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Focus on Warning

THE DEFENSE CIVIL PREPAREDNESS AGENCY / THE PENTAGON / WASHINGTON, D.C. 20301

NOAA PHOTO

FOCUS ON WARNING

The subject of tornado warning was critical to anyone affected by the April tornadoes that roared up through middle America—the largest single outbreak of tornadoes in the United States in nearly half-a-century.

This article is based upon excerpts from an interview program for Dayton, Ohio television station WHIO-TV by Cox Broadcasting Washington Correspondent Andy Cassells, with particular attention to the views of Rep. Clarence J. Brown of the Seventh District of Ohio, which includes the tornado-devastated community of Xenia, and Dr. Robert M. White, Administrator of the Commerce Department's National Oceanic and Atmospheric Administration of which the National Weather Service is a part.

Congressman Brown

Administrator White

Mr. Cassells: Dr. White, what is the state of the art today? What can you tell us when a tornado may be coming to our area?

Two Key Messages

Dr. White: We can tell you two things. First of all we can tell you when to observe a "tornado watch" which means keep tuned to your radio, your television set. A "tornado watch" is a forecast that there will be high probability of the occurrence of tornadoes. We can give you this information anywhere from 6 to 12 hours in advance. In addition to that, we issue "tornado warnings." These are very short fuse warnings. The word "warning" means take cover. We can issue a "tornado warning" anywhere from a few minutes to a half-hour in advance.

Mr. Cassells: What do you need, Dr. White, before you actually issue a warning for a community?

Dr. White: A warning is only issued when a tornado has been positively identified. It has to be observed either by a cooperative spotter network of people in the community, or it has to be observed on the radar set. When you hear a warning, take cover. That's what it means.

Rep. Brown: You actually did a little better than that in Xenia, didn't you? I think they had a 40-minute warning, as I understand, on the sighting of the tornado down on the Cincinnati area.

Warning Time Assessed

Dr. White: That's correct. In this tornado situation the warning system did work very well. We were actually able to issue the "tornado watches" more than 12 hours in advance, and the warnings for many of the tornadoes. In the case of Xenia, the "tornado warning" was issued 40 minutes in advance. But our general capability, taking all tornadoes, is of the order of a few minutes to half-an-hour. This is enough time for a person to take cover.

HERE IT COMES! / A tornado roars over Xenia, Ohio, spraying debris everywhere. At this moment it is heading for Greene Memorial hospital. Photographer Fred Stewart snapped this shot from the second floor of the hospital, less than two blocks from the monster funnel. At the last moment, the erratic tornado veered and missed the hospital. (Wide World Photo)

Rep. Brown: Dr. White, how long does a tornado last? I mean it doesn't start on the ground. It just comes down out of the cloud. Now from the time that occurs until the time you get a killer tornado or a tornado that really could do damage, how long does that sort of thing take?

Dr. White: It's a killer immediately upon touching ground. And these funnels will move along the ground—a hop, skip and jump—and they can last anywhere from a few minutes on the ground up to as much as half-an-hour. That is, you can keep tracking an individual tornado, and they usually move at speeds anywhere from 20 up to 50 miles an hour. The tornadoes in this last outbreak out in Ohio moved very rapidly.

A Mile Wide and Erratic

Rep. Brown: They were also quite broad. When we discussed it a day or two after the tornado occurred and you visited that area, some of the people on your staff didn't believe that this thing was as wide as it was. Usually tornadoes are fairly sharply focused in, aren't they?

Dr. White: That's correct.

Rep. Brown: And this was, in some instances, a mile wide.

Dr. White: Yes, this was an unusual one in that sense. It was a very wide one.

Rep. Brown: And I thought it was very interesting how this thing did skip over the ground. Apparently, it's like a ski slope. If you get on the up-slope, it can skip over some areas before it touches down again.

Dr. White: And that, of course, is one of the reasons why forecasting the destruction from a particular tornado is very difficult because a tornado is very erratic—skipping and jumping around. But in these particular cases of the tornado outbreak of April which, incidentally, was the largest tornado outbreak we've had in the United States since 1925, the warnings were quite good. The outbreak was characterized by tornadoes that had reasonably long paths so that they could be tracked rather consistently. This is one of the things that allowed us to give as much advance warning as we did.

Enter, 'Doubting Thomas'

Mr. Cassells: I hate to play the role of the Doubting Thomas, Dr. White, but it seems to me that with today's sophisticated electronic equipment—satellites, we can broadcast the television picture from the moon—I have to think we can get better than a 30 or 40-minute warning when a tornado is going to strike a community.

Dr. White: There's no question that there is technology available now, some of which we are planning to introduce into our system, that can, in my opinion, improve the warning system. But I would caution against the idea that merely by having technology you can extend your ability to make advance warnings of tornado for an infinite period of time. The lifetime of a tornado itself is only, at the maximum, about an hour, so it becomes very, very difficult to make a forecast of the actual tornado very much longer than that. Now, we can give forecasts of general areas in which tornadoes are highly likely to occur and we do that. We call these "tornado watches," of course. I think we can advance the time at which we give the "tornado watches." I agree with you, there is technology that can improve the present warning system; we are introducing some of it. But I don't think it would be right to lead to expectations that we could give, let's say, 6 or 12 hours of advance notice of a "warning." That means a positive identification of a tornado. One of the things we must avoid in a tornado warning system is the idea of "crying wolf." People have got to understand that when they hear the word "tornado warning," there *is* a tornado. Take cover. Now if we give warnings and no tornado shows up, people will soon become accustomed to the idea, well, there's nothing to these warnings.

Concern With Terminology

Rep. Brown: I'm a little concerned about the wording. I'd like to see the term changed from "watch" to "alert." I have difficulty with the similarity between the words "watch" and "warning." Is there a way to correct that problem?

Dr. White: Well, we identified this in the latest tornado outbreak, and we have this kind of a comment from a number of people. We've had our investigatory team out looking at how the warning system performed, and the results we're getting is that the understanding of "watch" and "warning" varies from community to community. Now, I will admit there tends to be some confusion between those two words, and a lack of understanding. We need to do one of two things and we haven't decided which way clearly to go. We either need to put a lot more effort into the educational process so everybody understands what's the difference between "watch" and "warning," and we'll certainly do that. And we certainly do have to look to see whether there's not a better pair of words that we could use that might be less confusing than "watch" and "warning."

Rep. Brown: What coordination exists between your agency, Dr. White, the Defense Civil Preparedness Agency, and local civil defense so that the people get the word on a possible tornado?

Close Association With DCPA

Dr. White: We work very closely with the Defense Civil Preparedness Agency, and we have a rather formal agreement between the two agencies with respect to who has what responsibilities in the whole area from community preparedness, for example, to the actual dissemination of the warnings. This gets translated down to the local level where the meteorologist in charge of the local weather service forecast office works directly with the local civil defense coordinator. So the system is very closely knit. For example, we use directly the DCPA National Attack Warning System. In your State of Ohio, every weather station is on the NAWAS system, giving us direct access to public officials and other groups who are on the telephone warning network. So we have arrangements with DCPA for using their communications systems.

But I would make the following point. We need to get the message to people wherever they are—whether they're out having a picnic, out by the local river, in a school, in an office, at business, or at play—we have to get the word to people who are everywhere. There is no one single means of communication on which you can rely to get to everybody. Therefore, our strategy has been to use every possible means of communication that we can get our hands on—those operated by the Defense Civil Preparedness Agency, those operated by our own organization, and we have many communications systems of our own, and of course, the public communications media, radio and television, which have been just enormously helpful in assisting us in getting the warnings out to the people.

School Sirens Recommended

Rep. Brown: Of course, that's what's worried me in the Xenia situation. At 4 o'clock in the afternoon, a lot of people were out shopping, or they didn't have their car radio on, or they weren't watching television. They didn't get the warning. It seems to me there ought to be some kind of a system which could set off a siren system which would be heard by everybody in a heavily populated area. And the thing that I've come to the conclusion on is that the best system for that would be in the neighborhood school, because schools tend to be located in every neighborhood of a sizeable community. If you had a siren at every one of those schools, not only would you scare the devil out of every one of those children in school and send them to the basement, but you would also be heard over a much larger area. People would respond to that siren and turn on the radio or television.

Dr. White: I agree with you that a positive alerting siren system would be very useful. We do use it in many communities where it exists. For example, it wasn't so many years ago up in the City of Minneapolis, where they had a very severe tornado situation, where we were able directly to trigger the siren system and get warnings out to people which were enormously helpful in saving lives. So I would certainly go along with you in the idea that we need to do a lot more in getting civil defense siren systems, positive alerting systems.

More People, More Problems

Rep. Brown: Dr. White, how much more of a problem are we going to have? Are we likely to get more tornadoes in our part of the country? Is there greater danger from tornadoes?

Dr. White: I think there is no question that the exposure is very much greater and will continue to be greater as our population grows and as our suburban areas grow.

Rep. Brown: You say exposure. There are the same number of tornadoes but more people that might be affected by them.

Dr. White: That's correct. I think it's a problem that is going to increase in intensity merely because of that fact. The number of tornadoes we have in any particular year, of course, is going to change. The average, for example, in your State of Ohio is about 15 tornadoes a year. But last year you had 43 tornadoes. So it will fluctuate very markedly each year.

Rep. Brown: But is that a pattern that is changing? Can we anticipate that this year we will have more destructive tornadoes than previously?

Dr. White: I don't think you can. There are some people who do believe there are some fundamental changes in the weather taking place. I don't believe the evidence is really adequate to come to that kind of conclusion. And those changes would be very slow, indeed, if they are taking place. I think the problem, just given our present situation, is severe enough to warrant taking whatever kinds of actions are needed to improve these warning systems and get the warning message out to the people.

Lifesaving Sirens

Tornado Watch: Tornado Warning!

Liore Maccarone, Director of Civil Defense for Hamilton County, Ohio, blew the sirens—125 of them—four times: the first a little after 4 p.m., the last around midnight on the night of April 3—a time that many would later describe as "the day of the hundred tornadoes."

Nearly everyone in Hamilton County (Cincinnati), was grateful. A few weren't, including a lady who complained, ". . . they shouldn't ring that thing and wake everybody up!"

Until that April day, the sirens, installed 18 years ago, had never been needed to alert the people to impending disaster.

First word that a tornado had been sighted southwest of Greater Cincinnati Airport, heading toward the city, was received in civil defense headquarters over the National Warning System.

Warning Pays Off

Next day, a headline in the *Cincinnati Enquirer* read, "Civil Defense Comes Into Own . . . And Those Sirens Pay Off."

Mr. Maccarone's decision "undoubtedly saved hundreds of lives and prevented thousands of injuries," the newspaper reported. "He also brought into its own the importance in an emergency of the Hamilton County Civil Defense . . . system, which he directs."

Libby Lackman, the *Enquirer* reporter, noted that "The 125 sirens cover 70 percent of the county's population. Thursday, a goodly number of persons in the tornado's path called the civil defense office in gratitude.

"The sirens, they said, had them turning on radio or television, then scurrying to basements if they had one; opening windows, then getting away from them to the center of the house if they didn't, or getting out of cars and taking refuge in a low area."

