

A Science Service Feature

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? WHY THE WEATHER ?

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THE RAIN-GUSH

During a thundershower a sudden increase in the rainfall is frequently observed to occur soon after a heavy clap of thunder. This phenomenon is known as the "rain-gush," and is thought by many people to result from the shaking of water out of the clouds by the noise of the thunder; an idea as erroneous as the world-wide one that rain can be produced by firing cannon or setting off explosives, and thus jostling the clouds. The true explanation, at least in some cases, appears to be as follows:

The electrification of the clouds essential to the production of a lightning discharge is due, according to the now generally accepted scientific view, to the breaking up of water drops by air currents. In the turmoil of the thunderstorm there are marked irregularities in the rate at which the condensation of moisture occurs at any particular level, and also in the support and rupture of drops already formed, and hence available for giving the cloud its electrical charge. A sudden increase in the number of drops present is quite likely to set off a discharge of lightning. As light travels at a speed of about 186,000 miles a second, the flash is seen almost instantly. Sound travels about 1,100 feet a second, so that if the discharge occurs a thousand feet or so overhead there will be an interval of about a second before we hear the thunder. The large raindrops fall at a speed of only about 20 to 25 feet a second, so that, if the accumulation of drops that caused the discharge starts downward about the time the discharge occurs, it will reach the ground 40 or 50 seconds after the thunder is heard.

This is one possible sequence of events, but the mere fact that heavy rain falls fitfully in a thunderstorm and that thunderclaps occur at frequent and irregular intervals would perhaps explain why a "rain-gush" occurs often enough after a thunderclap to create the impression that it is the result of the latter.

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