TURF FOR GOLF COURSES

CHAPTER I

General View

Good grass turf is conditioned by two great factors — climate and soil. The latter can be modified but the former must be accepted as it is. As all of our cultivated turf plants are of Old World origin, the matter of climate has a very direct bearing on the behavior of the same grasses in America. Every American who sees the wonderful Bluegrass and Creeping Bent lawns of England marvels how it is done. As a rule he is content to accept the hoary story that has done such veteran service: "First you level it and seed it and water it; then you roll it and roll it and roll it — for about a hundred years, and there you are." It's a good story and, like many another good story, has the merit of not being true. At least, as an explanation of the superior turfs of old England, it is not the truth. The examples are few where success has been se-

cured in the eastern United States in making permanent turfs comparable to those of England, though there has been time enough if long-continued rolling were the only requisite. As a matter of fact, most American lawns become hopelessly deteriorated within five or six years in spite of better care than English lawns receive, including abundant rolling. There is one region in the United States, however, in which lawns nearly as good as those of England are the rule, namely, Oregon and Washington west of the Cascade Mountains. This region has a climate more nearly approaching that of England than any other part of America, the drier summers constituting the principal difference. One can follow an English treatise on lawns in that region and secure admirable results. Elsewhere in the United States one is apt to score a failure.

The basic difficulty in growing really fine turfs in the northern half of the United States lies in the fact that all of the good temperate lawn grasses are native to western Europe and adapted to European climatic conditions. Taken to the United States these grasses have to contend with the greater extremes of heat in summer and of cold in winter. Not only does the heat weaken their growth greatly

in midsummer, but it also stimulates the growth of summer weed competitors like Crab-grass and Goose-grass, which are practically unknown factors in Europe. In short, the best northern turf grasses require cool temperatures and ample moisture throughout the growing season. Where either of these factors is absent, the grasses fail to do their best. Where they are both present, success is practically certain. On the famous golf course at Nuwara Eliya, in the mountains of Ceylon, it never freezes, but the whole year is cool and moist. The putting-greens are covered with a beautiful turf of Creeping Bent — as fine, indeed, as one may see anywhere.

Inasmuch as our climate cannot be changed to suit the grasses, the only practicable thing to do is to make the soil conditions as nearly ideal as possible. It is a well-established principle of plant culture that the more unfavorable the climatic conditions are, the more favorable must all other conditions be to insure success, and grasses are no exception to this rule. It cannot be too strongly emphasized that the growing of a fine piece of turf requires as great care and attention to details as does the culture of any other ornamental plant.

Too often a lawn or green is sown without any knowledge of the grasses planted or of their special requirements, and it is only by sad experience that one learns how difficult it is to grow a fine piece of turf.

A really good golf course must have fine putting-greens. It is unfortunate that it is rare to find a piece of land sufficiently rough for ideal golf where the soil conditions are also present for perfect putting-greens. Every golfer is familiar with the fact that the sporty golf courses of the country do not possess nearly as good putting-greens as those which have been laid out on approximately level farm lands. Nevertheless, first-class putting-greens can be secured anywhere in the North, provided sufficient attention be given to securing proper soil. This is sometimes a matter involving large expense at the outset, but in the end it is far more satisfactory than to worry along year after year with the handicap of poor turf.

It often happens that a golf club has insufficient capital at the outset, and it is impracticable to delay opening the course. This usually involves playing on poor putting-greens, and the club struggles on year after year hoping that the greens will improve.

It is a very difficult matter to build up poor greens into good greens, and this can never be done short of several years' time. Every golfer knows from experience how long a poor green will be tolerated when its betterment involves the using of a still poorer temporary green.

THE CLIMATIC RELATIONS OF TURF GRASSES

Broadly speaking, the United States may be divided into two climatic regions, north and south, so far as a perennial grass turf is concerned. Generally speaking, southern grasses are adapted to about the same region as that in which cotton-culture is important, but some thrive only where the winters are warmer, namely, in Florida and along the Gulf Coast. As a matter of detail, every turf grass has definite limitations of its own as indicated in the discussion of each, but the broad climatic requirements of northern grasses are much alike, as are also those of southern grasses.

