visit.

Through the years Floridians have learned a preparedness procedure for hurricane alerts. As soon as it appears likely that a hurricane will visit an area the residents begin to put up the storm shutters, store away all loose objects such as lawn chairs and garbage cans, and securely fasten garage doors and windows. In the house, candles and kerosene lamps are broken out and a supply of matches laid by each. New batteries are purchased for flashlights and portable radios, if needed. Where available, dry ice is purchased and placed in food freezers and tubs and other containers are stocked with ice in event of power failures. A supply of canned goods is purchased as well as canned heat for cooking. Several large bottles or other types of containers are filled with fresh water and as an added precaution the bathtub is also filled.

With preparations complete the family draws into its protective shell to wait patiently until the storm has blown itself out. They are kept abreast of its progress by means of the battery-powered radio and are careful not to go out while the "eye" is passing over.

When the storm has passed they come forth to clean up any debris or litter and to give less fortunate neighbors and friends a helping hand. In a way it's quite an experience and to some it is an exhilarating break in the monotony of everyday living!

A FIRST!

For the first time in Florida's hurricane history a relatively new laboratory technique was used to test for water pollution. The membrane filter water test determines water contamination in 18 hours instead of the usual two to four days. Temporary water laboratories were established in the storm damaged areas by the State Board of Health's Bureau of Laboratories. In Dade County alone sanitarians collected, during September, 1449 water samples from public drinking water sources, private wells and cisterns.

Six thousand feet of water main supplying the Keys were damaged by the storm. The U. S. Navy, which maintains the aqueduct, began repair work at once. On September 20, ten days after Donna, Key West residents received their first water from the pipeline but were restricted from using it for any unnecessary uses, such as car washing, lawns, filling swimming pools and the like. The Florida Keys Aqueduct Commission had two storage tanks of water but lack of pressure and breaks in the system prohibited its use. Later, however, valves were installed on the tanks and it was drawn by the pailful, after being chlorinated because of the questionable condition of some of the containers people used for carrying water home.

A CUPFUL AT A TIME

In Everglades City water was trucked in from Miami and rationed by the cupful. Beside spigots on the trucks appeared signs, "For Drinking Only." There were no bathtub rings in these areas. A Miami brewery filled 6000 beer bottles with water and trucked it to sections where it was scarce. A milk company bottled water in disposable cartons. The Navy, Red Cross, Civil Defense and National Guard brought in tanks of water.

