

METEOROLOGY

Anemometer Turns Back In 140-Mile Mountain Gale

IN THE RECENT 140-mile-an-hour gale the anemometer on the Mt. Washington Observatory did not quite turn so fast as to catch up with itself from behind, but it did the most surprising trick of turning backward and unscrewing itself. Then it spun upward, lifting its foot-long spindle out of the pipe shaft and sailed 200 feet away. It landed upright, embedding the lower part of the steel spindle in the frozen ground. But the wind was so strong that it bent the steel over till the cups rested on the ground.

This unusual performance of the anemometer was owing to its having become so encased in rime, or mountain frostwork, that the irregularities in the rime were better wind catchers for a reverse motion than the frost covered cup projections were for forward motion.

The speed of the 140-mile wind was determined by Observer S. Pagliuca who held a hand anemometer to the gale. The other three men must have held Pagliuca while he was doing it, for a wind of this velocity is eight times as strong in its actual push as is an ordinary gale of 35 miles an hour. A 35-mile wind is enough to make walking difficult, but a 140-mile wind, pushing a man sideways with a force of about 200 pounds, is enough to blow him away. In the Miami hurricane of 1926 wind velocity reached 134 miles an hour.

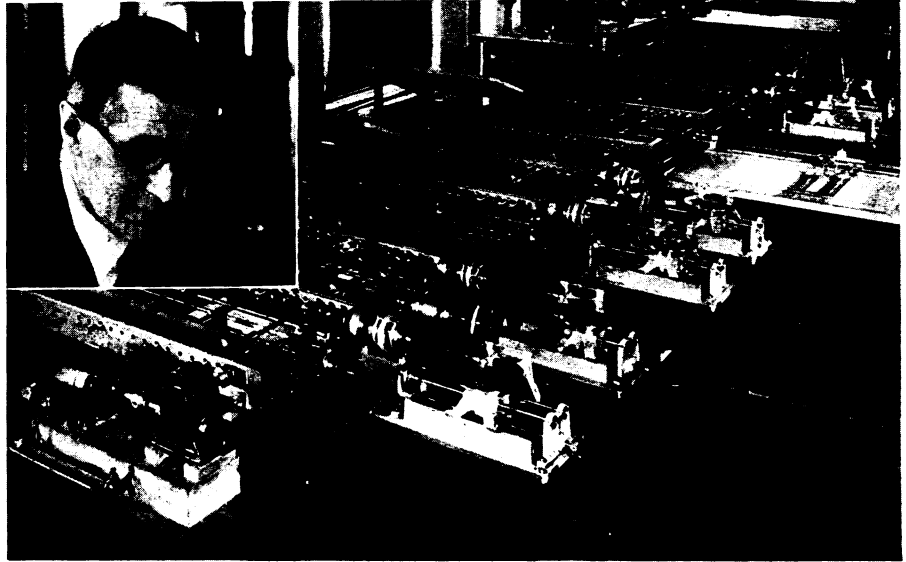
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GENETICS

Yogo is New Wheat For Northwest

YOGO is the name given by the U.S. Department of Agriculture and the Montana agricultural experiment station to a new variety of winter wheat, bred specially to meet climatic and plant-disease problems in Montana and surrounding states. It is reported to be very hardy, of good yield, and highly resistant to the destructive fungus, stinking smut. It is hoped that seed enough for general distribution will be available after the 1933 crop has been harvested. The new variety was named for the Yogo, a small stream flowing near the Moccasin station, where it was first grown.

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MECHANICAL BRAIN AND ITS DESIGNER

Calculating machines even more powerful than this one are to be built.

MATHEMATICS

Intricate Mathematical Brain Solves New Physics Problem

THE NEW mathematical "brain" machine at the Massachusetts Institute of Technology has solved over a thousand equations in some thirty problems and now plans are under way for the construction of more powerful such differential analyzers in the near future, Dr. Vannevar Bush, vice-president of the Massachusetts Institute of Technology, told the National Academy of Sciences.

One of the most important services of the new machine is the solution of the Schrödinger wave equation for various atomic numbers, a necessary procedure in developing the new ideas in physics. Without its aid the task would have consumed much time. The differential analyzer, Dr. Bush said, makes possible the obtaining of the solution for each atomic number in two days with a single operator at the machine.

"Experience has shown that a precision of somewhat better than one part in one thousand can be attained consistently from individual units under average conditions of operation," Dr. Bush said, "the overall precision depending upon the specific nature of the problem. Errors due to manual following of curves average out to such an

extent that their effect can be made less than that of machine errors.

"Studies of transients in synchronous machines have especially illustrated the types of problem in which large numbers of specific solutions are necessary. The Thomas-Fermie equation, and the same equation after introducing the relativity correction, illustrate the solution of non-linear equations, the introduction of difficult boundary conditions, and the attainment of precisions by solving for departures.

"Several constructional additions have been made to improve precision and convenience. Recording has been made precise by an automatic printer capable of giving five figures on six variables."

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NEWS from the National Academy of Sciences

meeting at the University of Michigan, Ann Arbor, Mich., Nov. 14-16, is reported throughout this Science News Letter.