A Science Service Feature

Released on receipt
but intended for use
September 15, 1926

? WHY THE WEATHER ?

Mailed September 8, 1926

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AUTUMN FOGS

Fogs become so common in September that we consider them an essential part of the weather on cool mornings. Earlier, the nights were too short for enough cooling to produce a fog readily; later, the increased wind will prevent the frequent occurrence of calm mornings. Most of our autumn fogs are meteorologically known as radiation fogs. They are characteristic of lowlands and especially of valleys, over meadows rivers or lakes. Radiation during the night, by cooling the air considerably, is responsible for these. Over meadows the air is cooled to below the dewpoint and some of the vapor is condensed into minute droplets, the aggregate of which we call fog. Meadows are favorable for this type of fog because the air is usually humid, and the nocturnal fall in temperature is aided by the mat of vegetation, which cools more readily than the ground.

The fogs over rivers and lakes are due to the cold air from the valley sides or from upstream passing over and mixing with the warm humid air in contact with the water surface. The appearance and nature of this type of fog is identical with that over a hot kettle. The general warmth of water bodies and the typical alternation of bright sunny day, which heats the water surface and increases the evaporation followed by a clear chilly night which develops a supply of cold air, makes such lake and river fogs very common in early fall. In contrast to the flat top of the meadow fog, the river or lake fog top is characteristically bumpy, owing to the upward displacement of the warm air. As the sun begins to shine, the meadow fog becomes like the lake fog as it dissappears.

Occasionally, the coming of a damp wind makes a mixture fog with cooler air near the ground. This type, like the others, is almost without exception, a nocturnal or early morning phenomenon.

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