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UNITED STATES
DEPARTMENT
OF AGRICULTURE

Radio Service

OFFICE OF
INFORMATION

CHATS WITH THE WEATHER MAN

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NOT FOR PUBLICATION

ANNOUNCEMENT: Every other Friday, our old friend Ob, Server tells us something new about the weather and the weather men. He keeps in touch with the weather-wise men of the United States Weather Bureau. From what he tells me, they are not only reaching out into other countries for more facts about the weather but are also reaching up further and further beyond the clouds for information----- but I'll let old Ob Server himself tell you about that-----

What takes place in the upper air, often has a big effect, on the kind of weather we get down here on the ground. It now seems that the general storms, which pass over us, are dragged along by the much faster, steadier winds which generally move from west to east two to four miles up and beyond.

Anyway, Mr. W. R. Gregg, in charge of the aerological division of the United States Weather Bureau, tells me that instead of relying on weather observations taken near the surface, our forecasters now make use of eight separate charts showing wind conditions at the surface and at seven other levels of air up to three or four miles.

Each of those eight maps is marked with little arrows showing the direction the wind is blowing at that level and with figures indicating how fast it is blowing. As what is happening at one level may determine what will happen at another level, the weather man needs a complete picture.

In order to find out about those winds aloft the weather experts send up little balloons which when fully inflated with hydrogen gas are a little over two feet in diameter. From tests it has been found that these balloons rise at the steady rate of 600 feet a minute until they finally burst in the rarer air far aloft. But while the balloon is going up, the observer keeps a theodolite, a telescopic instrument much like a surveyor's transit, sighted at it. Each minute, he reads from the instrument the angle formed by the floating balloon with its starting place. Knowing the speed at which the little gas bag rises and the angle, it is a simple matter to calculate its height and the speed at which it is moving horizontally--- That is the speed of the wind which is shoving it along at that height. Information of wind conditions up to three or four miles is obtained in this way at night, the balloons are sent up with lanterns attached.

Mr. Gregg says that we now have 45 regular Weather Bureau stations making the pilot-balloon reports in this country. Through cooperation of the Army and Navy, pilot balloon reports are also obtained from about 12

other points, including flying fields and ships at sea and outlying points such as San Juan, Cuba, and Honolulu, Hawaii.

Another of these upper air weather stations will shortly be established at Fairbanks, Alaska, and, as Mr. Gregg points out, that will come in handy for the "Graf Zeppelin" this spring when she makes Fairbanks her base for her flights into the Arctic regions.

Of course, the most direct and immediate use of upper air weather information is for forecasts for aviators. The chief of the Weather Bureau's aerological division, points with pride to the fact that a pilot flying from Cleveland to Chicago established a record. He covered the distance in less time than had previously been made by use of Weather Bureau information about upper air currents. He gets a big boost on his way by flying much higher than usual and catching a strong tail-wind shown by weather reports at the higher level.

However, that record breaking flight is cited merely as an illustration. Upper air reports are used as a practical guide by air pilots all over the country every day.

And besides the regular pilot balloon observations made twice a day or oftener, the observers at the upper air stations send up smaller balloons, known as "ceiling" balloons, when there are low clouds. The reports from these observations give the airmen the most vital information as to the exact height of the clouds or the flying "ceiling," and enable them to decide whether it is safe to attempt flights across mountains, and so forth.

In addition to the facts about the ceiling and wind obtained from the ceiling and regular pilot balloons, some of the Weather Bureau upper air stations also make use of kites and airplanes equipped with automatic recording instruments to get the temperature, and pressure, and humidity, and wind of the upper air.

In fact, the scientists of the Weather Bureau are reaching even further up than through the air levels now used for practical aviation and surface weather forecasting. They are probing the rarer heights for fundamental facts which may affect our weather here below. In that research they send balloons equipped with instruments up seven or eight miles and have even obtained records as high as twenty miles up.

And talk about cold weather; Mr. Gregg says they have found that 7 or 8 miles above ground the temperature is 65 below zero, on the average. It stays that way from one year's end to the next, summer and winter. You see, the further up you go, the more constant and widespread conditions become. That is the reason, it doesn't take as many stations for making upper air observations as are needed for effective work here on the surface.

But there is some variation with latitude and season even as high as is reached. Just what are those variations and why, the leading national weather services of the world are now cooperating to find out.

During the same month each year, soundings are made in the different countries.

Last month was the month, and our Weather Bureau made a series of soundings at Broken Arrow, Oklahoma. For these higher soundings, balloons three or four feet in diameter were used. They carried light instruments equipped with clock-driven drums on which pens record on paper the temperature and pressure conditions at the great heights. The recording instruments were provided with small parachutes to bring them down safely and were marked with a tag offering five dollars payment to the finder for returning to the address given.

But what is beyond the greatest height reachable by a balloon? Some say that, 100 miles up, the temperature reaches a frightful frigidity. Others claim, on the contrary, that at that distance from us temperatures are terribly torrid. To get some information on that subject, officials of the United States Weather Bureau are even now planning to co-operate with other scientists in this country in making recording instruments to be used in a rocket which it is planned to shoot into space in an effort to gain more information on the forces which control our weather.

Any added knowledge which may be had from these scientific researches Mr. Gregg says, may eventually contribute to the practical value of the upper-air weather forecasts for aviators and the regular surface weather forecasts which affect each one of us.

ANNOUNCEMENT: Our Ob. Server will again talk with the audience of Station _____ two weeks from today. At that time he will bring us some more information on the weather and how we are finding out about it.

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National Oceanic and Atmospheric Administration

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12200 Kiln Court
Beltsville, MD 20704-1387
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