

A Science Service Feature

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? WHY THE WEATHER ?

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RAIN-GAUGE EXPOSURE

By Charles Fitzhugh Talman,
Authority on Meteorology.

The problem of exposing the rain-gauge in such a manner as to insure an accurate record of rainfall has exercised meteorologists for generations and has not even yet been completely solved. A century ago investigations on this subject were made under the auspices of the British Association for the Advancement of Science. "The observations," says a recent number of Nature, "were carefully made on a pole above the top of York Minster at a height of 212.9 feet; on the top of the Yorkshire Museum at a height of 43.7 feet; and on the ground near by. It was clearly established that the recorded amounts decreased with height above the ground, the decrease being greater in winter than in summer.

"The cause, however, was completely misunderstood, the increased catch near the ground being attributed to the increase in size of the drops as they fell through the lowermost layers of air, or, by Luke Howard, to the actual formation of new drops near the ground. The circumstance that the vertical decrease is greater in winter than in summer was attributed to a direct effect of temperature. It is now known that the true cause of the decrease of the catch of rain as the gauge is raised above the ground is the increase of wind velocity with height; the wind forming eddies, which sweep the drops past the opening of the gauge. The effect is greater in winter than in summer because the average wind velocity is greater in winter."

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