Many Letters of Appreciation

Later, Director Maccarone received many letters of appreciation from residents of Hamilton County. Examples:

"May I thank you and your staff for the wonderful service you rendered to all of us on Wednesday, this week."

(concluded on page 26)

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STORM: Agnes on Film

The most destructive storm ever to strike the United States. Parts of seven States severely afflicted as more than 28 *trillion* gallons of rain fell in a few hours over the eastern part of the country, flooding 5,000 square miles of land. Thousands of people forced from their homes, some never to return. More than $3 billion in property damage.

The terrible floods of Tropical Storm Agnes that will forever mark the summer of 1972 in the family records of millions of people, especially in Florida, Virginia, West Virginia, Maryland, Ohio, New York, and Pennsylvania. And now the story—the people, the damage, the dismal defeats, the magnificent victories—it's all on film: STORM, a new documentary motion picture by the Defense Civil Preparedness Agency.

The film focuses on hard-hit Wilkes-Barre in the Wyoming Valley of northeastern Pennsylvania, describing how Maj. Gen. Frank Townend, Luzerene County Civil Defense Director, and his small staff organized a volunteer 10,000-person sandbagging operation and then evacuated the workers—and 80,000 people in the area—before the rain-swollen Susquehanna River engulfed the area, kept the people constantly informed by radio on what the situation was, and coordinated local recovery actions.

STORM runs 28-1/2 minutes. The film is available (ordering code: DD-CP-20-284) on a short-loan basis from Regional and State civil preparedness offices, and also from Army Audio-Visual Centers (film libraries.)

Educational Alliance

The Arizona Division of Emergency Services has experienced "enthusiastic acceptance and use of Defense Civil Preparedness Agency curriculum materials in Arizona's schools," according to State Director Carl N. Smith. "Administrator and teacher reactions have been most favorable, and the materials have been incorporated into school curricula."

There have been obstacles. "SALT I and detente have eroded teacher enthusiasm for presenting survival material related to the nuclear threat," Director Smith said. "But we found a solution: alliance—alliance between educational specialists in our office and junior high school science teachers. He described a pilot program conducted this year at Catalina Junior High School in the near northwest section of Phoenix, a school which is a part of the Alhambra School District.

At Catalina, a science teacher and an education specialist from the State Division of Emergency Services combined their talents and resources in teaching basic nuclear science to 160 seventh-grade students. The science teacher emphasized atomic structure and the periodic table of elements while the education specialist stressed nuclear radiation and protective measures. Both instructors used DCPA-approved visual aids. The team teaching effort included radiation shielding demonstrations and a detection exercise in which the class used monitoring equipment provided by the State Division of Emergency Services.

"Response to the effort is encouraging," Director Smith said, adding that the Alhambra School District plans to give a similar course to some 1,100 seventh-grade students next year. The aim is to eventually reach all 40,000 seventh-grade students throughout Arizona.

"An alliance of education and preparedness, imbedded in the common background of science, shows great promise of getting the point across in Arizona," Director Smith said.

He Said It. . .

"There must be clear evidence throughout the country that we, as a Nation, are prepared, that we have the spirit and will to do what is necessary to defend the country, and to insure its well-being. . . The spirit of preparedness must resound so that any potential enemy can discern it, and can see that he cannot set out on a cheap adventure at our expense."

Gen. Creighton W. Abrams
U.S. Army Chief of Staff

Vacation time is no time to be careless. Every year, lightning alone kills 150 and injures 250 Americans. Some points to keep in mind to avoid the Shock of Nature:

IF A THUNDERSTORM OCCURS:

Stay indoors. Don't attempt to take laundry off the clothesline. Keep away from open windows and doors, fireplaces, radiators, stoves, and metal pipes. Don't use plug-in electrical appliances like hair dryers, electric toothbrushes, or electric razors, and avoid using the telephone or television set.

If you're in a car, stay there. Automobiles offer excellent lightning protection.

Water is a conductor of electricity. Postpone washing dishes or taking a bath until the storm is over. Don't wade, swim, or go boating in a thunderstorm. If caught in open water in a boat in an electrical storm, stay low in the boat.

Don't use metal objects like fishing rods or golf clubs. Golfers with cleated shoes make particularly good lightning rods!

Don't handle flammable materials in open containers.

IF CAUGHT OUTDOORS:

With no buildings nearby, your best protection in an electrical storm is a cave, ditch, canyon, or under head-high clumps of trees in open forest glades. Remember, lightning has one persistent trait: it always takes the easiest path to the ground, so avoid hill tops, open spaces, wire fences, exposed sheds, and any electrically conductive elevated objects.

Stay away from lone trees. If only isolated trees are nearby, crouch in the open, keeping twice as far away from isolated trees as the trees are high. Also, isolated rain shelters, often found on golf courses or at picnic areas and campgrounds, are prime invitations to direct lightning strikes.

Tractors and other implements in metalic contact with the ground are often struck by lightning, so stop tractor work, especially when pulling metal equipment.

Should you feel an electrical charge—if your hair stands on end or your skin tingles—lightning may be about to strike you. Drop to the ground immediately.

IF LIGHTNING STRIKES:

Persons struck by lightning receive a severe electrical shock and may be burned, but *they carry no electrical charge and can be handled safely.* A person "killed" by lightning often can be revived by prompt mouth-to-mouth resuscitation, cardiac massage, and prolonged artificial respiration.

In a group struck by lightning, the apparently dead should be treated first; those who show vital signs will probably recover spontaneously, although burns and other injuries may require treatment. Recovery from lightning strikes is usually complete except for possible impairment or loss of sight or hearing.

Weather Modification

Rain, snow, fog, and hail were primary targets of weather modification during a recent 14-month period, according to a new report issued by the National Oceanic and Atmospheric Administration.

The 67 reported weather modification projects conducted in the United States between November 1, 1972, and December 31, 1973, took place in 19 states. Oklahoma and California had the most, 12 and 11 respectively. North and South Dakota followed with six each; Idaho, five; Washington, four; Michigan, Texas, and Utah, three each; Iowa, Montana, Oregon, and Wyoming, two each; and Arkansas, Colorado, Illinois, Nebraska, Nevada and New York, one each.

Under a law that took effect on November 1, 1972, all non-federally sponsored weather modification activities conducted in the United States and its territories must be reported to the Secretary of Commerce. The National Oceanic and Atmospheric Administration administers the reporting program on behalf of the Secretary. Federal agencies began reporting weather modification projects to NOAA on November 1, 1973, a year after the non-federal reporting law was effective. Therefore, only two of the 67 projects summarized in the newly published report were Federally sponsored.

Nearly half of the reported projects were intended to increase precipitation, while about a fourth were conducted to dispel fog. Airlines and airport authorities sponsored operational fog-dispersion programs at airports serving Seattle-Tacoma, Missoula, Spokane, Salt Lake City, Boise, Medford-Jackson, Sacramento, Omaha, Des Moines, Cedar Rapids, Moline, and Reno.

Dry ice was used in many of the fog modification projects. The seeding agent in most of the precipitation projects was silver iodide.

"Weather Modification Activity Reports—November 1, 1972, to December 31, 1973"—by Mason T. Charak and Mary T. DiGiulian of NOAA's Office of Environmental Monitoring and Prediction—describes the projects reported during the period and provides information on their purposes, locations, sponsors, operators, equipment, techniques, and seeding agents. Copies of the report are available upon request from the Office of Public Affairs, National Oceanic and Atmospheric Administration, Rockville, Md. 20852.—**Ann K. Cook,** National Oceanic and Atmospheric Administration.

Estimating the Damage

By BILLY R. MANNING / Director, Professional Advisory Center / Engineering Extension Service / Auburn University

The first steps toward recovery from any major disaster always involve an estimation of the impact of the disaster on a community. And as with any element of emergency preparedness, the time to do most of the job is *before* a disaster strikes.

The fact is, however, that many communities overlook this segment of preparedness until a disaster has dropped on their heads. Then in order to determine what recovery actions can be accomplished locally and the type and degree of assistance needed from State and Federal agencies, local officials must scurry around trying to put together from scratch an estimate of the damage. Frequently the result is that the damage estimation is grossly inflated, often by a factor of ten or more. This means that State and Federal agencies, called in to help, must spend considerable time rechecking and validating the estimates, often causing considerable delay in the recovery effort.

One Reason for 'Red Tape'

When you hear about "cutting red tape" (always meaning *Federal* "red tape," of course) in disaster-recovery efforts, keep in mind that a key factor in creating that "red tape"–in the sense of apparent delay in getting on with the disaster-recovery job–often can be traced to a poor system of estimating the damage.

To alleviate this problem, and as part of its regular emergency preparedness system, each local government should establish now–before a disaster strikes–a local Damage Evaluation Team. The personnel assigned to this team should be persons who have experience and skill in estimating the needs of individuals and the cost of repair and replacement of facilities. Team members should not be individuals who would have a direct or supervisory responsibility for a phase of disaster recovery. A Fire Chief or a Director of Public Works, for example, would be too involved in disaster recovery actions to respond to a request for damage estimates.

Get the Right People

Personnel from the Building Inspector Department and the Tax Assessors Office would be excellent candidates for a Damage Evaluation Team. Individuals from these offices are knowledgeable of construction and building costs, and most probably would not have a responsibility for immediate disaster-recovery actions. In certain rural communities the governmental staff may not be large enough to assist in both disaster recovery and damage estimation at the same time. In these cases, the Damage Evaluation Team could be made up of skilled volunteers from the community. For example, architects, engineers, contractors, real estate appraisers, and insurance adjusters would be excellent candidates for a Damage Evaluation Team.

Building an Information Base

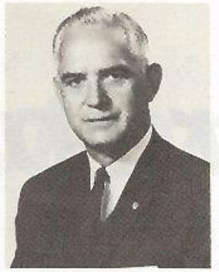
Information pertaining to replacement cost, insurance, unit repair cost, and the number of people utilizing a facility is most difficult to obtain in the wake of a disaster. When data of this type is obtained under disaster conditions, it is normally exaggerated, resulting in unrealistic damage evaluation. For these reasons, pre-disaster data should be developed by the various departments in local government and furnished the Damage Evaluation Team.

This data should include the replacement cost of facilities, percentage of replacement cost insured, and the number of persons using the facilities. Pre-disaster data related to housing should be average replacement cost, average number of homes insured, average percent of replacement cost insured, and average number of occupants by census tract or subdivision. It is also desirable that the governmental departments furnish the Damage Evaluation Team with the unit cost for such items as road patching, cleaning storm sewers, and debris clearance. There are various ways to collect this type of data. Some communities have been successful in getting a local Regional Planning Council to develop the necessary information. (See "Viewpoint" and "Working With Regional Councils," FORESIGHT, May-June 1974.)

Red Cross Experience Cited

The need for obtaining pre-disaster data of this type is not new. The American Red Cross has recognized its value for many years. The Red Cross has frequently surveyed hurricane and flood-prone areas prior to a possible disaster to establish property values, insurance coverage, and population information. Should a disaster strike, the pre-disaster data is combined with on-site surveys to rapidly develop an estimate of the impact on individuals. Federal agencies, such as the Federal Disaster Assistance Administration, have found the Red Cross estimates to be accurate, and in many cases use these estimates to verify State and local estimates.

