A Science Service Feature

Released upon receipt
but intended for use
June 4, 1934

? WHY THE WEATHER ?

Mailed May 28, 1934

HORIZONTAL RAINBOWS

By Charles Fitzhugh Talman,
Authority on Meteorology.

A level lawn bestudded with dewdrops sometimes displays a rainbow lying horizontally upon its surface and differing considerably in shape from a rainbow seen in the sky. It is usually seen soon after sunrise and hence when the sun is low. A condition favorable to its appearance is the presence of a layer of gossamer over the lawn. The bow visible at such a time is not an arc of a circle but an hyperbola, with its summit near the observer and its arms stretching in a direction away from the sun.

Horizontal rainbows are not formed exclusively by dew, but in general by any horizontal sheet of water droplets below the level of the observer's eye. They have been seen, for example, on a layer of fog drops deposited on the floating scum of a lake. A grass-plot sprayed with a lawn-sprinkler sometimes shows a brilliant horizontal bow, the shape of which depends upon the height of the sun. If the sun is directly overhead, the bow will be a small circle surrounding the observer. With decreasing solar altitude the bow becomes successively an ellipse, a parabola and an hyperbola. A secondary horizontal bow is sometimes seen, in addition to the primary.

SCIENCE SERVICE
21st and Constitution Ave.
Washington, D.C.