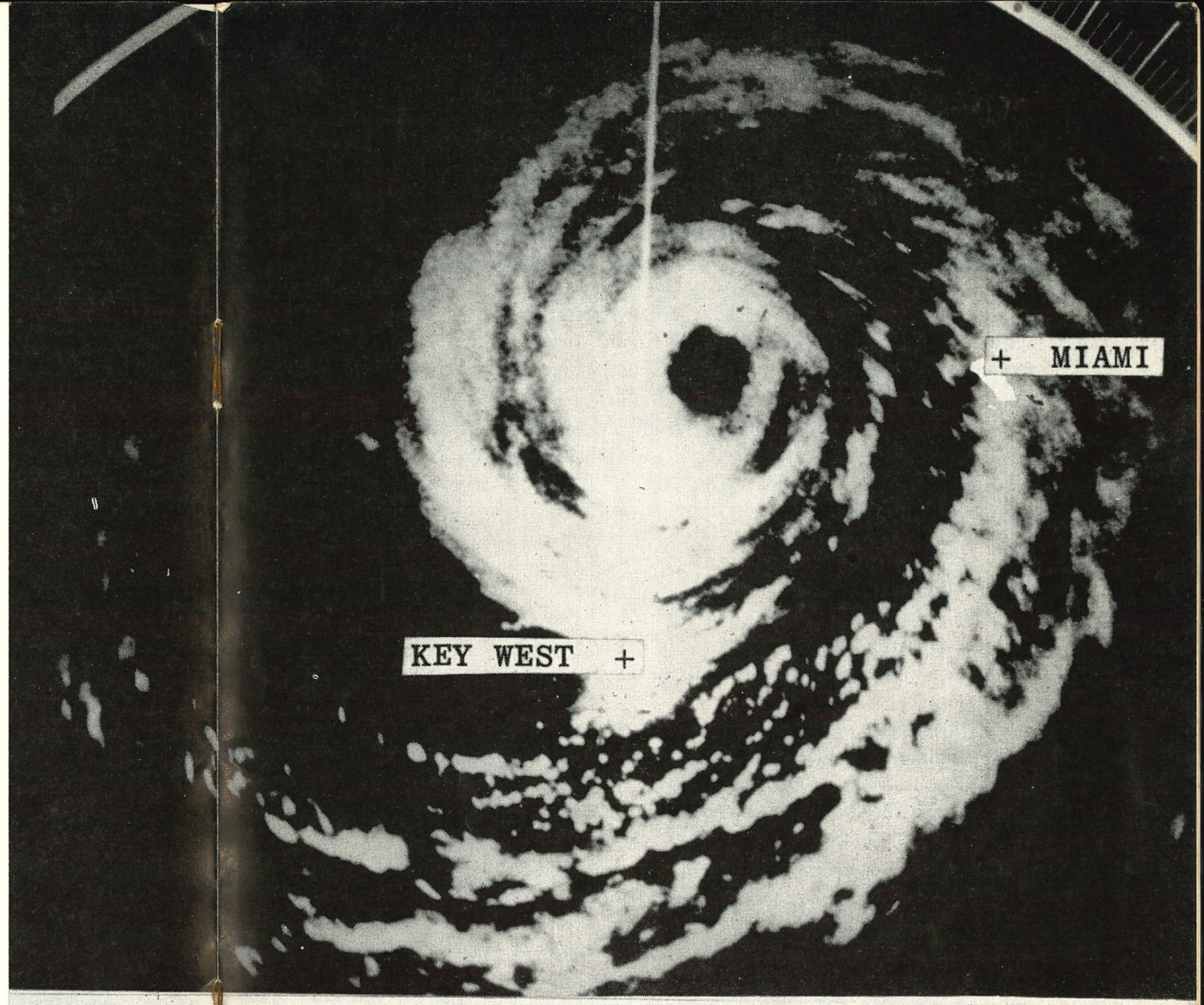
In Marathon and vicinity hard liquor sales were prohibited although beer sales were allowed from noon to 3:30 p.m. then extended to 6 p.m. Cases of non-alcoholic beverages were brought in and these were distributed from shelter areas. On the west coast a supply of carbonated drinks, adequate for the community, was condemned because flood waters had forced silt inside the bottles even though they were capped.

STEAK ANYONE?

Restaurants and grocery stores were not allowed to open for business unless inspections had been made by local, state or Public Health Service

A ONE-EYED CYCLOPS!

A hurricane is a cyclonic storm moving counter-clockwise with a speed of six to 15 miles an hour. In the center of the round moving mass is an "eye." From the fringes of the circle to the "eye" winds will vary, according to the intensity of the storm, from 75 to 150 miles an hour. In the "eye" there is a small area of comparative calm. After the first half of a hurricane has passed, persons untrained in the ways of tropical hurricanes may venture out only to be caught by the full force of the second half of the storm. Due to the hydraulic pressures of waves and tides, most of the damage comes from water forced ahead by high winds. Duration of the storm is usually from four to eight hours. Old-timers claim that hurricane danger exists from the first full moon in August to the first full moon in October. The official hurricane watch by the weather bureau begins June 15 and ends November 15.



Radar photograph of Donna as it appeared on the PPI scope of the WSR-57 radar at Key West at 1340 G.M.T. September 10.

PHOTO COURTESY U.S. WEATHER BUREAU

sanitarians. In many instances foods which could be salvaged were donated by owners to the food kitchens. Many a family sat down to a number of excellent steak dinners.

In Dade County over 7000 pounds of food were condemned when light power failures shut off refrigerators and freezers. In an effort to save refrigerator contents it was not an uncommon sight in the Keys, or in lower west Florida, to see deep freezers being hauled by truck to sites where electricity had been restored. Cooler boxes sat in front of filling stations and behind stores. A single house where electricity was restored might have several boxes on the porch.

Rotting food, garbage, debris, animal carcasses, fish, etc., were collected and burned.

★ ★ ★

Items appearing in newspapers following Donna

ADVERTISEMENTS:

"Salt water soap. Lathers in sea water. Ten cents a bar. Perfect for ocean bathing!"