Training is an important consideration for damage evaluation. One way to assure that damage evaluation officials are familiar with local, State, and Federal responsibilities in disaster-recovery actions, and recognize the need for accurate damage estimates is through training sessions in the form of workshops or seminars. With the assistance of the Regional Federal Disaster Assistance Administration office and the Auburn University Professional Advisory Center, which is supported by the Defense Civil Preparedness Agency, State civil defense officials in Alabama and Georgia have conducted one-day workshops on this subject, and plan to conduct additional workshops in the months ahead. □



viewpoint

Emergency operations in the face of a major threat and during disaster are extremely important.

Equally important are the efforts of assessment teams that go into devastated areas to find out what worked and what didn't. The lessons learned can be applied for increased safety in the future.

Following the massive storm in early April in which tornadoes were spawned from the Gulf to Canada, DCPA personnel were involved in disaster work in many ways–with some 60 being loaned to FDAA.

In other action, five DCPA staff members went into hard-hit counties of five States–Alabama, Indiana, Kentucky, Ohio, and Tennessee–to determine the effectiveness of local civil preparedness.

The team members looked into structural damage, and the mobile-home tie-down concept; the effectiveness of warning and emergency communications; the results of on-site assistance as applied to disaster actions; and the emergency actions of local officials and the public.

A great disparity was found in preparedness capability–in the professionalism demonstrated by local directors, in whether or not Emergency Operating Centers and emergency plans existed or worked, and in warning and communications systems and procedures.

It was found that where available, the National Warning System (NAWAS) was used extensively for warning, with the National Weather Service making good use of the system. In one community, sirens were not sounded by local officials according to plan. And it was found that in many localities, even after receiving warning, people stood outside watching the storms approach.

The survey of damaged structures covered many different types of construction. Examples were an elementary school building 60 percent destroyed, an atomic power plant switching yard totally destroyed, and a multitude of houses and buildings at Xenia, Ohio–most of which were destroyed or damaged severely. None of the communities visited had mobile home tiedown ordinances.

Some interesting facts: Three smokestacks at the atomic power plant, which rise 680 feet, sustained little or no visible damage. The damaged one-story elementary school building, at Louisville, did not have a basement, as bedrock is encountered in that area 6 to 12 inches below the surface.

Warning worked extremely well at Cincinnati (Hamilton County). The system includes direct links with radio and television stations, and a radio network which ties together the Red Cross, hospitals, and city and county police. Sirens, and bells and lights, gave warning to officials and the public.

Many lessons were learned in the survey. One was that it appears worthwhile to press for organization of civil preparedness on a multi-county basis in areas of low population.

Another was that tornado spotters are invaluable; that sirens are vital for warning in urban areas; and that mobile (police, sheriff) sirens and public address systems were used effectively in rural areas.

The need for standby emergency power for radio and television stations was demonstrated clearly, as there were many instances of stations being knocked off the air when the need was critical, and being unable to return for some time.

Other conclusions of the survey were that (1) work must be continued to increase warning time, (2) greater awareness must be created among both officials and the public on actions to be taken in response to weather warnings, (3) the value of school disaster plans and emergency drills must receive continuing emphasis, and (4) disaster courses should be scheduled for local officials following major emergencies, while interest is still high.

Out of the chaos of disaster comes experience and knowledge on which to build for the future.

We in DCPA will follow up intensively on knowledge we have gained from the April tornado disasters.

John E. Davis

John E. Davis
Director

Better Tornado Detection

A new significantly improved tornado detector, under development since 1971 by the National Oceanic and Atmospheric Administration (NOAA) at its Boulder, Colorado, Wave Propagation Laboratory, will be tested this year at 20 sites along America's "tornado alley."

A compact electronic instrument about the size of an office typewriter, the new detector is the latest model of an experimental device that scientists hope may eventually become a valuable tool for detecting and locating tornadoes. According to the project leader, William A. Taylor, the unit provides a directional indication in addition to detecting the electrical "bursts" associated with tornado-bearing thunderstorms.

Directional System Employed

The new detector uses a four-cornered array of antennas, instead of the omnidirectional antenna used in previous experimental tornado detectors—an antenna not capable of indicating the direction from which the electrical bursts were coming. The new device indicates the direction of maximum electricity to within 45 degrees. This will enable Weather Service personnel to intensify their radar scan in the indicated area, alert people there, and get ready for a possible tornado warning operation.

The old omnidirectional units were used experimentally in 1972 and 1973. During 1972, the units detected about three out of four tornadoes in their areas. Similar results were obtained in 1973, with the detectors correctly indicating three out of five tornadoes known to have occurred; however, they also produced false alarms at the rate of two false to one genuine.

While scientists emphasize the new device is not ready for full-scale operations, there is optimism it may develop into a valuable aid for zeroing in on storm cells capable of generating tornadoes. It has long been known that thunderstorms large enough to produce powerful tornadoes also generate huge amounts of electricity. By pinpointing intense electricity, the new detector may also assist investigators in determining the area of maximum tornado threat.

Clearer Picture Expected

"We expect the directional capability to give us a clearer and possibly more objective statistical picture of how the detectors are performing," Project Leader Taylor said. "We find that an absolute evaluation is just about impossible because our final objective statistics—the number of tornadoes detected compared to the number reported—depend on the extremely subjective quality of tornado reporting."

Most tornadoes are reported by observers, he explained, and some tornadoes reported from different vantage points may be the same twister. Also, in meteorological parlance, a tornado is only a tornado when it touches ground. Until then it is a funnel cloud, and these are frequently reported as tornadoes, as are some violent but non-rotational winds. On the other hand, many tornadoes occur unobserved are, of course, not reported.

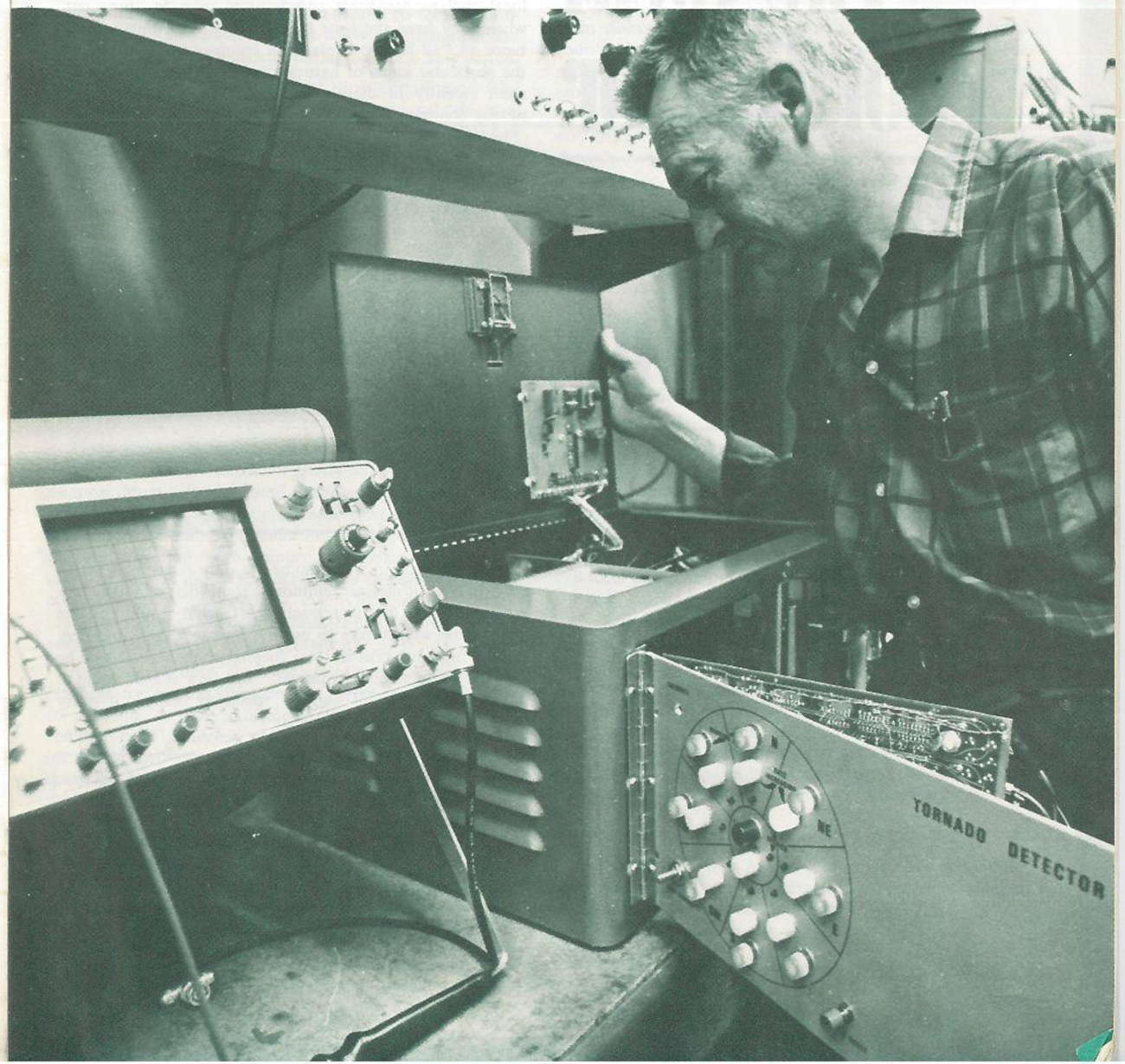
Much Being Learned

In spite of this built-in statistical problem, much is being learned about how and how well the detector performs. "We now know that the electrical signals we detect are not associated with the vortex (whirlwind) motion in the storm that eventually produces a tornado, but come from another, unidentified source within the main body of the storm," Mr. Taylor said. "The source and the area of tornado activity may be separated by several miles. We also have indications now that the electrical signals emanating from a severe storm vary from one geographic region to another. For example, we get our best detector performance along tornado alley, where the storms and tornadoes run to the large, violent, highly electrical types. Down along the Gulf, where relatively weaker maritime thunderstorms produce many of the tornadoes, we don't do as well, but we think this problem can be calibrated out of coastal detectors."

1974 Evaluations

In 1974 tornado-detector evaluations will be performed at the National Severe Storms Laboratory at Norman, Okla., and 19 other NWS facilities: Montgomery, Ala.; Fort Smith, Ark.; Tampa, Fla.; Atlanta, Ga.; Evansville and Indianapolis, Ind.; Des Moines, Iowa; Topeka and Wichita, Kans.; Baton Rouge, La.; Minneapolis, Minn.; Springfield, Mo.; Grand Island, Nebr.; Oklahoma City and Tulsa, Okla.; Memphis, Tenn.; Fort Worth, Houston, and Lubbock, Tex.—**Mary U. Harris**

William L. Taylor, project leader at the Wave Propagation Laboratory, one of NOAA's Environment Research Laboratories in Boulder, Colo., calibrates a new electronic tornado detector. This latest model senses the electrical impulses emanating from a tornadic thunderstorm, and also shows the general direction from which the signals are coming.



