Golf professionals know that in spite of equipment and manpower problems, irregular hours and caddy shortages, golf has served the war effort by promoting physical fitness. From mahogany desk to greasy work bench, "all work and no play" lessens efficiency.

Every indication points to a greatly increased interest in golf after the war, with thousands of new golfers, new and finer golf courses...greater opportunities for skilled professionals. In fact, a whole new field of interest is developing in industrial golf.

As war tension eases off and increased leisure offers more time for golf, lessons to newcomers and "refresher courses" will be in demand. New equipment will be needed, too, and we of MacGregor Golf Inc. will go back to supplying peacetime playing equipment of the same standard of perfection that, for nearly half a century, has made and kept MacGregor "The Greatest Name in Golf."

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BUY WAR BONDS—and hold on to them
CDGA Victory Championship Again Geared to War Services

THIS year's golfing classic, the Third Annual Chicago Victory National Golf Championship, will be played at the Calumet Country Club, Homewood, Illinois, June 27 through July 1. It promises to be the most successful of the Chicago District Golf Association's efforts.

In 1942 the CDGA took the bull by the horns to conduct golf geared to the war effort instead of silently folding its tent and lying dormant during the war years. It was in this year at the Hale America National Golf Tournament, forerunner to the Victory National, held under the auspices of the CDGA, USGA and PGA at the Ridgemoor C. C., Chicago, that $22,500 was raised and split between the Navy Relief Society and USO.

In 1943 the live Chicago golf body decided on a streamlined tournament presenting 40 of the outstanding professionals and amateurs in the sport. In that year the first Victory National Championship was held at the Beverly Country Club and was successful to the extent of $6500 which was used to construct putting clocks at Hines and Downey Veterans hospitals.

Last year's affair at Edgewater Golf Club, through the energetic efforts of the members, came out on top to the tune of $17,399. This money is presently being used to build a nine hole pitch and putt course at Hines Hospital for use by both Hines Hospital and the U. S. Army's Vaughan General Hospital.

Credit for the success of these golf tournaments must be given to Tommy McMahon, former president of the CDGA, Larry Rutherford, present prexy, and M. G. “Scotty” Fessenden.

At the present writing the 1945 Victory National Golf Championship has more than $20,000 in its kick through the sale of advertising space in the program. Enthusiastic leadership by Gil Roll, president of the Calumet C. C., is largely responsible for this fine early showing. In addition to the 72 hole Chicago Victory National Championship, the opening day, June 27, will see a pro teamed with an outstanding lady golfer, a good amateur and the best the senior field can offer playing as a foursome for 18 holes, with a final 18 holes on June 28 to determine the pro-lady, pro-amateur and pro-senior champions.

The classic is under the sponsorship of the Chicago District Golf Charities, Inc.; co-sponsored by the Chicago District Golf Association, Illinois Professional Golfers' Association, Professional Golfers’ Association of America and Cook County Council American Legion.

Junk Builds this Course in India

1337 BU, Assam, India—Memories of bygone days back home were added to this air base recently by an enterprising GI, T/Sgt. Hyman F. Kaplan, Trenton, N. J., of the Special Services Section, who raided the junk piles for scraps to build this miniature golf course.

His efforts were worth while as shown by the fact that approximately 50 men per hour played the course during the first two months it was opened. The golf ball shortage has hit with a bang, however, and play has slackened quai a bit until a new supply arrives—if and when.

The conglomeration of construction material consisted of bamboo, aluminum pieces, sand bags from an old ack ack nest, discarded heating system of an airplane, and a fire barrel that officials wouldn't let him move so he made it into a hazard. Average time for four men to finish a round is 25 minutes, and par is "about" 21.

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June, 1945
When Should Golf Greens Be Aerated?

By G. N. HOFFER
Lafayette, Indiana

When should golf greens be renovated or aerated? This problem confronts some greenkeepers every season. It was discussed at the time of the Greenkeepers Short Course, Purdue University, February 26-28, 1945. The routine procedure for aerating the greens at the Elk’s Country Club course at Lafayette, Indiana, was described.

Grass roots need oxygen to function properly and support a healthy turf growth. When the turf is properly fertilized the roots grow in proportion to the shoots and form dense mats on the greens. The greens are composted frequently, and this combination of composting and root mats creates conditions at times unfavorable for the best functioning of the roots. In addition some greens are not well drained. The grass in low spots on the greens may suffer at times. Ice and snow may accumulate in spots and under conditions of alternate melting and freezing, may affect the aeration of the roots and cause troublesome conditions in the greens soil adverse to the best functioning of the roots.

