

METEOROLOGY

Better Humidity Measure

► A HIGHLY sensitive, speedy instrument that can measure humidity as it has never been measured before has been developed by the Weather Bureau.

The new instrument will mean more safety for airplanes flying in areas of ice fog, will be useful to food carriers who use refrigeration, will aid wind tunnel experiments with new plane models, and will allow more precise measurements of dangerous turbulence at airports. These are but a few of the industrial and research uses to which this delicate instrument, besides giving weathermen a more accurate picture of relative humidity, can be put.

There are two great advantages to the new instrument—called the optical hygrometer—over past methods of measuring humidity. First, the measurement is instantaneous; there is no time lag as with current methods. Second, the instrument is extremely sensitive in temperatures below freezing; in current methods, the freezing process has interfered with measurement.

The instrument is based on the principle that some infrared light lets water vapor through, while other infrared light absorbs water vapor. The instrument directs alternating beams of infrared light at a piece of air—one beam is not affected by the water vapor in the air, the other is. The difference between the two beams is the

measurement of the amount of water vapor in the air.

The instrument only signals changes in the amount of water vapor in the air. Already, the Weather Bureau has found, relative humidity fluctuates a great deal more than was originally thought. Only one instrument is now in action, on top of the Bureau's administration building in Washington, but it has recorded great variations over short periods of time in the amount of water vapor in the air.

This amount is important in carrying out wind tunnel tests of airplane models. Changes in the humidity from minute to minute can be a measurement of the amount of turbulence at airports. The ability of the new instrument to measure low temperature humidity will make possible better predictions of dangerous ice fogs in Alaska and other northern regions where our defense planes have to fly. Humidity is, of course, a big factor in the efficiency of refrigeration systems.

For the Weather Bureau, it will become a basic standard instrument, situated at the larger weather stations in the nation. Two Bureau engineers, L. W. Foskett and Norman Foster, invented and developed the instrument from ideas they had as far back as 1943.

Science News Letter, July 18, 1953

MEDICINE

Mass G. G. Inoculations

► ALMOST A thirteenth of the polio-fighting gamma globulin that will be available this year is being used in the Montgomery, Ala., Caldwell County, N. C., and Elmira, N. Y., mass preventive inoculations.

Latest area to receive gamma globulin for children under 10 was centered at Elmira, N. Y., comprising Steuben and Chemung counties. Enough for 35,000 doses, 225,000 cubic centimeters, was sent there for inoculations starting July 11. About 50 polio cases have occurred in this area.

Officials of the U. S. Public Health Service and the National Foundation for Infantile Paralysis are anxiously awaiting developments that may result in a call from other areas for the precious material for emergency use. Likely areas are South Dakota and Utah.

Enough for about 43,000 shots, 300,000 cubic centimeters, has been used in Alabama and North Carolina. The estimated total amount to be available nationally is about 7,000,000 cubic centimeters or a million doses.

Now supplies are being made available constantly from the half dozen companies processing and testing the gamma globulin for antipolio use. Supplies are coming from

Red Cross blood and from hospitals where placentas from births are being collected since each contains about a half pint of blood, of which about three and a half c.c. is gamma globulin, about half a dose.

In most areas the limited supply of this human blood derivative is distributed to physicians for use only for contacts under 18 years of age or for pregnant woman in households in which there have been cases of polio.

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BIOLOGY

Mice Withstanding Zero Cold Aid Defense Tests

► MICE THAT live and flourish at zero Fahrenheit temperature will help the armed forces in some of their arctic warfare problems, it is expected by scientists at the Jackson Laboratory, Bar Harbor, Me.

All of the 57 varieties of inbred mouse strains are being tested for those that can withstand extreme temperatures, but it is already known that some of the strains withstand zero cold.

Science News Letter, July 18, 1953

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ENTOMOLOGY

How to Tell the Ants From Termites

► ARE THOSE "flying ants" showing up in your yard this summer really ants, or are they termites?

Here is how to tell:

Look at their wings. Flying ants have two pairs, but the pairs are of unequal length. The longest pair of ant wings is only about one-third its body length. Flying termites have two pairs of wings too, but both are of equal length. The wings average twice the length of the termite's body.

Another clue is that ants have a narrow waist, like wasps. Termites, on the other hand, are about equal thickness throughout the body.

Ants and termites take to the air at mating time. Ants mate during the flight, the males dying shortly afterwards. The fertilized female ant alights, bites off her wings and digs a shallow nest in earth or wood, where she deposits a few eggs to begin her future colony.

Termites do not mate until after the flight. For this reason their aerial adventure is often called a "dispersal flight," in contrast with the ants' "nuptial flight." Both males and females lose their wings spontaneously or knock them off against some hard object. Termites do not bite off their wings as ants do.

Once male and female termites pair off, they build a burrow together and seal themselves off. They do not usually mate until this honeymoon cottage is completed.

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