The local coordinator

all hazards planning

BY CHARLES L. MULFORD and
GERALD E. KLONGLAN

Research Sociologists
Iowa State University

At this time of year, the news of major floods, tornadoes, and other natural disasters seem to fill our newspapers and are often seen and referred to on T.V. and radio. It isn't surprising that many local officials and some local civil preparedness coordinators seem to "tune out" when they hear someone talk about the continued importance of "all hazards" planning compared to planning for the particular kinds of natural disaster that either occurred most recently in these communities or that struck some nearby community.

People who use the term "all hazards planning" mean that communities should conduct a hazards analysis and be prepared for the whole range of possible disasters that could strike: (1) nuclear disasters, (2) natural disasters, and (3) man-made disasters—and not plan only for a particular kind of disaster. For example, we know that tornadoes occur frequently in the Midwest where we live and are feared by many people. But we certainly hope that our local officials are planning so that Ames, Iowa can also respond to other possible disasters that have some reasonable chance of occurring, e.g., a possible nuclear attack, flash floods, fires, industrial accidents, or an accident at the atomic laboratory located here. We can readily understand why the coordinators react this way.

'But How Will That Help?'

This situation in which some are only concerned with a specific type of disaster reminds us somewhat of a little boy during his first day in school. The teacher announced she knew some would have to use the restroom, and that they should hold up one or two fingers when necessary. The little boy in question remarked: "But how is *that* going to help?" How can "all hazards" planning help; is it really relevant for local communities?

The Iowa State University Department of Sociology and Anthropology has conducted Defense Civil Preparedness Agency research projects for several years, primarily on aspects of implementing civil preparedness programs in State and local communities.

Through our research we have been able to talk with many coordinators about their disaster priorities and experiences. A mailed questionnaire was sent to a representative national sample of 478 coordinators in 1971-72; and we conducted personal interviews with 126 local coordinators from four midwest States whose communities had actually experienced a disaster during the same time period.

Let's first turn to the ideas of those coordinators who have actually operated in a disaster. These local coordinators reported that their experiences in natural disasters had increased their capacity to plan and respond for other natural disasters. Nearly half of the coordinators (45.8%) stated that the disaster had provided a learning situation for themselves and a chance to further train local officials. About 40 percent stated that their disaster work pointed out the need to organize and plan better. Not a single coordinator stated that the disaster experience had decreased his capacity to respond to other natural disasters.

Actual Experience Helps

These local coordinators also felt their natural disaster experience had increased their ability to respond to nuclear disasters. Most (69.3%) stated that the natural disaster had helped them be better prepared for nuclear disasters by: (1) providing a learning experience and helping train people in disaster operations, (2) helping them learn to plan and organize better, and (3) increasing the recognition of civil preparedness in the public's eye. Only a small group (11.1%) reported that natural disaster had not helped them be better prepared for nuclear disasters.

At the same time, the local coordinators reported that planning for nuclear disasters had increased their capacity to respond to the natural disasters that struck their community. The nuclear planning had contributed: (1) by increasing their capacity to plan and organize, (2) because many disasters require the same equipment, (3) because nuclear planning had helped get public interest and awareness, and (4) because the nuclear planning got civil preparedness personnel working closer to local officials. Emergency Operations Simulation exercises, which had mostly been nuclear oriented, were reported to have been useful for the same reasons.

All Hazards Approach Is Best

In summary, the responses of local civil preparedness coordinators indicate that they think that planning for nuclear and natural disasters tend to complement each other to at least some degree. We wouldn't want to be caught "second guessing" the local coordinators and have very little to add to what they say except for one point: If there is some carry-over from planning for one disaster to planning for others, it seems logical that the planning emphasized for most communities should be broad enough in scope to be relevant for many potential disasters. In other words, rather than to zero our planning in on only one type, such as planning for a particular kind of natural disaster and hope for carry-over to other disasters, it seems it would be wiser to emphasize an "all hazards" approach. We will, of course, leave the planning itself for the experts. However, the planning could, it seems to us, include general concerns thought relevant for all disasters as well as components or annexes for specific disaster scerarios.

From our study with the 478 local coordinators, most of whom have not had disasters, we gain some other interesting points. Most feel that the "all hazards" approach is best for them compared to emphasizing only nuclear, natural, or man-made disasters. The typical local coordinator thinks that State or Federal personnel should also emphasize the "all hazards" approach. However, fully one-fourth of the 478 local coordinators stated that the Federal level should primarily emphasize nuclear planning.

To sum up, it appears that the typical coordinator who has not operated in a disaster also feels that the "all hazards" approach is best for him, but a fairly large proportion feel it is quite legitimate for the Federal level to emphasize nuclear planning.

We can now restate the little school boy's question, "But how is *that* going to help?" We are certain that as the teacher explained her "all hazards" approach in a little more detail, the little boy found it useful in meeting his needs.

(*Local coordinators must make a number of specific plans and preparations for disasters. The authors discuss this subject in the next edition of FORESIGHT.*)

Picking Up the Pieces

By RUSSELL B. CLANAHAN

When major disasters in unprecendented numbers mushroomed across the United States last April, the "Invisible Men" of the Defense Civil Preparedness Agency were an important part of the massive Federal professional response.

Coupled with the equally vital but often unsung work of State and local civil defense personnel, more than 60 DCPA staff members from the regional and national offices were on the job helping victims of tornadoes in the Midwest and floods in Mississippi.

DCPA Staffers Respond

Included in this work contingent were 57 DCPA personnel loaned in April to the Federal Disaster Assistance Administration. Their expertise in preparing for man-made or natural disaster qualified them to direct Federal disaster assistance centers, coordinate the release of disaster information to victims and the public, and perform other specialized jobs. Often, these were the "invisible" but vital persons involved in arranging for disaster relief work by other public and private agencies when and where needed, and setting up operating facilities.

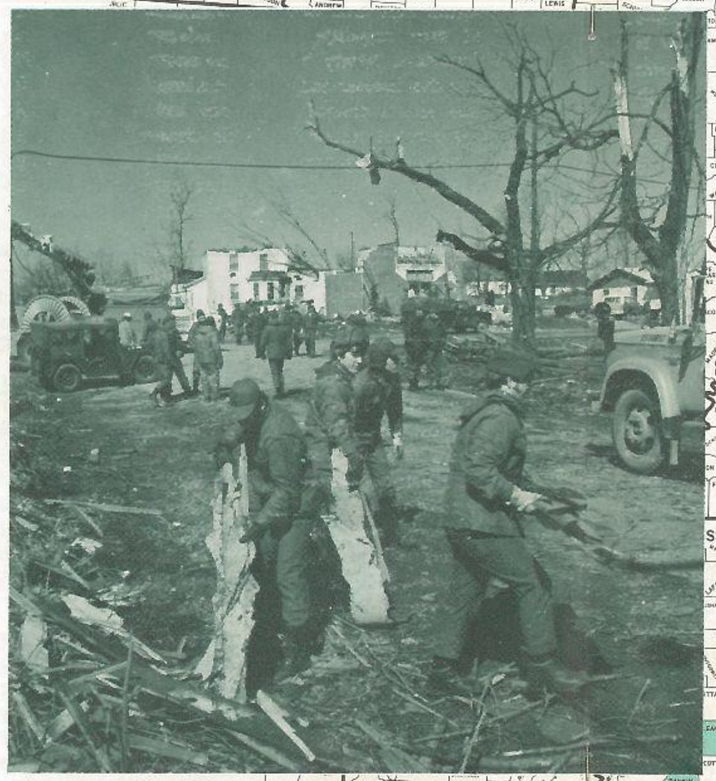
The need for disaster work was immense.

A Lethal Day

April 3 proved to be the second most lethal day of tornadoes in American history. More than 80 twisters devastated parts of the Midwest and South, killing 327 persons and injuring 6,142, according to American National Red Cross statistics. Total property damage for that day was estimated at more than $1.3 billion.

Nature followed up this haymaker with an Easter Sunday punch at southeastern Mississippi, where floods April 13-16 centering in the Hattiesburg area took two more lives and injured 11. Twisters also took a swipe at four counties in Wisconsin on April 21, costing another two lives and injuring 44.

Altogether, the toll from these disasters in April was 331 killed, 6,197 injured, and 32,591 families affected by the disasters and requiring help of one kind or another. And this didn't count lesser floods in North Dakota, West Virginia, and along the Lake Erie shoreline; flash floods in Hawaii; the gas explosion of a 25-story building in New York City; or a minor earthquake near Mattoon, Illinois the same night as the April 3 tornadoes and felt as far away as Chicago.



TORNADO CLEANUP / Ohio National Guardsman assist in debris removal in the wake of the tornado that smashed into Xenia.

DISASTER ASSISTANCE CENTER / At Hattiesburg, Mississippi, representatives of Federal agencies work to help people who suffered losses from the April floods in the area.

Disaster Teams In Action

As various agencies of State and local government joined with the Red Cross, Salvation Army, and other disaster services to meet the immediate threat, Federal teams entered the disaster areas with a particular eye on the longer-range needs of victims. Their reports eventually resulted in presidential declarations of 187 counties as tornado disaster areas and 34 as flood disaster areas, or a total of 221 counties in 12 States.

Under Federal disaster-relief legislation, a whole symphony of governmental services becomes available to local governments and individual disaster victims in declared major disaster areas. Communities can apply directly to the Federal Government for funds to restore local disaster-damaged public facilities, but individuals and families apply through Disaster Assistance Centers set up where the victims are.

The "conductor" in each of these Centers is the manager assigned by the Federal Disaster Assistance Administration—a "conductor" in this case who is also responsible for setting up the "concert hall." Usually schools or community centers are selected as Disaster Assistance Center sites. Most of the 57 Defense Civil Preparedness Agency personnel on loan to FDAA managed Disaster Centers.

Disaster victims applying at a Center are greeted and registered by volunteers at the door, and usually receive printed information on such matters as the services available to them, and how to clean up and restore their damaged homes. Then the Center manager or one of his assistants routes the applicant to the first of several stops within the array of Federal, State, local, and voluntary service agencies which have representatives at the Center.

Many Services Offered

Key to the successful operation of all these centers was the wide variety of services offered to disaster victims to meet their diverse needs. For example, a family with a disaster-devastated home could arrange for debris removal through local government, temporary housing rent-free for up to a year from the Department of Housing and Urban Development, and determine their eligibility for a 5 percent loan from the Small Business Administration to restore homes or businesses. A family could also apply for State unemployment compensation if members were out of work because their place of work was knocked out by the disaster; find out about casualty loss refunds on their income tax; obtain food stamps and welfare benefits if qualified; and inquire about medical care, VA-insured mortgages on damaged homes, and other veterans' benefits from the Veterans Administration or in some cases from the Disabled American Veterans. All this could usually be done at one Center.

Information was also available at many Centers on family eligibility for claims under private casualty insurance plans, and legal advice from the Young Lawyers Section of the American Bar Association.

For families whose recovery resources had been wiped out by disaster, free help was also available at each Center from the American Red Cross, and usually from the Salvation Army and Seventh-Day Adventist disaster services, as well.