"Plenty of cistern water available to any beautician and use of our facilities free of charge."

Apt. to rent—"Plenty of water—we have our own cistern."

Room to rent—"Water included for $10."

"Waterless cream-type hand cleaner."

"Disposable diapers. Selling at discount during present water shortage."

BOXED NOTICE:

"People found looting houses at night will be FOUND THERE the following morning!"

FILLER:

"A saltwater bath followed by an alcohol rub will refresh you and conserve a limited water supply."

HEADLINE:

"Water's On, Y'all Can Take A Bath"

★ ★ ★

Two months after Donna had visited Florida, the State Board of Health, Division of Health Information, made a routine check to correct mailing addresses of HEALTH NOTES. One of the inquiry cards sent to Marathon returned with this comment: "Very interesting and informative. I kept all copies on file until Donna blew them away."

A SPECIAL PROBLEM

Sanitary disposal of body wastes presented a problem because there was no water or water pressure. People were urged to carry salt water from the ocean for flushing purposes. Owners of septic tanks and cesspools were given instructions how to deal with waste disposal when these facilities became inoperable because of flooding. In the Keys, the Navy built privies for many of the residents.

RATS

Another health hazard presenting itself in some areas was an influx of rats to high ground. In south Florida 5000 poisoned meat balls were scattered by boat and helicopter in rodent control programs. There were a few snake bites reported when reptiles sought shelter in homes, on venetian blinds or in vehicles. One truck was used three days before a rattlesnake was discovered under the driver's seat. Needless to state, after this discovery great caution was taken before getting into automobiles.

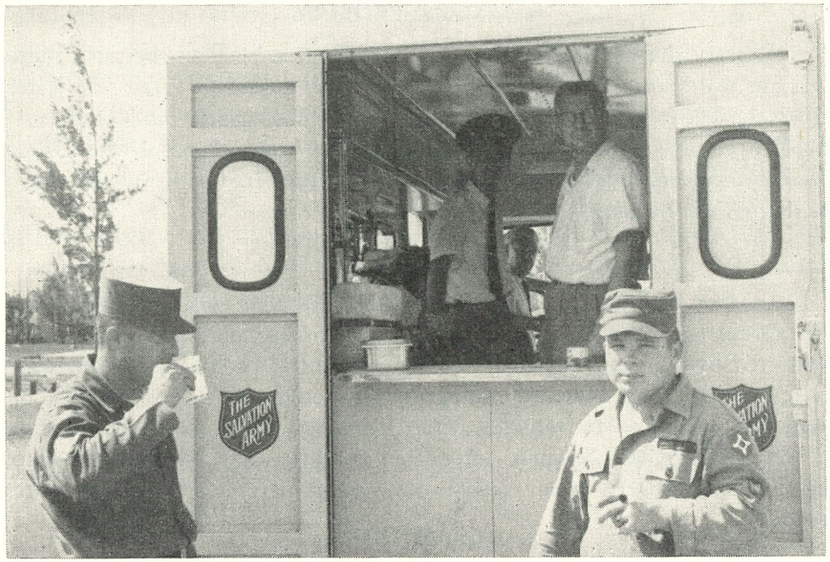
GRATITUDE

It would be almost impossible to report on the work of all the agencies who shared in helping solve the problems Donna left behind her. Here are a few of them:

In Arcadia 6000 persons in three days were given typhoid and tetanus shots while in Dade County eight clinics were established which administered 18,642 immunizations in 20 days. At Everglades City a number of Seminole Indians, from deep in the Everglades, came to the mobile unit and wanted to be immunized. At Islamorada and Marathon local and state health officials administered immunizations at shelters, clinics and even at road blocks set up by police to keep out the curious, looters and "freeloaders" at the food lines. In Naples more than 2000 typhoid shots were administered by the health department officials.

Feeding people in disaster areas is always a problem. In Everglades City two meals a day were served to all comers. Menu: grits and gravy, beans, canned luncheon meat and coffee. The Navy set up a "chow line" in the Marathon Fire Station which was later moved to the American Legion hall when the Red Cross took over. A local restaurant owner supervised the cooking. Islamorada residents were fed at the Methodist Church by the Red Cross.

