

"Uramite" was applied to fairway turf grass in early June 1954 at the rate of 15 lbs. per 1,000 sq. ft. The area (right) was fertilized with a conventional soluble fertilizer as a check. In October 1954, the area (left) that had received the "Uramite" showed excellent color, density, and freedom from weed infestation.

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IT'S DONE THE BIG WAY IN TEXAS

Looking up the 18th fairway at the Dallas Athletic Club's Country Club course you can see the space that golf architect Ralph Plummer used wisely in providing a night-lighted practice putting green and a practice fairway and lesson tees, in front of the clubhouse.

Inconvenient location of practice fairways and practice green is a handicap to many older clubs but modern architecture is making these valuable features handy for members' use, day and night.

ports the above theory, but it must be considered as a theory until subjected to a carefully controlled test. In July some of the worst spots on the greens were patched with sod from the bent nursery. Grass on the new sod collapsed quickly after the first rain. When a plug of soil was removed later the foul stench was unbearable. There was a peculiar black charcoal-like layer below the surface. Grass on the nursery was an over-all brown color. The imbedded layer was there also. One could distinguish the buried grass stems and leaves. Topdressing never made contact with the soil.

Bad Year in Algae

Algae was worse than in any recent year. This green, scum-like growth appeared in the wet spots of greens where the grass became thin. Algae are present in every soil. They are green plants and are held in check under the shaded cover of a dense turf. The grass deprives these minute plants of needed light. When anything happens to the grass and the soil stays wet algae go to town.

Some blame stagnant water from lakes and ponds. They see the algae in the water. The use of such water may aggravate but will not induce algae, because those already in the soil will multiply rapidly if given the chance.

The black, skin-like cover which forms as the algae die retards recovery of the grass. Its formation can be prevented by dusting the surface with a little hydrated lime. The rate need not and should not exceed 2 to 3 lbs. per 1,000 sq. ft. More than that might scorch the grass.

In aggravated cases Bordeaux mixture can be used at up to 2 oz. per 1,000 sq. ft. An occasional application of Bordeaux is all

right, but repeated use should be avoided because of its copper content.

Iron Chlorosis Troubles

Iron chlorosis has been very bad on many greens. It is associated with overwetness, high organic matter content, alkalinity, and high phosphorus content of the soil, singly or in combination. In aggravated cases grass is chrome yellow in color. Occasionally it is a slightly yellowish color and may be mistaken for a nitrogen deficiency.

Sometimes leaf spot was blamed for loss of grass when iron chlorosis was the real culprit. Leaf spot got the blame because of its obviousness. Only too often iron chlorosis paved the way for an attack of leaf spot by weakening the grass. It could not resist that disease or anything else.

Chlorosis can be stopped quickly and effectively by using a little ferrous sulfate, or one of the chelated forms of iron. The supposed lasting effect of the chelates has not been marked on bent greens. For that reason most superintendents have returned to the use of ferrous sulfate because it is much cheaper.

Ferrous sulfate (Copperas) must be sprayed on the leaf and left there for direct absorption into the plant. If washed into the soil the iron will be transformed into forms which the grass roots cannot absorb. The secret is to deposit a minute amount on the leaf with a minimum of water. Rates over 2 oz. per 1,000 sq. ft. may scorch the grass with the small amount of water which should not exceed 20 to 30 gals. for an average-sized green. The deeper green color produced by the iron will become apparent in a matter of hours.

The effect of iron was very apparent in Cleveland where one-half of a green was

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being treated with an experimental fungicide. That half was so much better after several heavy rains that the presence of iron in the material was suspected. The sample being used contained more than 10 per cent iron in the chelated form.

Water Management Emphasized

By the way of summary, the past summer emphasized the important role of water in golf turf management. Too little is bad, but too much is vastly worse. Overwet soil, whether it be from the sky or from the sprinkler, invites troubles of all kinds. It brings pythium, brownpatch, iron chlorosis, scald, algae, leaf spot — just to mention a few.

A knowledge of the factors underlying sensible water usage is the first thing for anyone charged with the care of golf turf to master, and impart to his workmen.