'Organize While Operating'

Although Center managers usually had some difficulty in getting into operation—"you had to organize while operating," one explained—they reported relatively few sour notes once in operation, and generally harmonious relations among agencies within Centers. The unexpected was usual, such as the pregnant girl at a Mississippi Center who fell down the stairs and had to be driven to a hospital by the Center manager.

One problem encounterd by managers of Disaster Assistance Centers was near universal. They were forced to rely on local volunteers to register disaster applicants—a very important job requiring tact and a genuine interest in the victim's problems. Sometimes the quality of volunteers was high and at other times only marginal, due to high turnover rates and prior commitments by volunteers. Training of volunteer replacements was a constant problem.

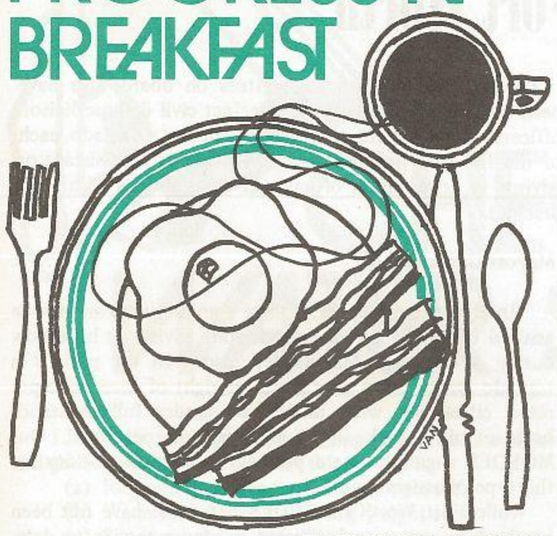
Center managers who worked in Alabama had high praise, however, for the work of staff members of the State Department of Pensions and Security, who are trained to man the Disaster Centers and register applicants. These personnel regularly hold exercises in emergency responsibilities, and after a disaster, go out house-to-house to inform people about services available and to get them to the Centers. Some Center managers in their reports urged other States to adopt this practice.

'Major Contribution' Cited

The success of the DCPA personnel assigned to FDAA in meeting problems large and small was attested to in a letter from FDAA Administrator Thomas P. Dunne. He wrote to DCPA Director John E. Davis that "the magnitude of this crisis required the augmentation of our staff by responsible individuals capable of acting quickly and effectively in the disaster situation. DCPA personnel working in our Regional and Field offices and Disaster Assistance Centers have made a major contribution to the success of the disaster relief effort. I particularly appreciate the long hours, the hard work and the professionalism they have brought to this task."

While the United States is never likely to experience many calamity-laden months such as last April, there is a yearly rhythm of springtime tornadoes and floods, summer and fall hurricanes, and other disasters such as earthquakes at any time that makes emergency planning and preparations a "must" in America. When such disasters occur, trained disaster specialists from DCPA, FDAA, and other agencies are ready to step in and help the people pick up the pieces. It's never a happy job, especially for the people hurt by the disaster. But it's an essential part of human and community recovery when disaster strikes. □

PROGRESS AT BREAKFAST



By FRANK H. SPINK, JR.
Director of Fire and Emergency Preparedness
Kansas City, Missouri

Disasters don't recognize jurisdictional boundaries. This is especially true in a two-State, seven-county area such as metropolitan Kansas City, which is subject to sudden, severe weather conditions in addition to the other hazards associated with an urbanized, industrial area. Varying legal and jurisdictional responsibilities compound the problem of planning and cooperation necessary to meet crises. Further, with the number of legal entities involved, communication of information between agencies presents a real problem.

To provide a forum for the dissemination of the latest concepts and for the exchange of ideas and methods, the Emergency Preparedness Division of the Kansas City Fire Department inaugurated a series of monthly breakfast meetings for concerned agencies from surrounding communities. Hosted each month by a different member of the group, the 125 representatives have the opportunity to acquaint themselves with the latest information and operational techniques used by area Federal, military, and local civil defense organizations. The informal atmosphere has provided the catalyst necessary for the exchange of ideas and the development of personal relationships so necessary in a metropolitan, multi-county, duo-State area such as ours. A few examples:

Medical, Warning Services Improved

Programs were presented at the breakfast meetings by Fort Leavenworth and Fort Riley on the use of MEDEVAC helicopters to remove victims from disaster sites to area hospitals. As a result of these presentations and following cooperative efforts with the Aviation Division of Fort Leavenworth and the Kansas City Area Hospital Association, helicopter landing sites were identified and exercises conducted with four area hospitals. Plans call for the expansion of the program to cover as many hospitals as possible. Development of this operation has given us a viable alternative to supplement the limited ambulance services available to the metropolitan area.

As a result of contact with personnel for the National Weather Service, we were able to acquire a Flash Flood Alarm System and secure a Memorandum of Understanding to cover the operation of this system. In addition, an agreement between the National Weather Service and the Kansas City, Missouri, Fire Department will provide rainfall data gathered at various fire stations for more accurate flood forecasting. Fire personnel have also been trained by the Emergency Preparedness Division as weather spotters, providing a comprehensive network for more thorough evaluation of severe storm conditions.

A better understanding of the roles of the Red Cross and the Salvation Army was obtained after breakfast meeting presentations were made by representatives of each organization. The information exchanged and subsequent contacts provided us with the knowledge to determine the type and extent of participation that could be anticipated in an emergency.

We have also gained new insights and concepts about the operation of our Emergency Operations Center from visits with Johnson County, Kansas, Emergency Services; Wyandotte County, Kansas, Civil Defense; and Defense Civil Preparedness Agency Region Six field office personnel. New avenues for the development of our plans and notification techniques were developed as a result of these experiences.

Breakfast Partners Help Again

In November 1972, a team composed of representatives from the DCPA Region Six office at Denver and the Missouri Disaster Planning and Operations Office conducted an On-Site Assistance Survey in Kansas City. As a result of their efforts, an Emergency Readiness Report was completed and submitted to the City Manager in March 1973. The report included recommendations that 34 specific actions be taken to improve Kansas City, Missouri's preparedness system. Two-thirds of these recommended actions have been or are in the process of being implemented. And many of these improvements have required the cooperation and assistance from agencies participating in our monthly breakfast meetings.

The task of preparing the community for disasters is an endless one. I feel that the cooperative efforts put forth in behalf of the metropolitan area will pay off for each and every jurisdiction. By pooling our capabilities, we can make more efficient use of the resources of each community to help our people should a disaster strike. And for us in metropolitan Kansas City, one of the most important steps we have taken is the rather simple one of breaking bread one morning every month with our many colleagues in civil preparedness. □

MOBDES at Fort Worth

Once considered nothing more than just a good plan on paper, the MOBDES program of the Fort Worth and Tarrant County, Texas Office of Civil Defense has blossomed into a first-class story of successful motivation and tangible results.

Originally allocated 10 Air Force Reserve MOBDES augmentees, the Tarrant County civil defense jurisdiction, which includes Fort Worth and 34 other incorporated northeast Texas communities representing more than 700,000 people, has now corralled 14 MOBDES personnel.

Reservists in Preparedness Role

The Civil Defense Military Reserve Mobilization Designee program–MOBDES, as it's called in government shorthand–was initiated two years ago by the Defense Civil Preparedness Agency and the Army, Air Force, and Marine Corps Reserves to augment State and local civil preparedness staffs through a program of training and on-the-job work assignments leading to Reserve duty credit. It is related primarily to general war preparedness, but also pays dividends in peacetime emergency preparedness. In case of a national emergency, MOBDES augmentees have "hip pocket" orders calling them to active duty and assigning them to assist local government.

Heading up the Fort Worth-Tarrant County MOBDES program are Robert E. Lord, the area's civil defense coordinator, and his plans and operations officer, N.T. Shirley.

"Day-to-day civil defense liaison with the many communities in Tarrant County is a difficult job," Coordinator Lord emphasized. "If a major disaster should occur within the county, necessary and essential liaison would be critical. To meet these emergency operational demands, we feel that pre-planning, pre-manning, and pre-training must be accomplished if we are to meet the anticipated demands during emergency operations. It appears that, once trained, these MOBDES officers will fill a long-standing void in our emergency operating capability."

Spotlight on Training

Of training, it can be said that the Fort Worth-Tarrant County MOBDES program is right in the thick of the action. Most MOBDES augmentees have already been to the DCPA Staff College at Battle Creek, Michigan. Some have also attended the Fallout Shelter Analysis school at Fort Hueneme, California. Also, regular training sessions are conducted locally.

Ultimate aim of the program is to establish a maximum operational capability for each man so that in time of emergency he can fit right into the important job of assisting primary city and civil defense officials.

Of the 14 MOBDES augmentees on board, five have been designated as so-called "precinct civil defense liaison officers." In the event of a disaster, such as a tornado, each of the five men has been assigned to act as an assistant or advisor to government officials in communities within his precinct.

Mayors Get Assistance

"In effect, the mayors of these communities can now be assured of having a civil defense staff advisor at his elbow during a disaster," Mr. Shirley said. "In the past, if a tornado swept down on any six or eight of these incorporated cities, we were unable to render full assistance because of a lack of enough trained personnel. Our MOBDES augmentees are proving to be perfect fill-ins for this type of assignment."

While Fort Worth's MOBDES personnel have not been involved in any actual disaster assistance service to date, they have assisted in one relatively unpublicized incident involving, of all things, unidentified flying objects (UFOs).

According to Mr. Shirley, the incident occurred unexpectedly during a weekly MOBDES training session at the Fort Worth-Tarrant County Civil Defense headquarters.

"I had just passed out some reading material to the men and was heading down the hall for a drink of water when I happened to look through the window of the police dispatcher's room and noticed their switchboard was all lighted up," Mr. Shirley said. "When I inquired as to what was going on, one of the dispatchers told me they were being besieged with calls about UFO sightings and were unable to conduct their normal police business."

"Right then and there, the thought hit me that this might be a perfect opportunity to give our MOBDES augmentees a little action, and at the same time assist the police," Mr. Shirley continued. "Because the men were all Air Force reservists, I figured their training would place them in the best position to field the UFO calls. I immediately advised the police to transfer the UFO calls into our civil defense office."

Tracking the 'Flying Saucers'

The result was an eye-opener.

"Using telephones in our office, the men were not only able to handle all incoming UFO calls, but also were able to utilize our civil defense wall maps and plot locations of UFO sightings with magnetic symbols," Mr. Shirley said. "This took the pressure off the police and enabled them to return to their normal duties."

Because of the diverse extent of incorporated jurisdictions within Tarrant County which entails the need for legal

(concluded on page 26)

With summer hard upon us, the American Red Cross has prepared this two-minute water safety test. Check one of the three possible "answers" for each of the 10 subjects. When you're finished, compare your answers with the correct answers to see whether the odds are you will sink, swim, or teach.

CHECK YOUR WATER SAFETY IQ

1. After a hard game of running about on the shore and getting overheated, the best thing to do is:
(a) Run and dive into the water to cool off.
(b) Wade into the water gradually right away.
(c) Sit down on land until the superheated condition disappears.

2. To avoid succumbing in cold water a swimmer should:
(a) Swim rapidly to keep the body warm.
(b) Swim at a moderate pace to keep the body warm.
(c) Move as little as possible to stay afloat.