Importance of Cutting Turf Sod Annually

In order to minimize these troubles, the procedure used at the Elk’s Club course at Lafayette, Indiana, is to thoroughly aerate all of the greens each spring by cutting the turf and roots in strips an inch and a half wide and approximately an inch deep. The device used to accomplish this cutting of the turf is shown in Fig. I, and its operation is illustrated in Fig. IA. It was originally used by Harry Allspaw, present greenkeeper at the Purdue University Golf Course. The machine was made by Truman Harvey, Dyer Road, Lafayette, Indiana. The contraption has paid big returns to the club in helping to maintain excellent greens during the past several years. Every year the greens-turf roots are cut and the immediate composting permits the rapid entry of air and

Fig. I.—Bottom side of turf cutter. Sickle bar blades are screwed to blocks 1 1/2” wide and nailed to framework. The blades cut the turf approximately 1” in depth. The device is weighted down by a man who guides it as it is pulled across the greens by a long rope attached to a tractor. Light in weight it is carried back to starting point for each trip across the green. A swath of turf 36” wide is air conditioned each time across.

Fig. IA.—A tractor, moving backwards draws and helps to guide the turf cutter across the green.
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water to them. All roots are within three quarters of an inch to these compost materials after this treatment.

**How to Determine When Greens Soil Needs Better Aeration**

In a recent article the method for measuring the effective penetration of oxygen into soils is described. Although the method was used chiefly on corn soils, the technique is equally serviceable in studying soils under grass on golf greens or elsewhere. When diagnosing turf troubles presumably due to poor aeration, it is necessary to make comparative studies of the soil under good grass as well as the troubled areas. With a suitable soil sampler, Fig. II, obtain a soil plug from a good area and one from the affected area for the comparative study.

Samples of the soil from each are tested for acidity and for available phosphates and potash. In addition quick tests for ferric and ferrous iron are made on samples from freshly exposed surfaces to determine the depth of effective penetration of oxygen (air) into the soil under the turf. In all soils there are compounds of iron which are relatively sensitive to oxygen deficiency for grass roots to breathe (respiration) normally as well as for bacterial activities.

When oxygen in the soil is abundant ferric iron compounds are found. When the supply of oxygen is deficient it is lost from the ferric-iron compounds to the bacteria causing decomposition of organic matter and ferrous-iron compounds are found. Thus, when ferric iron only is found there is sufficient oxygen for the grass roots to breathe (respiration) normally as well as for bacterial activities. But when the ferrous forms of iron are found an oxygen deficiency for grass roots exists and aeration or renovation of the greens soil is needed.

Because of these interesting interrelationships between ferric and ferrous iron and the needs for oxygen in adequate amounts for the grass roots, tests for ferric and ferrous iron in the greens soils are used to indicate the sufficiency of oxygen for all needs. When greens are composted with organic matter and high nitrogen fertilizers in excess of the immediate needs of the grass plants, it sometimes happens during excessive watering of the greens in hot weather that the oxygen supply to the roots becomes inadequate to meet their requirements for respiration. As stated above, bacteria and other soil organisms which decompose organic matter compete with the roots for oxygen under poor drainage conditions and the roots are either suffocated or at least badly damaged. The green shoots above the affected roots then accumulate the sugars which should have been used by the suffocated roots. The shoots may become invaded by fungi — and these troubles above ground show up. We often treat with chemicals the above-ground portions of the plants for fungous troubles but overlook the more important parts, the roots, under ground. A simple procedure to diagnose these poor aeration soil conditions is as follows:

**Chemicals Needed**

The chemical test solutions required for these tests are:

- **Solution A** — Hydrochloric acid (HCl). Dilute CP acid, one part acid to 4 parts distilled water by volume.

- **Solution B** — Potassium thiocyanate (KCNS). Dissolve 10 grams potassium thiocyanate in 100 ml distilled water.

- **Solution C** — Potassium ferriyanide (K₂Fe(CN)₆). Dissolve 0.5 gram in 100 ml distilled water.

Place all three solutions in separate bottles with droppers. They must be ready for quick service.

**Tests for Ferric and Ferrous Iron**

The soil tests for ferric and ferrous iron must be made within a very short time on samples from freshly exposed soil surfaces on the “plugs” of grass and soil cut from the greens under study.

Prepare a soil sampling device as shown in Fig. II. Use a discarded golf club with a steel shaft and cut the shaft 12 to 14 inches from the end of the grip. Then prepare the soil sampler as shown in Fig. II. The end of the tube should be at least a half inch in diameter. Sharpen the end of the tube and leave a collar about ½ inch in width. With an emery wheel cut the tube open approximately half way and up to the 6 inch grip. By pushing this device into the turf and soil you will obtain a plug of soil for the aeration soil tests. Remove soil samples, starting just below the grass mat, and test them im-

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"G. N. Hoffer "Fertilized Corn Plants Require Well Ventilated Soils" Better Crops with Plant Food: 29, No. 1, January 1945, p. 6."
mediately for ferric and ferrous iron. You will note depth of root penetration, also the condition of the roots. Observe the layers resulting from the composting of the greens from year to year.

Test the samples one at a time from a fresh surface at each deeper level, by the following procedure:
1. Crease a 3 or 4 inch filter paper once.
2. Place two soil samples, approximately the size of a navy bean, on the filter paper as shown in Fig. III. Compress the samples and then add 2 drops HCl test Solution (A) to each soil mass and fold paper back onto the treated soil.
3. Turn over the folded paper and test the wet underside of the paper at (a) with one drop of Solution B—(Ferric iron test); and one drop Solution C—(Ferrous iron test) at (b). Fig. IV.

