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Dec. 17, 1934

? WHY THE WEATHER ? Mailed Dec. 10, 1934

HIGH-LEVEL "FRONTS"

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Authority on Meteorology

Many or all cyclones of the temperate zone are now thought to originate in the interplay of conflicting air currents along a "front" separating masses of air differing in direction, temperature and humidity. What about tropical cyclones? The latter are supposed to be formed exclusively in the equatorial belt of the doldrums, where apparently no "fronts" exist. Perhaps, however, though they first appear in that region, their origin should be sought farther back in a conflict of air currents at high levels in the atmosphere.

A suggestive discovery bearing upon this question was made recently by Dr. O. L. Fassig, a veteran student of West Indian meteorology. From an analysis of a long series of pilot-balloon observations taken at San Juan, Puerto Rico, he found that there is often a rapid increase in the depth of the trade winds over that region, accompanied by heavy rains and unsettled weather. These events he interprets to be due to great surges of air propagated from east to west along a "front" many thousand feet above the earth, between the easterly trades and the westerly antitrades, which flow above them.

Cyclones never actually develop in the lower atmosphere in or near Puerto Rico, but it does not seem impossible that the high-level disturbances observed there may be connected with their development at sea level in the more southerly doldrum region.

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