3. You are swimming in heavy surf and find yourself being carried out to sea. You should:
(a) Swim towards shore at an angle.
(b) Swim to one side and not against the current.
(c) Stop swimming and float with the current.

4. A wooden rowboat with a hole through the bottom and carrying a proper load in deep water should:
(a) Sink to the bottom.
(b) Float and still support passengers.
(c) Always be abandoned by the passengers.

5. You are out in a boat in rough water and the boat capsizes. You should:
(a) Get away from the boat, tread water and call for help.
(b) Try to swim to shore.
(c) Hang onto the boat.

6. You are swimming in open water and get a severe cramp in your leg. You should:
(a) Roll over to a face-down position and massage the aching part.
(b) Swim to snore as quickly as possible.
(c) Tread water and call for help.

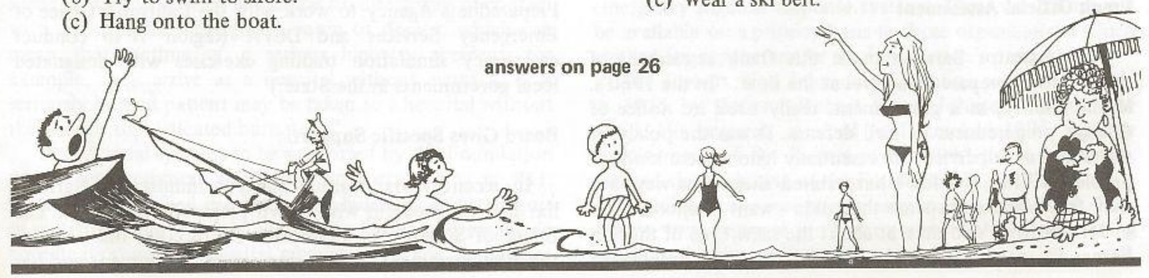
7. A person fully clothed in jacket, shirt, trousers, etc., who accidentally finds himself in deep water should swim to safety using
(a) The American crawl.
(b) The breaststroke.
(c) The back crawl.

8. A person who has fallen into water over his head while wearing rubber boots should:
(a) Have to work real hard to stay up.
(b) Float readily as a rule.
(c) Sink to the bottom and stay there.

9. A human body immersed in water should become
(a) Lighter than it was on land.
(b) Heavier than it was on land.
(c) The same weight as on land.

10. All people aboard a boat, canoe, or sailboat should by law
(a) Have a personal flotation device available aboard.
(b) Wear a personal flotation device.
(c) Wear a ski belt.

answers on page 26



Aftershock Awakening

By VERNE PAULE
DCPA Region Seven

They call it "Marvelous Marin"–Marin County, California, one of nine counties that comprise the San Francisco Bay Area.

A suburban residential community located just north of San Francisco, Marin County's more than 200,000 people live throughout a 521-square-mile area that offers a wide variety of topography, climate, and vegetation from the tidal floats of the coastline to the slopes of Mt. Tamalpais rising 2,609 feet above the beautiful blue Pacific. But Marin County also has a geological feature that is not so pleasant to contemplate: the San Andreas Fault, breeder den of earthquakes.

With all of the beauty and serenity of the area, it took the February 9, 1971 San Fernando-Los Angeles earthquake far to the south to jar Marin County and its cities out of a lethargy based largely on the belief that disasters "won't happen here."

Newspaper Starts Investigation

The *San Rafael Independent Journal,* the local daily newspaper for Marin County, started to inquire about the status of Marin County civil defense plans the day after the San Fernando quake. According to Journal Reporter Jeff Greer, "The city editor thought the so-called 'plan' was inadequate and turned me loose on the story."

Reporter Greer relates now that the officials he interviewed about Marin County's preparedness plans were "beautifully candid," adding: "They didn't protect anyone with a lot of fluff, and it rapidly became clear that Marin essentially had NO plan."

His stories ran under headlines, MARIN COULD BE CAUGHT UNPREPARED BY DISASTER . . . COMMUNICATIONS VULNERABLE TO DISASTER . . . MARIN'S NEIGHBOR'S DEFENSE PROGRAM PRAISED.

The three-part newspaper series coincided with the promotion of John Barrows to the position of County Administrator and the selection of Frank E. Kirby to become Marin County Coordinator for the Office of Emergency Services. Mr. Kirby had been Marin County Assistant Director of Public Health for Administration.

Frank Official Assessment

Administrator Barrows made this frank assessment of the low local preparedness level at the time: "In the 1960's, Marin County, as a government, really took no notice of disaster preparedness or civil defense. It was the policy of the Board of Supervisors to essentially ignore these kinds of problems. They wouldn't have stated them that way, but they felt it was an expense they didn't want to encounter."

Mr. Barrows said that, at about the same time of the San Fernando earthquake, the new California Emergency Services Act became effective which modernized civil preparedness to include natural disaster planning. He said he felt that in his new role as the county's chief administrative officer he had to "move out fairly rapidly." The Board of Supervisors was also concerned with the impetus of the new State law and the San Fernando earthquake, he said, and "they got us all into the planning process."

He and others credit Louis H. "Bud" Baar, who at the time was Chairman of the Board of Supervisors, with giving emphasis to an improved state of preparedness in the county. Mr. Baar assembled the city managers and mayors of the cities within Marin County and told them: "We need to get some planning. We need to come up with standing operating procedures. And we have to help each other."

County Promotes Action

The county served as the spark plug for the emergency planning effort. Coordinator Kirby wrote the County's Emergency Operating Plan, sent copies to the 11 cities, helped the cities with their individual emergency plans, developed a joint resolution which each political entity signed and, in effect, implemented the operational area concept as required by the California State Emergency Services Act.

Since that time, Marin County has held three earthquake exercises to test the plans. "We have found weaknesses in communications, transportation, and our emergency medical response capability," Coordinator Kirby stated. "We also need a centralized, adequately equipped Emergency Operations Center. But we are correcting our deficiencies, and we have also received some pluses from these exercises. One of the best is the fact that our people now talk to one another and work as a team. Before the exercises they hardly knew each other."

Reporter Greer believes the emergency exercises "have done more than any single activity to get a broad spectrum of officialdom and citizens thinking about the need to prepare. I praise the University of Southern California crew highly." (The exercises were managed by the University of Southern California under a contract with the Defense Civil Preparedness Agency to work with the California Office of Emergency Services and DCPA Region 7 to conduct emergency simulation training exercises with designated local governments in the State.)

Board Gives Specific Support

In recent years, Marin County Administrator Barrows has had no problem with a civil preparedness budget. The Board of Supervisors appropriated $185,000 this year for the first increment of communications equipment and has agreed to appropriate another $100,000 next year. In addition, $60,000 has been appropriated for a mobile command center and $3,000 for a series of mobile radio units and an antenna system.

"All of this is hard evidence of support by the Board of Supervisors," Administrator Barrows emphasized. "Frank Kirby's office has been financed to the extent that he and I felt was required without any question at all."

A Suggestion For Others

With Administrator Barrows' knowledge and interest in civil preparedness, he was asked what advice he would give to his counterparts around the Nation. "You have to look at the kind of disasters that can occur in your locality," he said. "Use that as the focal point of your planning, thinking, and your efforts to gain public attention. Here in Marin County we can point out there is a high chance of an earthquake, and we also have a problem in flooding in winter from high tides and steady rains. These are the things we are planning for and using as the need to alert the public and the political officials. In other localities earthquakes are not a problem, but there may be forest fires, tornadoes, or hurricanes that you have to use as your focal point for planning. The public is very responsive to that kind of concern because they are aware of it too." □

Emergency Medical Grants

The Robert Wood Johnson Foundation of Princeton, New Jersey, and the National Academy of Sciences have announced the awarding of 44 grants totaling $15 million for multi-community emergency medical networks to provide citizens central telephone numbers to call in the event of accident, heart attack, or other medical emergencies. The grants are to urban and rural regions in 32 States and Puerto Rico.

The grants are provided by the Johnson Foundation under its program to improve primary, front-line medical care. The objective is to demonstrate the advantages of a centralized communications system in the rapid dispatch of ambulances by trained professionals serving large geographic regions. The National Academy of Sciences, which has been in emergency medical planning for a decade, will administer the grant program.

The Aim: Save More Lives

In announcing the grants, Dr. David E. Rogers, President of the Foundation, said the program is aimed at helping to provide care which could save many lives by prompt and appropriate treatment in emergencies.

"The technology and knowledge exists to do the job," Dr. Rogers said. "It is a complex one, however. People in an emergency need a central place to call. Once a call has been placed, they need a person at the other end who has the medical knowledge to deal with the problem. This program will put in place a capability to meet the problem."

"All too often," he said, "the emergency vehicle at the scene of an accident or illness has no direct way of contact with the hospital emergency room or doctor, which can mean that victims of a serious highway accident, for example, may arrive at a hospital without warning, or a seriously burned patient may be taken to a hospital without the needed sophisticated burn unit."

The regional systems to be supported by the Foundation grants use common telephone numbers, such as 911; medically controlled dispatch of ambulances, and transport of patients to previously alerted facilities; and area-wide coordination among hospital emergency rooms, ambulance services, emergency cardiac units, and burn and poison centers.

Local, State Boundaries Crossed

The geographical areas involved in the grant program often cross jurisdictional and governmental boundaries. Three of the 44 programs are Statewide in scope (Idaho, New Mexico, Utah); four of the programs involve counties in two States; seven of the programs are metropolitan area programs for the cities of San Francisco, Indianapolis, Minneapolis, Cleveland, Philadelphia, Atlanta, and Seattle; 22 are multi-county and 14 are single county. Nearly two-thirds of the regions receiving grants are rural in character. The 44 grant programs were selected from 252 applications.

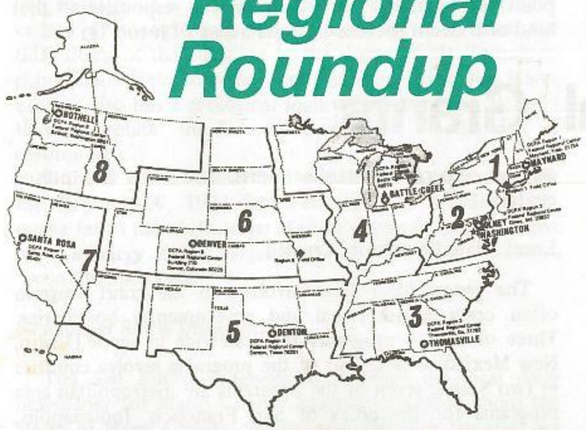
Under the program, two-year funding starts July 1, and the money will be used for the organization and start-up of new regional programs or the extension of existing programs. Funds may be used to train emergency medical communications dispatchers and emergency medical technicians, to secure communications equipment, and to inform citizens in the use of the system in their areas.

Rand to Judge Results

The Johnson Foundation has commissioned the Rand Corporation of Santa Monica, California, to assess the overall impact of the program on improving emergency medical care and saving lives. The Foundation is also sponsoring a series of four two-day workshops in regional emergency medical response systems. These workshops will be available on a priority basis to those organizations which applied for support under the Foundation's program.

