Just what are the conditions which act as the most important growth factors and which must be controlled upon the golf course? They may be grouped under two heads, climate and soil. To regulate these two growth factors both direct and indirect methods are employed. It is readily apparent that little direct control can be exerted over climate and that the reverse is true in regard to soil conditions.

The principal direct control over climate that is utilized in the growth of grass is the artificial application of water. The grasses require a large quantity of water during each growing season and grow luxuriantly when it is available to them. If forced to live with but a small supply, their growth becomes slow and they may enter a semi-dormant condition until such a time as the moisture supply becomes plentiful.

Select Resistant Grass

In contrast to this method, an indirect control over climate is effected through the selection of types of grass adapted to the existing climatic conditions. Thus, the bent grasses, Kentucky blue grass, poa annua, the fescues, etc., are grown in the northern part of the United States and Bermuda and carpet grass in the southern. In the moister and cooler portions of the northern United States the first-named grasses do best, but require more and more care as the mean annual temperature becomes higher and the moisture becomes less farther south and west. A good example of this adaptation of the grasses to a given set of climatic conditions is apparent with poa annua when subjected to a cool and moist climate as compared with a climate in which the temperature may become high and the summer very dry. Thus in the Chicago area poa annua is not an especially satisfactory grass because it does not withstand the high temperatures and dry weather that frequently develop, During periods of unfavorable growing conditions this grass will be apt to suffer more severely than most of the others. This is probably due to the fact that poa annua naturally tends to have a short growing



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season and to play out by mid-summer. Therefore, it is weaker and less resistant during the months when growing conditions are most apt to be unfavorable. Other grasses, such as the bents, Kentucky blue, and the fescues, all of which persist throughout the summer as far south as Tennessee, do not have this natural weakness and are more resistant to very hot weather.

Equally as important as selecting types of grass adapted to a given set of climatic conditions is the control exerted over different soil properties. Since the plants are anchored within the soil and derive their food and moisture from it they are profoundly affected by its properties. properties influencing plant growth are soil texture and structure, soil reaction, the organic content of the soil, soil moisture, and the supply of plant food in the soils. Each one of these lies within exact control if a knowledge is possessed of what is desired and of how it may be secured. In any case, creating in the soil especially congenial growth conditions is essential to the growth of excellent turf. Let any soil property become undesirable and the grass will be affected, sometimes to the extent of making it very susceptible to injury by unfavorable external conditions.

Blames Pythium

It is probable that much of the trouble encountered this year by golf courses in many of the middle western states may be explained by the foregoing facts. To understand how this is possible it is necessary to determine what the specific cause of the trouble was. In many cases where greens were more or less completely destroyed within a period of one or two days the active agent was the pythium fungus. The manner in which this fungus acts is such as to lead many to the conclusion that the injury was produced by sun scald. In the first place, the fungus does not become especially active until the temperature rises about 93 or 94 degrees Fahrenheit. Therefore very hot days are necessary for it to do much damage. Secondly, the spores of the fungus or the bodies by which it reproduces, require a film of moisture upon the grass blades before they will germinate rapidly. Therefore, a humid day is especially favorable to rapid spreading of the fungus. The hotter the surface of a green becomes and the higher the humidity, often depending

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upon the extent to which there is free circulation of the air over the surface, the more rapid and complete the destruction of the grass. These conditions could easily be associated with sun scald injury.

Furthermore, sprinkling, topdressing and the incorrect application of the fungicides proven of value in controlling other fungus diseases may not lessen the injury because they may aid in spreading the fungus and provide the necessary excessive moisture on the blades of grass.

The condition of the grass is important because it is a factor in determining the extent to which the grass is susceptible to injury. Certain of the grasses are naturally more resistant to such types of injury and so generally suffer less. This is true especially of the creeping bents. Kentucky blue and the fescues. The mixed bents, poa annua and poa trivialis are very susceptible to injury and generally suffer first as well as more severely. With the last named grasses it is doubtless not entirely a question of their natural resistance to the attacks of the pythium fungus but also of their weakened condition during the middle of the summer.