The accompanying map (Fig. 1) shows approximately the climatic region in which Bermuda-grass will survive the winter and also the region in which Creeping Bent will thrive throughout the year. Temperature is the main factor determining the

limits in which these two grasses can be satisfactorily cultivated. Of course in the drier areas of the West a supply of water must be provided to insure success with either.

Treated as a summer annual, Bermuda-grass can be grown to the northern boundary of the

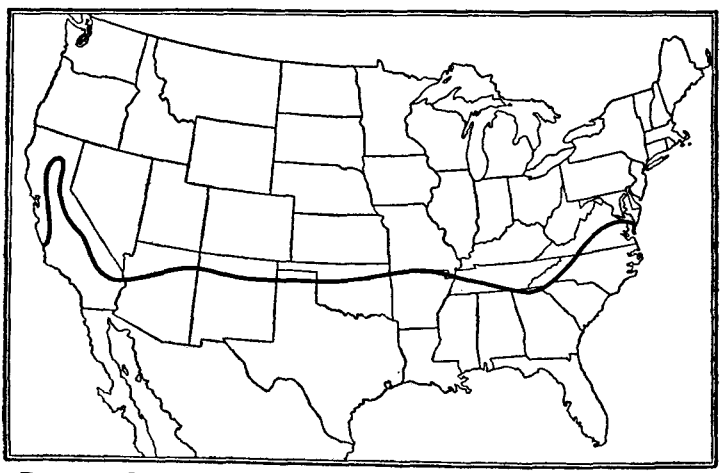

FIG. 1. — Outline map of the United States, showing the approximate northern limit of the area where Bermuda-grass will survive the winter. This line is also near the southern limit of the area in which Creeping Bent will thrive throughout the year.

United States, but north of the limit indicated on the map it rarely survives the winter. In a similar manner Creeping Bent can be grown in the South if planted in the fall, and it will make a satisfactory turf during the cool season, but succumbs to heat and weedy grasses during the early summer following.

Other northern turf grasses such as Rhode Island Bent, Kentucky Blue-grass, Redtop, Red Fescue, and the like have approximately the same climatic limitations as does Creeping Bent.

Of southern turf-formers, Japan Clover and Korean Lawn-grass are adapted to about the same region as Bermuda-grass, while Carpet-grass is not vigorous north of Charleston and Montgomery. Generally speaking, most northern turf grasses cannot be satisfactorily grown, except in the mountains, south of the parallel marked by the southern boundaries of Virginia, Kentucky, Missouri, Kansas, Colorado, and Utah. It will be noted that the southern limit of these grasses approximates the above-mentioned parallel, and the same is true of the northern limit of Bermuda and other southern grasses.

This relation of every grass, and indeed of every plant, to climatic conditions is inherent in each species, and in botanical language is spoken of as an adaptation. It is of course easy to understand why Bermuda-grass rarely survives north of Maryland, because it is killed by winter cold. Fundamentally, however, the reason why Creeping Bent succeeds so easily in New England and survives

only with great care in Virginia is because it is not adapted to withstand the summer conditions in the latter state.

Natural adaptations can apparently be modified within narrow limits by careful and long-continued breeding. Really, what is done is to select those plants that succeed best under given conditions and to breed from these. While such work has progressed far with our common annual crops, it is much more difficult with perennials, but marked progress has been made with such plants as fruit-trees. Thus far the cost of the work and the lack of prospective rewards have not encouraged any such breeding work with turf grasses.

The difficulty of growing any grass satisfactorily increases as the limits of its climatic adaptations are approached. In other words, northern grasses give less satisfaction near their southern limit of culture, while southern grasses are rarely worth cultivating near the northern limit of where they will endure the winter.

This matter of climatic adaptations is fundamental with turf grasses as well as with other plants. It alone often determines what particular grass is best to grow in a particular region. Bermuda-

grass in the North would be folly, and scarcely less so are attempts to make permanent greens in the South of Creeping Bent or of Red Fescue. But it requires experimenting and critical judgment to determine under given conditions whether to use Red Fescue or Creeping Bent on a putting-green or Kentucky Blue-grass or Redtop on a fairway.