

A Science Service Feature

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? WHY THE WEATHER ?

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THE RADIO SOUNDING-BALLOON

The weatherman has found a new use for radio. Two years ago some experiments were carried out in France for the purpose of testing the effects of altitude on the transmission of radio signals. An automatic device for sending such signals was attached to a pair of rubber balloons and sent aloft. At a certain altitude one of the balloons burst and the other served as a parachute to break the fall of the apparatus to earth. The audibility of the signals sent out at various altitudes was observed at several places on the ground. An altitude of more than 8 miles was attained in these experiments.

The success of this undertaking inspired one of the experimenters, Capt. Robert Bureau, of the French meteorological office, with the idea of utilizing a similar process for measuring temperatures in the upper air. For this purpose a barometer and a thermometer were attached to the balloons and by means of an ingenious make-and-break device were arranged to transmit at frequent intervals characteristic signals corresponding to the readings of pressure and temperature. A double system of observing the signals was used. The observer listened to the temperature signals and determined the height of the apparatus from the known rate of ascent; and at the same time both pressure and temperature readings were automatically registered at the receiving station, the pressure record in this case, serving to indicate the altitude.

To test the accuracy of the signals, self-registering thermometers and barometers were also attached to the balloons, and their readings were compared, after the fall of the apparatus, with the record of signals. The latter were found to be remarkably accurate. The great advantage of this method is that it furnishes immediate information of the temperature at various levels, whereas all other methods of upper-air "sounding" involve serious delays.

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