In Polk County failure of electricity resulted in the condemnation of $60,000 of frozen foods. In West Palm Beach, Fort Lauderdale and Miami the Salvation Army held in readiness 77 officers, six canteens and other mobile equipment as well as cots, blankets, food and other supplies. After Donna had passed they moved into the area, bringing this equip-



ment and materials with them, along with 250 gallons of water. The Salvation Army served 9155 meals, aided 6303 persons and distributed garments, shoes, etc., to 12,695 others. In addition, they also served ice, water, sandwiches, soft drinks, coffee and doughnuts to hundreds of people at Fort Myers Beach area, Everglades City, Chokoloskee, Goodland and Marco.

Prior to Donna, information on availability of food from local commodities was given to Civil Defense, American Red Cross, school officials, etc., by the State Department of Public Welfare. Because of the rapid recovery in most areas only 221,378 pounds of the available 828,770 pounds were distributed.

Hospitals in Dade County prepared themselves to care for women six months or more pregnant. Atmospheric pressure, excitement and fear during hurricanes tend to send prospective mothers into premature labor. Jackson Memorial Hospital in Miami received 144 expectant mothers. Sixty-six babies were born during the time Donna raged, setting a new hospital record.

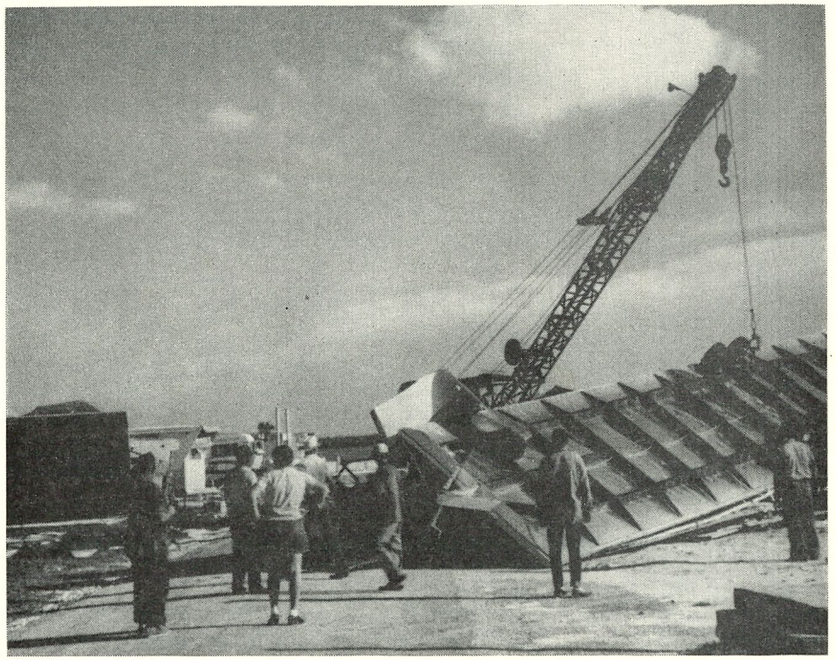
Residents whose homes blew away around them were treated for shock. Others received medical care for body cuts caused from splinters of wood, stone and glass when concrete block and frame structures exploded.

Mental disturbances triggered by stark reality of property losses and adjustments still existed five months after Donna's visit. "Hurricanitis," as it was termed by local physicians, resulted from persons being unable

to comprehend the complete destruction of properties, homes and industries for which they may have worked a lifetime. Diagnosis was made on the assumption that some people have general anxieties and fears which are aggravated by occurrences such as Donna. Men and women who stayed during and those who returned after the storm were equally affected. Symptoms were similar to those of nervous exhaustion—insomnia, depression, frustration, vomiting, lack of appetite and stomach pains. A few cases were hospitalized. The cure? Confinement in bed or a complete change of residence for several weeks.

One physician observed that people completely lost their sense of time. Nurses who had been on duty 36 hours without a break, although able to perform their professional duties had no idea what day or hour it was. There was a complete absence of panic. People performed with an instinct for survival and became welded together for a common good. The excellent handling of wholesale immunizations, water pollution problems and removal of debris, carcasses and sewage resulted in low disease incidence.