In some instances, even the creeping bents were severely injured this season. Whether in every case these grasses were not in exactly the best of condition cannot be said, but it is known that on a number of those greens suffering most the grass had not been given the growing conditions conducive to any great degree of resistance. In any growing season the cultural practices should be so regulated that the grass is made as vigorous and hardy as is possible. Much more can be accomplished in this direction than might at first appear. By combining these correct cultural methods and the selection of an acclimated grass with the necessary precautionary measures during times when the pythium fungus may become active will do a great deal to prevent such wholesale destruction another time.

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Chicago, Ill.-Beckley-Ralston Co., for several years active in the manufacture and sale of golf clubs, balls, bags, shoes, etc.. now is devoting its entire resources to the golf business. Formerly the company was one of the big factors in the automobile accessory industry. Growth of its golf interests has reached the point where more than 500 professionals are on the books as active distributors of the B-R line, especially of the Stroke Saver irons and putter.

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ED RECORD

Nail, Arkansas



L. A. Young Co. force assembled at the summer home of the Big Boss, near Birmingham, Mich., for its annual sales meeting. The boys heard themselves lauded for a 1931 business that was far ahead of any previously experienced in the company's four years, and were kept stirred up by having Al Link, general manager, Tom Philpot, sales manager, and L. A. himself tell about the 1932 line and the plans for making the coming season one of an even more brilliant advance.

Those who took part in the skull practice and went over the signals for the 1932 campaign are shown (I. to r.) Standing: Stanley Pelchar, A. C. Minkley, A. F. Poinsett, G. F. Goyette, Bud Roth, T. C. Robbins, W. F. Blakeley, P. R. Sage, E. E. Chapman, Cliff

Mogk, Tom White, and W. J. Ring.

Seated: C. Harders, G. J. Herrmann, T. G. Philpot, L. A. Young, A. C. Link, E. M. Chaffee, and G. Holmer.

To Qualify for Caliente Open in Los Angeles

QUALIFYING ROUND for the Third Aqua Caliente Open golf tournament, which carries a purse of \$15,000, will be held December 30 over the two courses of the Sunset Fields G. C.

The Aqua Caliente Open will be held next January 12, 13, 14 and 15, immediately following the Los Angeles Open. The qualifying test will be of thirty-six holes. San Diego players will have their own qualifying round on January 3 over the links of one of the clubs in the vicinity of that city.

A field of two hundred golfers is expected to tee off in the qualifying round. Some fifty golfers: the thirty leaders in the National Open of 1931 and the thirty-two leaders in the qualifying round of the P. G. A. championship are exempt from qualifying.

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Greenkeepers Board to Hold Boston Meet, Nov. 16-17

EXECUTIVE BOARD of the National Association of Greenkeepers will meet at Boston, Mass., Nov. 16 and 17. Final plans for the organization's annual convention and exhibition to be held at Hotel Pennsylvania, New York City, early in 1932 will be formulated. The meeting probably will give further consideration to the employment of a paid corresponding secretary.

Some Don'ts for Clubhouse **Employes**

- (1) Don't neglect your personal appearance: be neatly dressed and well-groomed at all times.
- (2) Don't loaf just because your regular duties are finished for the day; find something to do, or ask your manager to assign you a task.
- (3) Don't hesitate to make suggestions for improving the running of the club; the manager and board of governors are always receptive to ideas.
- (4) Don't grumble and sulk when reprimanded; a well-run club needs the full cooperation of all employees.
- (5) Don't wait on a member out of turn: in the few times this is unavoidable, get the permission of the others first.
- (6) Don't show varying degrees of courtesy to different members; they all have equal rights around the club, as far as you are concerned at least.
- (7) Don't loaf around the clubhouse when off duty; keep in the employees quarters and away from members and from employees on duty.

- (8) Don't fight with fellow employees: take the matter up with your manager and abide by his decision.
- (9) Don't fail to smile and call a member by name when serving him: make him feel you're glad to aid him.
- (10) Don't discuss with anyone what you may overhear a member say; your account of the facts may be distorted to your disadvantage.

Golf Adds Circulation and Ads to **Utah Papers**

SALT LAKE CITY newspapers show how the alert circulation and advertising departments are capitalizing golf. Tribune this year conducted its third annual juvenile, junior and junior open championships. Titles of the winners are recognized by the Utah State Golf association. The Tribune awards prizes to the champions, medalists, runners-up and consolation winners.