The Robert Wod Johnson Foundation was established in 1936 by General Robert Wood Johnson who died in 1968. His bequest, received in December 1971, and the appointment of Dr. Rogers as President the next month, marked the beginning of the Foundation's transition from a local philanthropy, active primarily in New Brunswick, New Jersey, to a national philanthropy interested in improving health in the United States. □

Regional Roundup



O'BRIEN COUNTY, IOWA

Dorothy Merriam, Director of O'Brien County-Municipal Civil Defense, reports the development of a comprehensive four-page set of "Fire Safety Rules for You and Your Family." Approved by the Fire Chiefs of the communities of Archer, Calumet, Gaza, Germantown, Granville, Hartley, Paullina, Primghar, Sanborn, and Sutherland, and endorsed by the Farmers Mutual Insurance Association, it was distributed to O'Brien County school students by school administrators and principals and the American Legion Auxiliary.

FORTUNA, CALIFORNIA

Fortuna, in Humbolt County, is a lovely community in the heart of California's giant redwood country. Enhancing it are the Eel and Van Duzen rivers which provide splendid recreational opportunities as boating, swimming and fishing for its 4,200 residents for much of the year. But when the rains come, the rainfall is concentrated in a few months and flooding is hardly a stranger to the community.

It was during the January flood that a parishioner of the Fortuna United Methodist Church suffered a heart attack while trying to save his business property from the rising waters. As a result, Mrs. Gerald Evans, a member of the Council of Ministries, recognizing the need for volunteers to assist fellow citizens faced with disaster conditions, approached Ione Siipola, Assistant Director of Fortuna's Civil Defense and Disaster Services. Mrs. Evans was designated a Call Captain and has obtained and enrolled 15 volunteers to date. Their vocations include nurses, carpenters, mechanics, electricians, welfare workers, and truck drivers. And Mrs. Evans believes she will be able to recruit an additional 20 for Fortuna's volunteer force.

KNIGHTSTOWN, INDIANA

Brian L. Bex, President of the Brian Bex Report and the American Communications Network of Knightstown, Indiana, reports he is working to spread the civil preparedness story through his newsletter and television outlets.

Showing the Defense Civil Preparedness Agency motion pictures, "A Lady Called Camille" and "One Week in October" are among the educational actions he has taken, Mr. Bex said.

Mr. Bex is the son of John E. Bex, Director of DCPA Region Two at Olney, Maryland.

WESTPORT, CONNECTICUT

Beautiful Westport is an exurbanites dream. Just 54 miles northeast of New York City, its intimate hills and valleys drop down, together with the Saugatuck River, into Long Island Sound.

Despite the lovely setting, Westport as in the case of any tidewater town, has a constant disaster potential such as floods from the uplands and perigee tides from the Sound.

Coleman Williams, Director of Civil Preparedness, had long recognized the inadequacy of Westport's backup communications system should disaster strike. For five years his appeals to local "hams" for their support and his entreaties for financial assistance from the Board of Finance fell upon deaf ears.

Finally the Board came through with $1,300 for a two-meter FM Base Station, two walkie talkies and appropriate antennae. The minor investment worked wonders—the "hams" flocked in . . . 30 of them. And with them came their contribution of $15,000 worth of their own gear. Director Williams believes Westport now has "the most versatile and effective radio capability in Connecticut."

CROCKETT COUNTY, TENNESSEE

Bowen Naylor, Coordinator of Civil Defense for Crockett County, reports a tornado plan for the 10 schools in his community. The mechanics of the plan are simple but effective.

The Sheriff's office advises the school superintendents of tornado "watches" or "warnings." The superintendant activates the plan by directing teachers to escort their students to safe, predesignated places within the school.

The plan is also in force for the County Nursing Home and two industries in the county.

NEW YORK CITY

Dr. Maire Bradshaw, Radiological Officer of the New York City Emergency Control Board-Civil Defense, organized and presented in conjunction with New York University a comprehensive seminar on emergency procedures for a radiological accident. The seminar was organized in response to requests by many organizations in the Greater Metropolitan area following incidents on the transportation of radiological material and the presence of such material in a fire situation.

Participants included representatives of the Police Department, the Crime Laboratory, the Forensic Technicians Unit, Auxiliary Police Division, the Fire Department Division of Training, the Port Authority of New York and New Jersey, Environmental Sanitation, Police Academy, personnel of Kennedy, LaGuardia and Newark Airports, Emergency Medical Division of the Health and Hospitals Corp., the Office of Radiation Control (Dept. of Health), and members of the Disaster Management Program of New York University.

The program included talks on the basic concepts of radiation, descriptions of installations containing radioactive material, including teletherapy units, and a demonstration of sophisticated monitoring instruments and civil defense radiation detection devices. Training officers from the Police and Fire Departments spoke about their radiation training programs, and the New York City Radiation Plan was described.

The seminar provided a forum where the personnel charged with the safety of the residents of the many jurisdictions of New York's Greater Metropolitan area against the effects of nuclear incidents met, in many instances, for the first time and were able to discuss in detail the functions of the various agencies involved. Needless to say, the opened communications led to improvement and refinement of existing readiness and operational planning.

JACKSON, MISSISSIPPI

A joint effort by the Jackson Weather Forecast Center, Postal Service, and the Office of Disaster Preparedness and Operations resulted in a video tape information film on tornado characteristics, local warning systems used in both the city and the County of Hinds, and the protective actions to be taken to safeguard lives in the event of tornadoes. The tape is to be shown to all employees at each branch of the Postal Service in Jackson.—**John I. Bott**

RECOGNITION

Four county governments—in Alabama, Missouri, Nevada, and California—will receive awards from the National Association of Counties (NACO) for their 1973 accomplishments in disaster preparedness, according to NACO Executive Director Bernard F. Hillenbrand and Director John E. Davis of the Defense Civil Preparedness Agency, Department of Defense.

The "New County USA Achievement Awards" will be presented at the 39th annual meeting of the Association, called the "1974 County Achievement Conference," July 14-17 at Miami Beach, Florida.

The county governments to receive awards this year for disaster preparedness are:

Houston County, Alabama (population 57,000), of which Dothan is the county seat. James W. Albridge is Director of Houston County Civil Defense.

St. Charles County, Missouri (population 93,000), of which St. Charles is the county seat. The Director of St. Charles County Civil Defense is Calvin E. Davis.

Elko County, Nevada (population 14,000), of which Elko is the county seat. Robert H. Babb is Director, Elko County Emergency Operations.

San Mateo County, California (population 556,000), of which Redwood City is the county seat. William C. Hinchcliff is Director of the San Mateo Operations Area Civil Defense. This county received a similar NACO award in 1973.

In addition to the four counties receiving recognition this year for civil preparedness progress, 119 other counties will receive a total of 298 awards for 1973 accomplishments in other fields, such as law enforcement, environmental improvement, youth services, and tax reform. Also, awards will be presented this year to two Statewide associations of counties.

All of the awards are given "in recognition of distinguished and continuing contributions to the cause of strong, efficient, modern county government in America."

Since NACO instituted this program in 1971, 501 awards have been given to 334 county governments and one State association of county governments, including 15 awards for emergency preparedness accomplishments.

About 1,200 of the Nation's counties, containing some 90 percent of the U.S. population, are members of NACO.—**Gordon W. Hirtle.**

From the Press

Here's a digest of news items on civil preparedness topics:

NEW BUSINESS—"As the hurricane season approaches, Longboat Key (Florida) officials are readying themselves to review, revise and update the town's civil defense procedures . . . The first step will be to reactivate the emergency preparedness committee which is composed of town commissioners." Announcement came from Town Manager Wayne Allgire. (*Herald-Tribune,* Sarasota, Fla.). . . "Limestone County has been chosen, along with 12 other North Alabama counties, to participate in a $250,000 experimental project (to) include a comprehensive survey of human and physical resources . . . useful for life saving, property protection and recovery in the event of a major disaster. . . . Once the survey data from all 13 counties has been collected, it will be processed by computer at the University of Alabama. (Then) an operating plan will be developed for calling out and utilizing the needed resources." DCPA is funding the project, notes the article. (*News Courier,* Athens, Ala.) . . . "Recent reports indicate that substantial progress has been made in efforts to develop a strong Civil Defense program for Athens (Georgia) and Clarke County," says an editorial in the *Banner-Herald.* Horace Carter, who was named local Civil Defense Director in January, reported recently his office had already addressed itself to more than half of the recommendations given by State experts in their civil preparedness plan for Clarke County. "Carter's office should get full support and cooperation in developing and implementing the best civil defense program possible," the editorial concludes . . . "With a new Civil Defense building and an extensive siren system, Doltan (Ind.) is more than ready to face an emergency," reports the Hammond *Times.* Civil Defense Director Paul Lombardo comments that the recent installation of two new sirens came "just in time for the tornado season."

THE STRATEGIC VIEW—"The notion that detente permits us to disarm is a widespread illusion," says Secretary of Defense James R. Schlesinger. "Detente rests on an equilibrium of force. . . . There is a continuing, steady increase in the military capabilities of the Soviet Union and we must balance that." Asked if the new U.S. (retargeting) strategy makes nuclear war more tempting, Schlesinger replied, "No . . . it reduces the probability of nuclear war because it shores up deterrence. If we can deter across the entire spectrum of risks, the probability of a major clash goes down and consequently, we're all better off." (Interview in *U.S. News and World Report* magazine). "

SOVIET CIVIL DEFENSE—"Soviet civil defense focuses its principal efforts on defense and rescue of people, or in more concrete terms—on preparing for and conducting dispersal and evacuation of the population from cities, organization of an early warning system and securement of group (shelters) and individual (gas masks, respirators, etc.) means of protection. The Soviet state and its civil defense are religiously carrying out V.I. Lenin's behest: 'The first productive force of all mankind is the worker, the toiler. If he survives, we shall save and rebuild everything.' . . . The goals and tasks of civil defense are near and dear to Soviet citizens, who vitally desire to prevent war and consequently are interested in strenghtening our nation's defense capability, a constituent and important part of which is civil defense." These statements from *The Philosophical Heritage of V.I. Lenin and Problems of Contemporary War,* Moscow, The Military Publishing House, 1972, are intended to outline the "social nature of Soviet civil defense." (Defense Department *Current News Digest,* April 1974) . . . The Defense Department *News Digest* of March 27, 1974, quotes Soviet General N.A. Lomov, writing on the "revolution in military affairs" as follows: "The role of (Soviet) civil defense has grown immeasurably, and its functions are organically intertwined in the process of military operations which can cover the entire territory of the nation."

COASTAL WARNING—"The Nation's top hurricane forecaster warned today the overbuilding of beach resorts and coastal cities, and the inadequacy of escape road networks are increasing the possibility of major disaster if a killer hurricane strikes," says a front-page story in the Washington (D.C.) *Star-News.* The warning came from Dr. Neil Frank, Director of the National Hurricane Forecast Center. NWS, said Frank, is particularly concerned about New Orleans, Key West, Long Island, St. Petersburg-Tampa, Galveston, Rehoboth Beach, Ocean City (Maryland), Cape May, New Jersey, and Miami Beach. Frank says the NWS will "overwarn" coastal communities to give evacuation as much of a head start as possible. "When we tell people to get out, we're going to mean it," Frank said.

