

AERONAUTICS-METEOROLOGY

Airline Delays May Be Cut

A new weather prediction method will eliminate much of the trouble of major airlines caused by poor weather conditions.

➤ "STACKING UP" over airports, switching passenger planes to different fields and cancellations of flights because of weather conditions at the destination will be greatly lessened by a new method of calculating the weather risk now being devised.

U. S. Weather Bureau experts, with the support of the government's Air Navigation Development Board, are developing the method at the Washington National Airport. They believe that airfield controllers will be able to know the percentage of chance of poor ceiling, visibility, and wind and aircraft icing conditions for periods up to six hours in the future. Such forecasts would be used for determining the rate at which aircraft could land and take off and whether, six hours later, it would be advisable to send planes toward a certain airport.

The method is based on findings of J. C. Thompson, formerly at the Weather Bureau's airport station in Los Angeles. Mr. Thompson found that variations in weather conditions at certain localities in California and Arizona had a relationship with whether it was going to rain in Los Angeles. By noting these variations and plotting them on a graph, he was able to predict rain slightly more accurately than by the usual methods and also much more speedily. Within two minutes after receiving data on his variables he would have a forecast.

What is more, Mr. Thompson was able to tell the per cent chance of rain within the 36 hours after he made his forecast.

The problem was to pick six variables out of all the hundreds of variables in weather phenomena. In the Los Angeles experiment, this was a matter of a weatherman's experience. Mr. Thompson plotted on a graph the altitude at which 700 millibars of atmospheric pressure could be found over Oakland against the difference between the sea level pressures in San Francisco and Los Angeles, the wind direction at Sandberg against the temperature at a certain altitude at Santa Maria, Calif., and the sea level pressure at San Francisco against the pressure differences between Los Angeles and Phoenix.

Now Mr. Thompson is working at the Washington National Airport, trying to find a new set of weather variables from which he can predict the percentage of chance in conditions of ceiling, visibility, icing and winds six hours in advance at that airfield. He hopes to have a reasonably good set of variables by next June, but he expects these will constantly be improved upon.

Next step is to work out a general theory

of selecting variables, based on the experience at Los Angeles and Washington. Once that is done, it is the hope that reliable variables could be worked out for every major airport in the nation.

Mr. Thompson believes that the method of numerical forecasting has application wherever man has to take a calculated risk with the weather. An industrialist with equipment open to the rains knows that it will cost, say \$100, to cover it and that his loss if he did not cover it would be \$1,000. If he is told that there is a 10%, 20% or 30% chance of rain, he can calculate whether it is worth while to spend the money protecting his equipment.

Since most military operations are calculated risks, Mr. Thompson believes the numerical method of forecasting could be as well applied on the field of battle.

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ENGINEERING

Underwater Movie Camera Has No Cables to Surface

➤ A NEW underwater motion picture camera for use by diver-photographers differs from earlier models in that it is completely self-contained. Camera and diver require no air supply or electric cable connections to the surface.

It is a development of the U. S. Navy. Details of construction were revealed at a meeting of the Society of Motion Picture and Television Engineers by Chief Photographer's Mate R. R. Conger of the Naval Photographic Center in Washington. It is claimed to be the first completely mobile underwater motion picture camera.

This submarine camera is designed so that it can be completely operated from the outside, with external controls for the lens diaphragm, focus and start-stop switch. It has detachable wings and vertical rudder which aid in transporting and stabilizing the equipment in the water. The camera weighs 107 pounds in air, but can be adjusted to have either positive, negative or neutral buoyancy under water.

Special equipment for the diver using the camera has been developed. Included is an automatic, compressed air, self-contained diving unit. Also there is a face mask and swim webs for the feet. Equipped with these aids, the diver-photographer is able to swim with the camera in any direction or to any depth down to approximately 200 feet.

Uses of the camera range from photographing ship hulls to recording the geological formation of the sea bottom. It can also be used to photograph both marine life and plants.

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MEDICINE

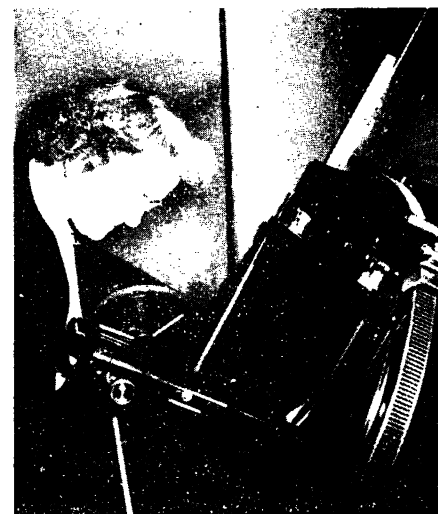
Six New Strains Influenza Found

➤ DISCOVERY of six new strains of influenza virus, all of them found when influenza A-prime was around, was announced in the journal, SCIENCE (Oct. 27).

One of the strains, tentatively called Influenza C, was detected, during a 'flu epidemic last March, by Dr. Thomas Francis, Jr., J. J. Quilligan, Jr., and Miss Elva Minuse of the University of Michigan School of Public Health. This virus, their tests show, has been circulating as far back as 1936. They believe it is the cause of a widespread respiratory disease like 'flu which comes in epidemics.

The other five viruses were discovered by Dr. Thomas G. Ward and Miss Bernice E. Eddy of the Johns Hopkins University, Baltimore, and the National Institutes of Health, Bethesda, Md. These five viruses differ from other influenza viruses in their effect on mice. They will attack mice after growing in only one instead of a series of chick embryos. This may be characteristic for a specific group of viruses, it is suggested, and may be an aid in identifying viruses causing one kind of 'flu from those causing another.

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23-YEAR JOB—Miss Ida Barney, shown at the measuring engine in the Yale observatory, has just completed a measuring job on stars in the sky which lasted for 23 years and required half a million computations. The computations of the measurements fill 13 volumes.