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? WHY THE WEATHER ?

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By Charles Fitzhugh Talman,
Authority on Meteorology.

WHY DOES RAIN FALL?

When the invisible water vapor of the atmosphere condenses into liquid drops to form clouds, only the first step has been taken toward a shower of rain. The droplets in the clouds are exceedingly small and settle very slowly downward in still air or are borne aloft in rising currents. In order that a drop may fall rapidly toward the earth -- thus becoming a raindrop -- it must be a million or several million times as big as the average cloud droplet.

Each droplet in a cloud condenses around a tiny particle of something other than water, known as a "condensation nucleus". Now the number of such nuclei present in the air is usually so graat that if, even at a time when the air is heavily charged with water vapor, all of this vapor were condensed on the nuclei, the average size of each resulting drop would be far smaller than a raindrop.

Apparently the formation of rain depends chiefly upon some process that reduces the number of nuclei in a mass of air to such an extent that the drops formed about those present can grow to "falling" size. Dr. W.J. Humphreys has suggested that, in a column of rising air, the small drops formed at the base of a cloud filter out most of the nuclei, so that at greater heights their number is sufficiently reduced to permit raindrops to fall by direct condensation upon them.

An alternative process -- the coalescence of numerous small drops to form a few big ones -- probably plays some part in the production of rain, but the relative importance of this process is uncertain. It is believed that electrification of the droplets is an essential condition of their coalescence.

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SCIENCE SERVICE,
21st and B Sts.,
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