DISASTER WARNING—A swarm of tornadoes which ravaged the midwestern and southeastern United States on April 3 focused media attention on public warning. Throughout tornado country, the headlines told the story: CIVIL DEFENSE COMES INTO ITS OWN AND THOSE SIRENS PAY OFF (*Enquirer,* Cincinnati) . . . TEST SLATED FOR AIR RAID SIRENS IN CITY (*Repository,* Canton, Ohio) . . . TEST SET FOR CITY (*State Journal,* Springfield, Illinois) . . . TORNADO WARNING SYSTEM ADVANCED (*World,* Tulsa) . . . CHECK ASKED ON WARNING (*World Herald,* Omaha) . . . CD SIREN TESTING TO BEGIN (*Tribune,* Meadville, Pa.) . . . DISASTER WARNING SYSTEM PLANNED BY CIVIL DEFENSE (*Times,* Florence, Ala.) . . . In Nebraska, State CD Director Maj. General Francis L. Winner was quoted in the Lincoln *Star*: "Tornadoes remind us with horrible emphasis that even a few seconds of warning can make the difference between life and death." Winner issued a statement urging Nebraska local officials and school authorities to check plans for protecting people and the school population in event of a tornado warning . . . From Louisville, in hard-hit Kentucky, the *Associated Press* reported that "The Louisville and Jefferson County Office of Civil Defense will request funds within a few weeks for 75 sirens."

MOBILE HOME TIE-DOWNS—In the wake of the April 3 tornadoes, the vulnerability of mobile homes cropped up in the news throughout the stricken areas. "Harry T. Price, director of the University of Tennessee's civil defense education program, said important precautions (for occupants of mobile homes) include installation of tiedowns, proper positioning of the structure, utilization of windbreaks and movement to a shelter," reported the *New-Sentinel,* Knoxville. Price pointed out that a publication of the Federal Defense Civil Preparedness Agency, "Protecting Mobile Homes from High Winds," plus other brochures, are available to the public . . . Said an editorial in the Charlestown, W. Va. *Mail,* "Frail as it seems to be, the trailer home need not be a pushover in the first high wind to strike it. Plans and specifications for anchoring it are readily available from (DCPA and the Mobile Living Communications Center in Chicago)." . . . In Monroe, Michigan, Monroe County Office of Civil Preparedness Coordinator Harold D. Straub recommended to the county commissioners that communities adopt ordinances to require that mobile home parks furnish tornado shelters for residents and requiring mobile home tie-downs. (*Evening News*).

PREPAREDNESS IN SCHOOLS—Concern for the Nation's school population cropped up widely, as surveys revealed the extent of school damage in the April tornadoes. From Terre Haute, Indiana, the *Associated Press* reported that "The Indiana Civil Defense Director leveled some sharp criticism Saturday at what he called dangerously constructed school buildings, saying great numbers of school children could have been killed if the April 3 tornadoes had struck an hour earlier." Said State Director Milton Mitnick: "I suggest we change the modern architecture of school buildings. These all-glass schools are just too dangerous. There is too great a chance of children being hit by flying glass." . . . The headline in the Muncie, Indiana *Press* read: TORNADO BELT'S GLASSY, MONEY-SAVING SCHOOL BUILDINGS DEPLORED. The story quotes Patrick Finneran, Director of the Indiana Department of Public Instruction's civil defense division: "An unfortunate thing has been done, all to save money. Most schools built today are of single or bilevel block wall and steel span construction. And there's a lot of glass area to let in sunshine. They just can't stand a blow at all." Finneran suggested two "rather inexpensive" preventive measures: free architectural advice under a federal program to design safety areas within the school, and a weather-monitoring radio. Finneran cited DCPA-funded school shelter survey experts as being available for advice but he says, "not enough have taken advantage of the (program)" . . . Public school safety director Dick Kisner told the Tulsa *Tribune* that students and school staff in the city would be well-prepared to take emergency measures, thanks to periodic disaster safety drills during the school year. Kisner said school officials have worked with Red Cross and Civil Defense to select the safest areas in Tulsa's schools in the event of a weather emergency. The area is usually an interior hallway, Kisner pointed out . . . New Albany High School in Louisville is getting estimates of cost of construction of a full basement under the gymnasium, after Director of Floyd County Civil Defense Edward Allen stressed the need for basements in schools for tornado protection. (*Courier-Journal*) . . . "Like fire drills, tornado drills are becoming a regular part of school routine in Alabama," reports the Florence *Times.* "Each school in six area systems has already started or will soon implement an action plan for tornado weather." The article credits these preparations to Auburn University's (DCPA-funded) school survey program, in cooperation with the State Department of Civil Defense. "Tornado preparedness in school," reports the *Times* "is an outgrowth of another Alabama program, survival classes for all ninth grade students, taught as a part of social studies . . . and dealing with all types of disasters, including . . . nuclear explosions."

VIEW FROM THE TOP—"You (local directors) deserve more money to do a bigger job, and I think you'll get it. You're doing a mighty fine job with what you have," said Senator John Stennis at the annual USCDC conference in Washington. (*Enterprise,* Jackson, Miss.) . . . Presented with an On-Site Assistance report on State capabilities in disaster, Governor Meldrim Thomsen said "All state and local officials should be mindful of the many good resources, such as this, that are available to us," and lauded State-Federal effort to be ready for emergencies. (*Union-Leader,* Manchester, N.H.) . . . Everyone chips in to help when disasters occur, says Governor David Hall of Oklahoma, citing State Civil Defense and other emergency agencies. All of these have learned through experience of past, he says and "even though it's that time (tornado season) in Oklahoma, we're better prepared than ever to help people when weather trouble comes." (*News-Star,* Shawnee).—**Joseph V. Quinn.**

LIFESAVING SIRENS *(continued from page 5)*

". . . when those sirens started, I ran across to the church to get my daughter . . . (the area) cleared in less than 10 minutes. Cars left . . . , (kids) on bikes rode off fast, children *ran* home. . . . Later that night, a siren made me pick my baby out of her crib and take her to our basement family room where my husband and other two children were sleeping. We spent most of the night there. . . *Please* keep up the sirens, and *thank you*—It's not easy to get three children to safety fast."

"I would like to be counted among those who thank you for your wise action. . . . The sirens caused many people, including myself, to turn on the radio to find out what was happening. . . . I knew (those sirens) were waking many people. . . . I feel it (is) better to be prepared. . . ."

From the Fire Chief of suburban Reading: "I most firmly believe . . . your action . . . certainly saved a lot of lives . . . congratulations for a job well done."

And from the Board of Trustees of outlying Colerain Township: "The Board of Trustees wishes to commend your department for the excellent service given during the tornadoes (of) April 3. . . . The efficient warning system is a comfort to the residents of Colerain Township, and they are thankful for your dedicated efforts."

Sirens Tested Every Month

Siren installation in Hamilton County started 18 years ago, and for the past 12 years they have been tested for one minute at noon the first Wednesday of every month—including the Wednesday they finally were used for real.

The sirens were installed at a cost of $5,000 to $6,000 each—with Hamilton County paying half the costs, and the Defense Civil Preparedness Agency paying the other half.

Mr. Maccarone has made a continuing effort to tie fire sirens of suburban communities into the system. This has cost an additional $200 to $500 for each of 15 sirens now in the system. All were used in the recent alerts and warning.

Since the big storm, Director Maccarone has submitted application for eight new sirens, to be installed in outlying areas not now covered.—**Gleason O. Seaman.**

CHECK YOUR WATER SAFETY IQ *(continued from page 19)*

ANSWERS

1. (c) Sudden great change is a shock to the system.
2. (c) Exertion brings fatigue and loss of heat.
3. (b) This maneuver takes you away from the current and conserves your energy so you can swim back to shore in a straight line.
4. (b) A wooden rowboat or a canvas canoe full of holes will still support the proper load each carries normally.
5. (c) Boats usually float.
6. (a) The face down position enables you to float while you are relieving the cramped muscle.
7. (b) Keep all the weight of water soaked clothing in the water where it is lighter by far and by so doing the swimmer makes his way to safety with less effort.
8. (b) Although the use of the legs is sharply reduced in propelling the body, the body has about as much buoyancy as without the boots.
9. (a) Water is a heavier medium than air; hence the body in water is lighter than it was in air.
10. (a) Federal law requires that each craft carry a U.S. Coast Guard approved personal flotation device except that racing shells must be accompanied by a craft with devices for those aboard both craft. Whitewater canoeists may wear flotation gear of a specified type.

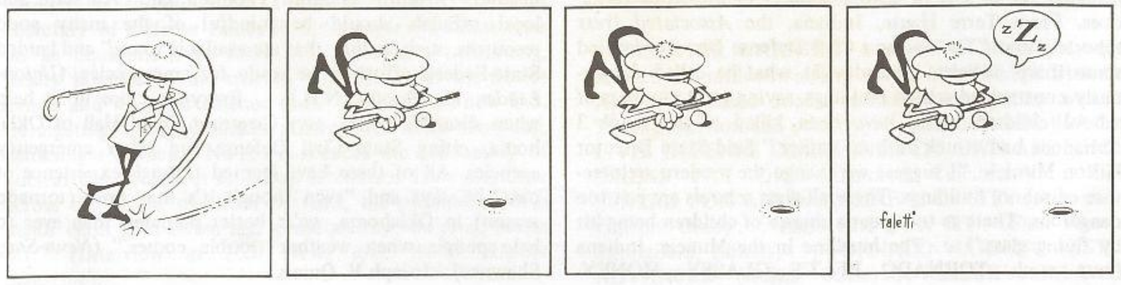
SCORING

Give yourself 2 points for each correctly checked blank. The maximum score possible is 20. If you scored less than 16, better investigate your Red Cross chapter's water safety classes. If you reached the top mark, you might qualify for water safety aide or instructor courses.

MOBDES AT FORT WORTH *(continued from page 18)*

guidance dealing with such things as emergency mutual-aid agreements, Mr. Shirley said his office is now attempting to obtain an authorization for an additional two or three MOBDES augmentees with military legal backgrounds to fill positions as legal advisors.

Says Coordinator Lord: "The MOBDES program has given us the first light at the end of the tunnel to solve the problem of staff augmentation during emergency operations. It's a resource we've never had before."—**Dana J. Cessna**, DCPA Region 5.



ARMY ENGINEERS begin assembly of a 900-foot float bridge to link Hilton Head Island with the mainland at the southeastern tip of South Carolina. The temporary installation was necessary after a barge rammed the main span of the only link—a swing bridge. As a result of the accident, the bridge wouldn't close, and 10,000 island inhabitants were isolated, 5,000 persons who go to and from work on the island every day were delayed in getting to their jobs, some 300 children and 12 teachers who normally go to schools on the mainland couldn't get there, traffic through the waterway was slowed considerably, and transport of vital supplies was severely disrupted. Fred C. Craft, Director, South Carolina Disaster Preparedness Agency, set up a temporary Emergency Operations Center on the island and coordinated emergency operations.