A Science Service Feature

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? WHY THE WEATHER ?

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WINDS IN MINIATURE

By Charles Fitzhugh Talman,
Authority on Meteorology.

The Rock of Gibraltar opposes an obstacle to the smooth flow of winds; especially the strong east winds known locally as "levanters." The complex eddies set up by this obstruction extend for a couple of miles to the leeward and up to 5,000 feet or more above sea level. As they have caused many accidents to aircraft, the British Meteorological Office has recently carried out a thorough study of them with the aid of pilot-balloons, kites and other apparatus.

An interesting preliminary to this undertaking consisted of constructing a model of the Rock on a scale of 1/5,000 and observing its effects on winds in a wind-tunnel at Teddington, England. The "structure" of the winds was observed by two methods. In one, about 800 two-inch silk fibers were fixed within the tunnel, with regular spacing intervals of position and height. These made the numerous eddies strikingly visible, but in order to show the more extensive air currents they were replaced, in a subsequent experiment, by much longer fibers of wool.

Of the turbulent winds thus brought to view, the report of the experiments says: "The vortices were wild and vicious; some from north, some from south, some alternately north and south; some upward, some downward; some alternately up and down above a given spot."

The longer fibers "showed a turbulence over the harbor and for a mile out over the bay that carried their ends with sudden sloping sweeps from heights of 4,000 feet downwards to lick the sea, and up again."

No aviator can safely enter such a maelstrom.

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21st and Constitution Ave.
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