A Science Service Feature

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? WHY THE WEATHER ?

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By Dr. Charles F. Brooks
of Clark University

SUMMER FROST

Summer frost is not an uncommon phenomenon in the northern United States and Canada - in moist depressions, where there is a fairly dense cover of low vegetation. The farther north and thehigher the elevation the more commonly freezing temperatures occur in such low spots. The cranberry bog may be used for illustration. Such a bog, in its natural state, cannot get very warm by day, because of the abundance of water available for evaporation from the plants. It is, in this respect, quite different from a dusty road or dry rock. However, even if during a hot wind it should have a temperature as high as that over dry open country it cannot store much heat. The mat of vegetation is a poor conductor of heat. A good conductor, like a dry rock, or even an asphalt pavement, on the other hand, stores a considerable quantity of heat on a bright day.

Three factors favor frostiness in a bog. First, the temperature starts down from a lower point; second, there is little stored heat to offset the fall in temperature after sunset, and third, the conductivity of the vegetation and its enclosed air is so small that a relatively small radiation of heat from the exposed surfaces will reduce the temperature.

Sanding and draining a cranberry bog greatly hinders the nocturnal fall in temperature by favoring more heat absorption by day. Removing the natural mat of vegetation and planting crops in open formation has a corresponding effect. This is why frosty lowlands when put to crops cease to be so frosty.

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SCIENCE SERVICE,
21st and B Sts.,
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