A Science Service Feature

Released on receipt
but intended for use
August 1, 1927

? WHY THE WEATHER ?

Mailed July 25, 1927

By Charles Fitzhugh Talman
Authority on Meteorology

THE HELM AND BAR

When an east wind is blowing and a long roll of cloud appears along the ridge of the Crossfell range, in the English Lake Country, people thereabout say, "The helm is on". With the appearance of the "helm", a furious blast rushes down the western slope. This is the "helm wind". It is strong enough to break trees, overthrow stacks of grain, blow a horseman from the saddle, or overturn a cart.

To the leeward of the helm, at a distance of from half a mile to three or four miles, the flowing stream of air rises in a secondary wave, and at its crest another mass of cloud is formed. This is called the "bar".

Both helm and bar are due to the cooling of moist air by ascent and expansion, and the consequent condensation of moisture. "The wind", says Dr. W. J. Humphreys, "deflected in a great wave over the mountain, rises in a series of decreasing billows beyond, like the waves or riffles in a river due to a ledge of rock or other obstruction on the bottom." When the cloud formed over the summit of the mountain is heavy, the crest of the first and largest wave to the leeward is likely to be clouded, and sometimes a smaller cloud forms over the next wave. Humphreys calls the clouds thus formed in the lee of a mountain "riffle clouds".

Of the phenomenon as seen on the Crossfell an English writer says: "Neither the helm nor the bar are separate or detached clouds, but may be rather said to be the bold, clearly defined fronts of bodies of cloud extending eastward beyond the helm and westward from the bar." The space between them is an elongated ellipse, at the ends of which the two clouds join.

(All rights reserved by Science Service, Inc.)

SCIENCE SERVICE,
21st and B Sts.,
Washington, D.C.