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March 22, 1927

A Science Service Feature

? WHY THE WEATHER ?

Mailed March 15, 1927

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HOW RAIN FORMS AND FALLS

A cloud never falls all the way to the earth because cloud particles are so minute that air resistance allows them to settle only very slowly. Often they are held aloft by rising air currents or else evaporate after falling a short distance. A large raindrop contains as much water as 8,000,000 average cloud droplets and will fall 200 times as fast. How does a cloud produce drops big enough to fall?

In his book on "Fogs and Clouds", just published, Dr. W.J. Humphreys explains how raindrops are formed. When condensation starts in a rising, cooling air current, there are at first countless dust particles present, many of them ready on slight provocation to serve as nuclei for droplets. A cloud of many fine droplets therefore forms as soon as the cooling reduces the temperature to just under the dewpoint. To a certain extent this cloud settles, and filters the rising air which passes up through it. Now when condensation continues in the less dusty filtered air, the drops are fewer and larger and also grow more rapidly because there are fewer nuclei. "Presently the larger droplets coalesce and thus become heavy enough to fall against the rising current."

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