Poa Annuua Persistent Problem

Poa annua got off to a good start in the spring but took a terrific beating in the hot months of July and August. There was loss of it in the greens, but many of the bad and bare unsightly aprons were that way because poa annua disappeared. The same was true of approaches to the greens. The bruising effect of the power driven drum on the power green mower hastened loss of the wilting poa annua. The tractor and gang mowers did the same thing on the approaches.

Resodding of aprons from a nursery is believed by some to be a better way to eliminate poa annua on aprons than spiking and seeding. The minute weather becomes cool, poa annua comes back so fast from seed that it chokes out seedlings of other grasses. Resodding can be done quickly and cheaply with a modern power sod cutter.

The kind of grass to use is still a matter of debate. Merion bluegrass has been tried with indifferent success. It can be cut close, but does not thrive when subjected to the amount of water needed for bent greens. Common Kentucky bluegrass will not survive the close cutting demanded on aprons.

The bent grasses would seem like a better bet. In cases where bluegrass from the rough or from waste areas is used it should be spiked and overseeded with Highland, Astoria, or a mixture of these bent grasses immediately, so bent will take over before poa annua. Once a good cover of turf is obtained, aprons should be fertilized with the greens and should be treated for disease control also.

Poa annua behaved well on tees where the hot spell was not prolonged. The secret

of keeping it is to use fertilizer every two to three weeks and to keep the soil moist but not wet. Poa annua likes nitrogen and water.

Grasses for tees elsewhere continue to be a controversial topic. Merion blue grass is in disfavor with some where play is heavy. Recovery is not sufficiently rapid to prevent poa annua invasion. Deterioration has been gradual over a period of several years.

In the latitude of Milwaukee and Chicago there are many good creeping bent tees, mostly vegetative, planted ones with Washington, Toronto, and the like, but a few of Seaside also. They are cut close with putting green mowers mostly.

In the Philadelphia-Kansas City belt there are many fine tees of U-3 Bermuda grass, despite the fact that U-3 winterkilled in many instances. The fact that the grass survived in many instances and did not in others would indicate that we have not learned everything connected with the maintenance of this fine grass. Those who admire it in Philadelphia, St. Louis, and Kansas City ought not try to advocate its use much farther north at the moment.

Even in the Philadelphia to Kansas City belt, U-3 Bermuda grass tees should not be used in the wintertime. Some use U-3 on the back two-thirds of the tee and put the markers on the front third in winter. Others provide alternate tees for wintertime play. The bad effect of winter play may not show the first or even the second year. The weakening effect is a gradual one.

Low temperature is not the sole reason for winterkill. Windburn or desiccation is another bad thing for Bermuda. It happens farther south in open winters.

The injury resembles windburn on bent grass greens. Loss from this type of injury can be prevented by springtime watering even though the Bermuda is still dormant, and by giving the turf a good soaking in late fall. One club in Kansas City did not lose any of the U-3 Bermuda on its tees while the loss on other courses was complete. The U-3 that came through was watered several times in early spring, which happened to be very dry.

The turf on U-3 Bermuda grass tees is kept tight by close cutting. Some use power greens mowers, other a Park Special type with a catcher. None of the triplex type mowers seem to do the right kind of cutting on this tough-to-cut grass.

(To be concluded in January, 1956 issue)

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Course at Park Gateway Bids for Tourist Play

GATLINBURG, Tenn., has opened nine holes of its 18 at the Tennessee gateway to the Great Smoky Mountains National Park.

The second nine will be completed this fall.

Construction of the course was begun in mid-December, 1954, as a project of the Gatlinburg Chamber of Commerce. Wm. B. Langford was architect of the course. Gatlinburg City Mgr. W. W. Mynott was in general charge of construction and Alex McKay was in charge of planting and developing the course which has come along into good condition remarkably fast.

McKay, who has to his credit numerous notable jobs of golf course turf development in this part of the country, saved time and money in soil conditioning prior to seeding and by his knowledge of watering practice to fit the local conditions. Watering equipment was put in early.

The whole project represents good coordination by city and chamber of commerce officials with the men on the job. The basic idea was to get a course combining resort play qualities with cham-

pionship testing character and with this combination draw thousands to the community.

