

A Science Service Feature

Released upon receipt
but intended for use
April 15, 1930

? WHY THE WEATHER ?

Mailed April 8, 1930

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CEILING BALLOONS

At the weather stations operated along flying routes by the United States Weather Bureau one of the routine observations consists of measuring the ceiling, or height of low clouds, when present. At night this is accomplished by making an angular measurement of the position of a spot of light thrown on the base of the clouds. In the daytime "ceiling balloons" are used.

The latter are about the size of toy balloons and are colored red or purple in order to make them more readily visible against the background of clouds. They are inflated with hydrogen until just capable of supporting a weight of 40 grams. The correct lift is secured by attaching the balloon during inflation to a small metal cylinder weighing 40 grams and stopping the flow of hydrogen when this cylinder is just lifted from its support.

A balloon having this lift rises at a fairly constant rate averaging 6 feet a second, so that by noting the length of time elapsing after its release before it disappears in the clouds, the observer can determine the height of the cloud base. As, however, the balloon does not reach a constant rate of ascent until it has risen to a certain height -- the first part of the ascent being much faster than 6 feet a second -- tables are furnished to the observers showing the heights corresponding to each half-minute of the balloon's upward journey.

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