

METEOROLOGY

"Brain" Tells Weather

Considering effects of sun's heat at the equator and air friction only, electronic computer predicts general weather trends over large area for 30 days in advance.

► AN ELECTRONIC "brain" has forecast large-scale weather patterns 30 days in advance, Dr. Norman Phillips of the Institute for Advanced Study in Princeton, N. J., told SCIENCE SERVICE.

Starting with a mathematical model of the atmosphere in which there was no north-to-south motion at all, he put into the computer information representing the sun beating down near the equator and the frictional forces of air motion.

The machine then calculated temperature and pressure changes according to its instructions. Its results for 30 days later, when drawn on a weather map, looked remarkably like a forecast put out by the Weather Bureau.

He is trying, Dr. Phillips explained, to set up mathematical models by which general atmospheric motions will be predicted accurately, where high and low pressure areas will be located and how they will shift with time.

Assuming parallel wind flow at all latitudes from the equator to the pole, heat and friction information is fed to the machine on a random basis. About 15 hours of computing time are required for it to come up with a pattern resembling usual atmospheric motions. This represents two weeks of weather changes, Dr. Phillips said.

The machine's calculations then show a slowly shifting pattern, corresponding to large-scale variations in weather. So far such predictions have been carried out for 41 days. After this time, the pattern breaks down. By taking into account such factors as the amount of moisture in the air, the effects of mountains and oceans, and seasonal variations in the sun's heating, and by mathematical improvements, Dr. Phillips hopes eventually to predict weather cycles for a year or longer.

Although the information used now is an "idealized mathematical model of atmospheric motion," he said, "there is no doubt that it gives results that are physically real."

To test the formulas used, Dr. Phillips fed the machine information on another random pattern, found the same atmospheric motions resulted after the two-week build-up.

Large eddies in the air, thousands of miles across, are essential to explain the transfer of heat from the warm southern latitudes to cold northern ones. His equations give patterns showing such eddies, he said.

Because the electronic "brain" at the Institute can "remember" only a certain amount of information, Dr. Phillips' mathe-

matical model covers an equator-to-pole area only 6,000 miles wide. Success with it, he is sure, means the world-wide picture could also be obtained.

If his 30-day temperature and pressure chart were for the North American continent, the high pressure area often found over Bermuda would have been in its usual place. His predictions, Dr. Phillips said, did not cover any particular location.

Using electronic computers is a revolutionary method for weather prediction pioneered at the Institute for Advanced Study. The Navy, Air Force and Weather Bureau expect to start issuing daily wind predictions for the United States made with the aid of a giant "brain" in the near future.

Science News Letter, April 23, 1955

PSYCHOLOGY

College Students Badly Informed on H-Bomb

► COLLEGE STUDENTS are badly informed about the nature and destructiveness of the hydrogen bomb, Drs. Robert A. Harris, Harold M. Proshansky and Evelyn Raskin of Brooklyn College told the meeting of the Eastern Psychological Association in Philadelphia.

Three out of four of the students questioned reported that they give little or no

thought to the H-bomb, in spite of the fact that they are convinced that another world war is likely to occur within the next ten years. A majority believe that in the event of such a war the hydrogen bomb will be used.

Both exaggeration and under-estimation of the reported effects of the hydrogen bomb are common, the scientists found. More than a third believe that the United States is the only country in possession of this weapon.

The scientists base their conclusions on results of a questionnaire circulated to 200 Brooklyn College undergraduates.

Science News Letter, April 23, 1955

GENERAL SCIENCE

Science Fair Group Serves 'Hoppers

► ONE WAY to tackle the grasshopper problem is to serve them French-fried to guests.

This was the tasty treat in store for visitors to the 5th Annual Quadri-County Science Fair held at the high school at Archbold, Ohio.

Described as both "edible and palatable," the hot 'hoppers were whipped up by the Epicures Club as a fair treat.

Last year, the same group of gourmets passed out tasty little tidbits of rattlesnake meat to those who came to view the science exhibits.

Two finalists from the Archbold Fair will attend the Sixth Annual National Science Fair sponsored by SCIENCE SERVICE'S Science Clubs of America. It will be held at the Case Institute of Technology and Western Reserve University, Cleveland, Ohio on May 12-14.

Science News Letter, April 23, 1955

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