Leaflets were distributed advising people to boil all drinking water, be immunized at emergency clinics and keep children from playing in sewage-contaminated pools, streams and lakes. Similar pamphlets were dropped by airplane over Goodland and Marco. Loud speakers mounted



in motor vehicles gave announcements of location of clinics in Collier and Hardee Counties. Civil Defense handbills informed citizens when utilities would be restored and the location of emergency water supplies and Red Cross shelters.

The only non-mud-spattered vehicle in the town of Everglades was the mobile trailer clinic loaned by Broward County Health Department. A Broward public health officer and nurse operated the vehicle until relieved by State Board of Health and Red Cross personnel. The clinic was well patronized and even 10 days after Donna 300 persons showed up to receive immunization and medical care.

A Navy helicopter moved traffic from Tavernier to Islamorada.

One nurse at a schoolhouse shelter was glad to see rescue teams for she had moved her 90 charges, half of them children, from classroom to classroom as roofs and walls vanished.

Residents became lost right in front of their homes because all landmarks were gone—signs, shrubbery, trees, etc. Paint was sandblasted from buildings and automobiles by the driving sand.

THE AMERICAN RED CROSS

Gave emergency mass care to 125,000—some for as long as three weeks. They also gave relief to 4648, spent $1,343,769 in 39 counties for relief expenditures, furnished 1891 families with emergency funds for home repairs, rebuilding or replacement, helped another 1162 families purchase furnishings or other essential needs, and helped 200 families with funds to restore businesses or other occupational needs. A similar number were aided with funds for hospital bills or medical care.

STATISTICS

Fatalities, sickness and injuries from Donna were comparatively slight when it is considered that she swept through an area where a third of Florida's population of 4,951,560 reside. There were only 151 cases of injury or illness, 1643 minor injuries and 122 persons hospitalized. This fortunate outcome is attributed to accurate and timely warnings, prompt and efficient preparations of the government, welfare, civil defense and public health groups and the cooperation of the general public. On the other hand, forestry, property and agricultural destruction amounted to nearly $350,000,000. A Florida Civil Defense Agency survey indicated that 1844 homes were destroyed, 3253 received major damage and 30,818 sustained minor damage. A total of 710 farm buildings were demolished with major damage to 1454 and minor damage to 2754. Losses to business firms, dwellings, industry and public and private utilities were over $250,000,000. Citrus losses were equivalent to 15 to 20 million boxes of fruit blown from the trees. At least half of the grapefruit crop lay on the ground. Peanuts, about 60 per cent harvested and stacked for drying, were damaged by rain. Replanting of most vegetable crops and acreage was necessary. Florida's agricultural losses were estimated at $50,000,000.

Florida has been lashed by hurricanes before—often with resulting death and destruction. The 1928 hurricane that brought death to more than 300 residents in the Lake Okeechobee area, and the 1935 hurricane that blew away a railroad work camp on Matecumbe Key and killed a number of employees, are still remembered throughout the nation.

Today, a far-flung hurricane watch for the entire nation has been established. Residents are given adequate warning to prepare for the blow. Relief agencies have adequate time to muster their forces. Added to this are round-the-clock services of our health departments which drastically reduce the dangers of illness and death from injury or disease.

FUTURE PLANS?

Possibility of having several mobile trailer clinics for the multiple purpose of immunization, medical care and water pollution study laboratories.

A ready supply of "Precaution Handbills" to include the following information:

1. Boil drinking water at least five minutes or add one-half teaspoon iodine or other bleaching agent to one gallon of water.
2. Stock larder shelves with containers of water for drinking and cooking, a Sterno Stove, canned vegetables and meat, flashlight and batteries.
3. Open and close windows in house to equalize pressure of winds outside and possibly use an attic fan.
4. Board up windows and doors with hurricane shutters. Local carpenters are usually experienced in putting them up fast. Many shutters are precut to be fastened on quickly.
5. Areas immediately adjacent to water are always potentially dangerous. Locations two or three blocks from the water and in the center of town are much safer.
6. Listen to radio and television broadcasts or read newspaper weather reports. The latter are from ships at sea, weather stations and from Navy Hurricane Hunter planes which fly into the storm and send location reports.

Possibility of having tight, uniform building codes for all structures including trailer homes. It is noteworthy that homes built on stilts, such as the Indians erect, are not too often damaged by winds and high waters.

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