

METEOROLOGY

Predict Hurricane Paths

Meteorologist develops five-minute, numerical method for forecasting hurricane paths. The first quantitative process, it was tested on hurricane Hazel.

► A FIVE-MINUTE method for predicting hurricane paths 24 hours in advance was tested on hurricane Hazel by weather forecasters in the Navy in Norfolk, Va., Dr. Herbert Riehl, University of Chicago meteorologist revealed in Chicago.

It is a simple calculating procedure, using only two calculations and a graph, for forecasting the position of tropical storms one day in advance.

Results were "very good" on the prediction of Hazel's direction, Lt. Comdr. Wm. H. Haggard, U. S. Naval Reserve, reported from Norfolk. Hazel, however, moved faster than the new method forecasted, so further testing of the method will be needed, Comdr. Haggard said.

Dr. Riehl and Comdr. Haggard jointly developed the new method. It is the first numerical or quantitative process for predicting where the hurricane's whirling vortex is headed. Present methods for forecasting the storm's path are qualitative, the weather forecasters having to rely heavily on past experience.

Using the new technique, the forecaster has only to subtract certain numbers on a specially plotted weather map, then consult a graph to get the hurricane's movement for the coming 24 hours.

The numbers give the atmospheric pressure at wide spaced points around the hurricane's eye at a height of about 18,000 feet.

Dr. Riehl has obtained "good results" when the atmospheric pressure is known

about 1,000 miles all around the storm's center. Covering this area catches all the wind systems affecting the storm during the next 24 hours.

Two separate calculations are then made, one giving the east-west motion, the other yielding the north-south motion. If the north-south motions are found to be extremely rapid, then one or more sets of more northerly points must be used in the calculations.

In 85% of the calculations made the hurricane path was predicted within 60 miles of that actually observed 24 hours later. The method has been successful, Dr. Riehl believes, because only the area having an immediate effect upon the storm's motion is included in the forecast.

This "zone of influence" usually covers 300 to 500 miles in all directions from the hurricane's eye. It may actually be even smaller than that, Dr. Riehl said, but further airplane research flights will be needed to establish it exactly.

The method was developed for the Applied Research and Operational Weather Analysis section of the Navy Bureau of Aeronautics at Norfolk.

"If hurricane reconnaissance flights covered more thoroughly the region farther than 200 miles from the calm eye," Dr. Riehl said, "the problem of predicting the storm's path would be much nearer solution." Such flights would not cost any more than the present investigation made of the eye.

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which the patient returned after his discharge.

6. A stimulus, arising out of the hospital experience, to attend meetings of Alcoholics Anonymous, or of a church group with similar objectives.

"Any one or any combination of these and other factors may have influenced the rehabilitation of any individual patient," Dr. Cowen says. "It should be of value to determine which is the weightiest combination. And it may be all the more important to find out with some degree of certainty because all workers in the field of alcoholism keep insisting that fear is no weapon to use against the problem drinker. I have seen no statistics to support this oft-repeated cry, which is usually an accompaniment of the insistence that only those alcoholics who seek treatment voluntarily can benefit by it."

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ZOOLOGY

Tarantulas, Scorpions Seen in New York

► LIVE TARANTULAS, black widow spiders and scorpions are in New York.

These out-of-towners are guests of the American Museum of Natural History for the next several weeks to familiarize New Yorkers with live specimens normally missing from the metropolitan scene.

The exhibit, which includes models and pictures, is also designed to dispel many of the oft-told tales concerning their poisonous nature.

There are three distinct orders of arachnids in the collection, distinguished from insects because they have four pairs of legs, no wings and no feelers. These are spiders, scorpions and whip scorpions.

All were gathered in Arizona or northern Mexico with the exception of three of the scorpions which were a gift to the museum from the Jerusalem Biblical Zoo in Israel.

The tarantulas, seven in all, are described as very large, hairy spiders with powerful bodies and robust jaws. The Museum states that they are not dangerous to warm-blooded animals, but hastens to add that their bite might be "disagreeable."

Five notorious black widow spiders, described as shy, sedentary, nocturnal creatures with poor eyesight and a fondness for the dark round out the spider order. The museum claims that the chances of being bitten by the black widow or dying from the bite are even less than those of being struck by lightning.

Scorpions, the second order of arachnids in the exhibit, are the most primitive of the land arachnids, and thought to have been the first animal to adjust itself to land life on North America. This group is tagged as the most poisonous of the arachnids.

The whip scorpions are different from just plain scorpions in that they have no tail sting, no poison glands. They fight off their enemies by emitting a vinegar-like odor that causes a smarting of the eyes.

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MEDICINE

Drunks Keeping Sober

► FORCING AN alcoholic to stop drinking for a few months may, after all, be the way to keep him on the wagon in the future. And fear may be a very good weapon to use against the problem drinker.

These ideas, contrary to much current teaching, are from Dr. John Cowen at the State Hospital in Raleigh, N. C. They are reported in the *Quarterly Journal of Studies on Alcohol* (Sept.).

Of 68 alcoholics committed to the State Hospital for 60 days each, 25, or slightly over one-third, remained "substantially improved in their drinking habits" six years after treatment by compulsory abstinence, Dr. Cowen found in a follow-up study.

The patients were committed at a time when the hospital did not give alcoholics any treatment except for delirium tremens and accidental injuries or ailments uncon-

nected with the drinking. There was no psychiatric treatment, no deconditioning with drugs, no occupational therapy and no follow-up at mental hygiene clinics after discharge. Nevertheless, six of the former alcoholics have remained total abstainers and another 19 have controlled their drinking enough so that it is not a problem.

Dr. Cowen suggests six possible reasons why this very simple line of treatment led to improved drinking habits:

1. Realization that a life without alcohol could be tolerated.
2. Fear of reincarceration.
3. Fear of deterioration to the degree shown by some fellow patients.
4. Some group factor, related to the patients themselves, or to the hospital staff and routine, or to a combination of these.
5. Some change in the domestic milieu to