

SCALD

The word scald has been used by greenkeepers for many years to designate an injury to turf which has never been adequately defined. One of the reasons for this lack of clearness is that different greenkeepers have undoubtedly meant different injuries, to which they have applied the term indiscriminately, just as it has been customary to use the term "brown-patch" for almost any kind of browned turf. The term came into use with the belief that injury of this kind was actually a scalding of the grass due to applying water at a time when the soil was so hot that water was immediately heated beyond the point endurable by plants. Indeed in many instances the symptoms are such as to suggest that boiling water has been poured on the turf. Aside from this general appearance, there is little substantial evidence to support the contention that much, if any, of the so-called scald is due to the presence of excessively hot water. Too much water settling in areas from which escape is slow is undoubtedly responsible for much loss of turf, but this damage is probably more dependent on the exclusion of air than on the temperature of the water. Common use of this term does not include injuries due to careless use of chemicals, oil, and the like.

Scald usually appears as irregular and indefinitely outlined discolored patches of turf varying in size from a few inches to several feet across. The turf as a rule finally turns brown, and in severe cases may leave the ground bare. The injury is usually worse near the center of the affected area and is gradually less severe toward the outer borders. This characteristic serves to distinguish scald from the sharply outlined areas affected with the common brown-patch fungi. In the early stages of scald the grass may have a purplish tinge and the leaves may be rolled and shriveled as though suffering from lack of water. Often the development of these injured areas is very rapid, and within a few hours apparently healthy turf may be badly scarred. This rapid development is apt to occur only during periods of excessive heat. The affected area may continue to spread for weeks although the weather seem favorable for turf. Often these injured places recover during periods when growing conditions are favorable, but they may quickly reappear with a change of weather.

There have been several theories advanced to account for scald in addition to the hot water explanation. At present there is ample evidence to indicate that it can not be attributed to any single cause. It is probable that parasitic organisms are not factors in causing most of the injury designated as scald. Fungi are frequently found associated with scald, but at the present time there is not sufficient evidence to justify any decision as to whether these fungi are in any way responsible for the damage or are merely present feeding on the dead grass tissue. Some of the recent observations where fungicides have reduced the severity of scald suggest that some organism susceptible to these fungicides may have a part in causing scald. It seems entirely probable that future work will more clearly differentiate between the different types of injury now lumped together under the word scald and that such information will disclose that part of it is due to parasitic fungi. In the light of present information, however, scald will be considered as a disease non-parasitic in nature. Scald has frequently been associated with poisons in the soil. As has been repeatedly pointed out in the Bulletin, an accumulation in the soil of copper from Bordeaux mixture may cause the grass to turn dark in color and finally die in irregular blotches. Aluminum

in a form toxic to grass roots has been suggested as a cause of some of this type of injury. Sulphur or other chemicals accumulating in soil have been observed to produce injuries practically indistinguishable from that produced by copper. In all such cases it is usually found that the roots of the grass are shallow and not vigorous, and yet the grass may respond to fertilization and otherwise appear practically normal during certain seasons most favorable for growth. On extremely acid soils this same type of injury may be due to the excessive use of certain fertilizers and fungicides which, although they may cause no harm at the time of application, may nevertheless produce such a highly concentrated solution in the soil at certain times that it may cause injury to turf. These and other explanations are

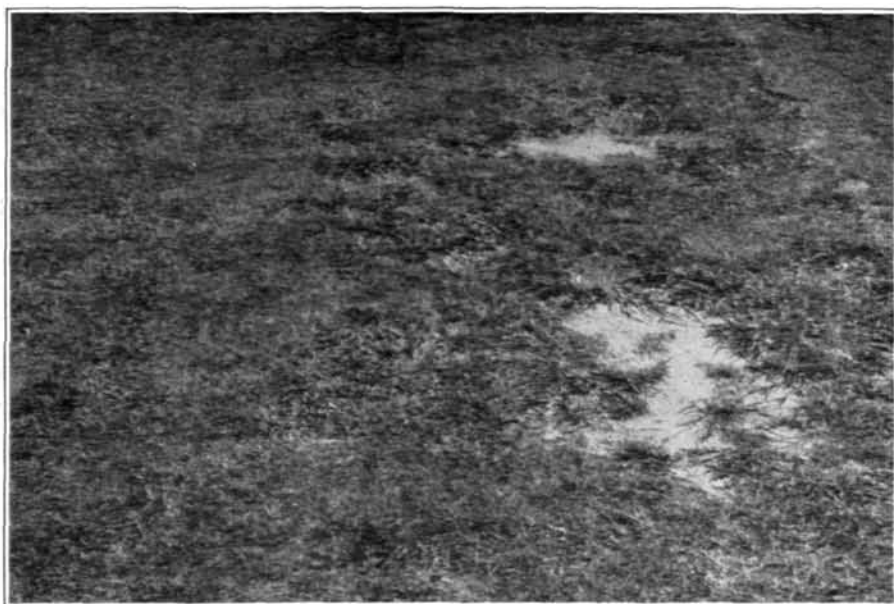


Fig. 9.—Bent turf which had repeatedly turned brown during the summer due apparently to some unfavorable soil condition. It was evident that the damage was not the result of brown-patch. In the summer of 1926 the left half was limed, and the turf immediately began to recover and remained healthy throughout the season of 1927. The turf on the half not limed, however, continued unthrifty and was badly scarred. Photographed July 15, 1927.

by no means confirmed as yet, and until the cause is fully determined no positive remedy can be prescribed. The following observations, however, will at least serve to throw some light on this problem which has baffled men interested in turf culture for years.

EFFECT OF LIME ON SCALD

Some old established turf of Rhode Island bent at the Arlington turf garden had repeatedly turned brown during the summer months. It was apparent that this turf was not suffering from brown-patch or other fungous diseases. The soil in these plots was very acid, and in the late summer of 1926 half of each plot was treated with lime at the rate of 50 pounds to 1,000 square feet. The limed area immediately showed improvement and its turf remained healthy throughout the following summer. The portion receiving no lime, however, continued to be unthrifty, and the old scars did not entirely heal before it again turned brown, in the summer of 1927 (see figure 9). Other