The results must be noted and recorded at once.

Fig. V. A reddish to deep red color at (a) indicates ferric iron. This means an adequate oxygen supply in soil for the grass roots.

Fig. VI. A bluish to deep blue color at (b) indicates ferrous iron. This means an oxygen deficiency for the roots. If both ferric and ferrous iron tests are obtained, the oxygen deficiency is relatively less important and the aeration difficulties may be more or less temporary.

Discussion of Tests

The importance of making the tests very quickly from newly exposed surfaces can be demonstrated by permitting additional samples to be exposed to air, particularly in the sunlight, for several minutes and then repeating the tests. A negative test for ferric iron soon becomes a positive one and shows the rapidity of the oxidation process in many soils.

When the tests for ferric iron are negative in the upper soil layers it indicates the need for soil renovation. Spiking the soil may correct the trouble. At the Elk’s Club course it is preferred to cut the grass mats as described above.

These soil aeration tests along with the proper fertilization of the greens, as already described, will contribute much to the understanding of the functioning and growth of grasses under the terrific conditions prevailing on golf greens where all of the traffic is concentrated during the playing season.

Fig. V.—Red color (a) indicates Ferric iron GOOD AERATION.

Fig. VI.—Faint red or no color at (a) and blue color at (b) indicates Ferrous iron . . . POOR AERATION.
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Lawson General hospital patients were instructed by pro golf stars appearing in Atlanta's Iron Lung tournament. This was one of the many instruction and demonstration sessions put on at military hospitals by the touring performers. Byron Nelson shows Pvt. Ed McCausland, Landsdowne, Pa., the correct grip. The interest of the veterans indicates they intend to have golf give them a happier reward than the Purple Hearts they won on their combat circuit. The pro luminaries with their lessons at hospitals have stirred extensive golf interest among wounded veterans, and given the lads a lift by showing them a participating sport they can look forward to when they return to civilian life.—U. S. Army Signal Corps photo.

★ JAMESON WITH SPALDING — Betty Jameson, winner of Women's National titles in 1939 and '40 has joined the Spalding staff as field representative on women's clubs. The 26-year-old Texan is a successful business woman and has made extensive study of women's golf needs. She is splendidly qualified to push promotion of the women's golf market which Spalding is confident will be one of the biggest phases of postwar golf growth. She will continue to play in women's open tournaments and in invitation and exhibition affairs.
Old Course Design Needs Re-write

By W. B. LANGFORD
Golf Course Architect

THE probable great expansion of golf in the postwar era will result in the construction of many new courses but mostly in the correction, modernization and expansion of existing golf facilities.

Many of the courses put in during the golf boom in the twenties are not too good and the bunkering of the older courses is often out of gee with the modern game.

In some layouts the terrain is so badly used that the only satisfactory remedy is complete rearrangement, but in many cases a few deft and comparatively inexpensive alterations will work an utter transformation.

Frequently changes in fairway location which can be made by the mowers alone, will effect wonders. At times the selection of a new tee site will convert a drab hole into a thriller.

Hazards should be constructed to promote safety, by preventing or deterring play onto adjacent fairways, to encourage bold, thoughtful golf and to properly reward it, but should seldom be built for the sole purpose of catching bad shots and never where they form impossible barriers for the weakest players. Hence, in revamping old courses, meaningless traps and those which are impossible for the duffers and can not be by-passed should be removed, and a few bunkers which have positive strategic value installed.

Putting greens are frequently badly sized and contoured—big, flat, open greens reached by short shots and small, closely guarded, severely warped ones the targets of full shots. Green correction may be expensive but often is not.

Many courses need changes in surface drainage conditions on both greens and fairways and would also be vastly improved, from a landscaping and maintenance standpoint, by re-grading to soften ugly slopes and angles, eliminate unnecessary climbing, and permit the wider use of power maintenance equipment.

Up-to-date earth moving devices, such as the bulldozer, have greatly reduced the cost and time of grading operations and in skillful hands do a much better job.

Finally, judicious planting of shrubs and trees not only improve the appearance of golf property but promotes safety and may play a vital part in the game itself. To get the best results a skilled golf course designer should at least check up on the landscape man's suggestion.

"Shot That Saved Bobby"

★ O. B. Keeler, ventures the opinion that the most important shot ever played by Bobby Jones, now a member of A. G. Spalding & Bros.' advisory staff, was a twelve foot putt made on June 29, 1929, in the U. S. at Winged Foot, Mamaroneck, N. Y. In an article entitled "Prelude to the 1930 Grand Slam" appearing in the June issue of "Esquire Magazine" O. B. describes Jones' crucial round and tells his reasons for believing that on that single putt hung Jones' spectacular season of 1930.

Jones had got through the 7th hole of the final round with an expanding lead over his closest rivals... then suddenly the tide turned and a spurt of brilliant golf by Al Espinosa began to cut down his lead. At the sixteenth green it had disappeared. But that's just the beginning of a great story by one of golf's greatest writers, and an unusually fine colored picture illustrates the tense moment. This is a "must" for golfers.