The Salt Lake Telegram runs a Hole-in-One golf page monthly. Fourteen merchants advertise golf and other outdoor goods on the page and donate prizes for those who make aces.

M. C. JOHNSON APPOINTED NEW CLEVELAND TORO DISTRIBUTOR

Minneapolis, Minn.-Toro Manufacturing Company announces the appointment of Merritt C. Johnson as the new Toro distributor for Cleveland, operating under the name of the Cleveland Toro Company. A complete stock of equipment and full shop facilities for overhauling and repair will be available at the district headquarters. 2160 E. 28th St., Cleveland.

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One of the best known younger professionals in the middle states desires southern location for the winter. Splendid business man, thoroughly dependable and competent, and will be active in soliciting business for the establishment. Address: Ad 1616, % Golfdom, Chicago.

Greenkeeper—highly experienced. Can save you money in upkeep of course and equipment. Always on the job and can furnish highest-class references. Address: Ad 1615, % Golfdom, Chicago.

Club manager—pro, grounds superintendent, desires location with club where executive, hard-working and conscientious man can serve club to mutual profit. Sober, A-1 credit rating, honest, expert teacher. Mother as caterer if desired; both have served in similar capacity for several years. Single, 33, high-class references. Address: Ad 1614, % Golfdom, Chicago.

Greenkeeper wishes position. Will go anywhere. Six and a half years' experience. Attended ten-week course at Amherst last winter. Single; does not drink. Young but capable. Address: Ad 1613, % Golfdom, Chicago.

Greenkeeper—Age 37, married, 10 years' experience as greenkeeper and builder through Ohio territory; wants to locate in Ohio. Can furnish highest references. For further details write: Ad 666, % Golfdom, Chicago.

Greenkeeper—experienced graduate horticulturalist and landscaper wants position in south or west starting in October or November. Age 24, single. Best of references. Address: Ad 1606, % Golfdom, Chicago.

Pro-Greenkeeper—wants opportunity to build up run-down private or daily-fee course. Thorough business training besides 15 years' experience as instructor, clubmaker, greenkeeper, manager. Member P. G. A.; age, 39; married; teetotaler. At last position, put course on profitable basis first season; can do it for you. Address: Ad 1612, % Golfdom, Chicago.

Experienced Professional—Would like to make a change for the 1932 season. Excellent reputation as instructor, merchant, and promoter of club interests and tournaments. Class A member of P. G. A. for past three years. Married, college education and excellent credit rating. Address: Ad 1619, % Golfdom, Chicago.

Professional—open for winter only; age 35. A-1 credit rating. Interested in success of all phases club's activities. Excellent instructor. Clubmaker. Go anywhere. Address: Ad 1611, % Golfdom, Chicago.

Man and wife open to operate medium size golf club; man as pro-greenkeeper, with 14 years' experience. Good player, instructor, expert greenkeeper. Member P. G. A. and National Greenkeeper. Wife as hostess or manager with 9 years' experience. Both 5 years last club. Come highly recommended by club officials—willing to go anywhere. Address: Ad 1610, % Golfdom, Chicago.

Pro-Greenkeeper desires change. Member P. G. A. and National Association Greenkeepers. Successful instructor and can save money on maintenance with new systematic management. Take full charge of golf shop and clubhouse grounds and golf course. Address: Ad 1609, % Golfdom, Chicago.

Position desired for winter season as assistant pro or caddie-master. Three years' experience. Excellent references. Will go anywhere. Address: Ad 1607, % Golfdom, Chicago.

Professional with excellent record, attached to good club, desires winter position, south or west. References from present and former employers. Would affiliate with 9 or 18-hole club. Address: Ad 1608, % Golfdom, Chicago.

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Greenkeeper—With 10 years' experience, 9 years at one club, desires position. Expert in upkeep and care of equipment. Address: Ad 1605, % Golfdom, Chicago.

Professional with 20 years' bench and factory experience in clubmaking, desires position as assistant to professional at big club or in golf factory. Is first-class salesman. Address: Ad 1618, % Golfdom, Chicago.

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