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A Science Service Feature

? WHY THE WEATHER ?

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THREE RAINS IN A STORM

A well developed low moving from the southern plains northeastward to Newfoundland is usually attended by three important phases of rain or snow over a belt several hundred miles wide south of the path of the center. The first is the chilly east wind phase. Well in advance of the oncoming storm center the cold air begins to move toward the storm. In doing so it may crowd a bit or have to ascend over obstructing hills or mountains, and, in consequence, become cloudy and drizzly. Overhead, a warmer wind from a southerly direction soon begins to blow, and the cooling of this damper wind soon adds rain to the lower drizzle.

A fog may mark the approaching end of this phase, and then the cool air gives way rather suddenly on the "warm front" to warm muggy air. An hour or more of rainless, partly cloudy weather may follow soon after this warm southerly wind becomes established down to the ground, for the region of upthrust over the front of the colder wind has passed on. Then the sky becomes more densely covered, showers begin anew, and become heavier. Lightning and thunder may punctuate the downpours, or even a tornado, such as that in Maryland recently. Here is the zone of violent crowding on the front of the southwest gale of the storm.

The gale breaks, and the barometer continues its descent. Scud flies by, but there are openings through to clear sky. The wind is still warm and muggy. Soon the third rain phase commences, and shortly the temperature begins to fall as the wind hauls round toward the west. The "cold-front" zone of crowding has arrived. The rainfall lasts one to three or more hours, then ceases as the drier, cooler west or northwest wind becomes established. During the subsequent descent of temperature a few snow flurries may occur, but the heavy precipitation is over.

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