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? WHY THE WEATHER ? Mailed March 8, 1935

GUSTS AND LULLS IN THE WIND

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That a wind is not a smooth flow of air but is made up of innumerable little gusts and eddies, so that at any particular point it is almost continually changing in direction and force, has been familiar to the scientific world since the latter part of the nineteenth century. These rapid variations are especially pronounced near the earth's surface, but are also found at great heights.

An ingenious method of studying the strength and duration of the gusts has been devised by an Austrian meteorologist, Dr. Wilhelm Schmidt. A vertical mast is set up, bearing horizontal arms at intervals of half a meter up to a height of several meters. From the end of each arm is suspended by a wire a small brass ring over which is stretched a sheet of tulle. When the mast is turned so that the series of rings lie in the direction of the wind, the rings and their supporting wires assume various angles to the vertical, dependent upon the force of the wind blowing at any instant at the location of each ring. Every little change in wind-force changes the angle, while the friction of the air blowing through the tulle prevents the rings from swinging back and forth in the manner of a pendulum.

A motion-picture camera, adjusted to take seven pictures a second, is used to photograph the series of rings from one side. From the pictures thus obtained a diagram can be drawn showing the strength of the wind every seventh of a second at the level of each ring. Diagrams constructed in this manner show that the wind, at any particular point, is subject to very large variations of force even in a fraction of a second; a fact of much interest to engineers and aeronauts.

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