

No. 323

A Science Service Feature

May 24

? WHY THE WEATHER ?

Dr. Charles F. Brooks,
of Clark University,
tells:

HOW THE SOUTH WIND MAKES RAIN

"Increasing cloudiness followed by rain, warmer, moderate westerly winds becoming south"; such is a familiar weather forecast and weather sequence. The thin, white, cirrus clouds slowly stream out of the west or northwest; and gradually the sky becomes covered with a cirro-stratus sheet, first white, then grayish as it becomes thicker. Lower clouds form and the sky darkens as the warm, moist, south wind rubs the colder air above, still coming from the west. Soon rain begins to fall from some particularly dense cloud, and as this rain humidifies the lower air, ragged scud forms wherever the air is locally rising. As the showers become practically continuous this lower scud more or less merges into low, dense nimbus clouds.

Here is the clue to the formation of the rain: cloud motions show that when there is a south wind at the ground the air flow at higher and higher levels is less and less from this warm direction. Therefore, with warm air streaming most directly in below, making the air above relatively colder and colder, the atmosphere to a considerable height becomes potentially unstable. When the clouds begin to form, the latent heat set free by condensation renders convection or the rising of warm air almost twice as easy as in clear air; that is, masses of the warmer, moist air are readily forced upward by cooler masses from above and are thereby cooled by expansion. Eventually, this process takes place on a scale large enough to precipitate the rain that so commonly occurs after a south wind has prevailed for several hours.

All rights reserved by Science Service

Science Service,
B and 21st Sts.,
Washington, D.C.