Site Selection Difficult

In this beautiful but rugged country, choice of a site that wouldn't be too demanding on the legs of the vacationers was not easy. But a site finally was selected that was in a lumpy, heavily wooded plateau. In this area are two jewels of small lakes.

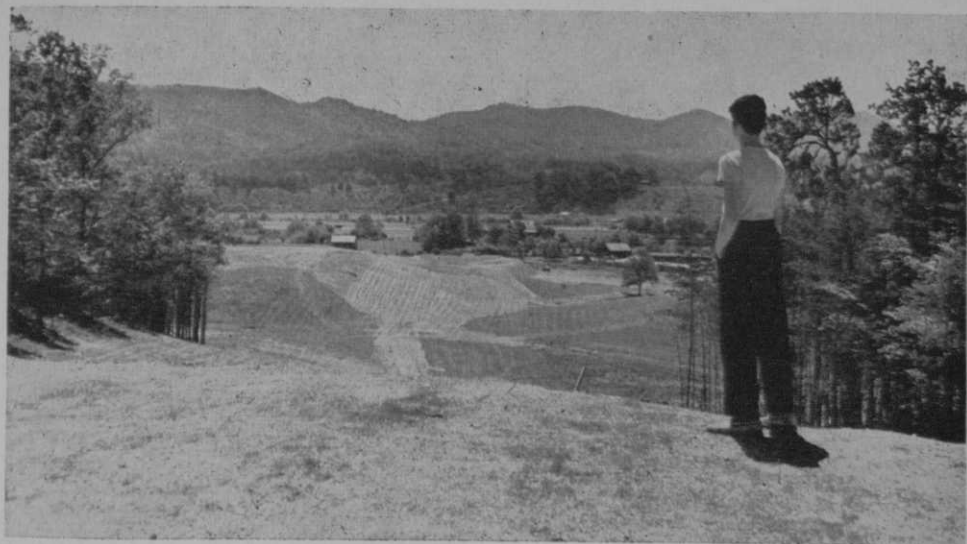
Langford's first problem was to make walking not much of a strain on the 6400 yd. course. The out nine, now in play, has yardage of 3400 and par of 4-4-5-5-3-4-4-3-5-37. The par 5s are 530, 470 and 470 yds., all of them of decidedly different character. The par 3s are 170 and 130 yds.

Another of the architect's problems was to set the tees and greens in spots so they would have memorably beautiful scenic settings. Gatlinburg is selling scenery.

Incidentally, a part of the selling work is the training of caddies by the Gatlinburg CC pro, Harry W. (Cotton) Berrier. As the Great Smoky Mountain park is



There's a gradual uphill climb to the 9th green shown here and the smart golfer will play his first shot off the tee, 460 yds. away, to the right to follow the valley and come around the spur extending out into the fairway.



Stepping up to the first tee of the new Gatlinburg course presents a beautiful view of the Great Smoky mountains in the distance. One also gets a preview of what to expect in the way of the great variation in elevation as the ball from his first shot, if it travels more than 200 yds., drops down to 100 ft. below tee level. The golfer need not be too discouraged, however, for the course has been ingeniously laid out to hold fairway elevations to a minimum incline and thus avoiding any steep climbs.

the most-visited national park, those who stop off on park visits to play golf at Gatlinburg are going to include hundreds who insist on caddy service.

No Steep Changes

Langford solved the architectural problem ingeniously without steep climbs or slides. It was necessary to cut a tunnel between the ninth green and the tenth tee, build one bridge and construct a winding path from the tee to green of a short hole on the second nine.

Greens bunkering had an interesting element of design on a few holes. Traps

were located to keep wild shots from rolling down into locations where recoveries would involve sliding and climbing and extremely difficult shotmaking.

The 12th tee at an elevation of 1210 ft. above sea level is the highest tee or green location on the course. The lowest tee and green level is 1040 ft. which is the approximate elevation of the seventh green and the eighth tee.

Fairways are laid out so there are easy grades. Only on two holes are the greens more than 40 ft. higher than the tees and these are long holes with easy grades.

Trapping has generally been done exactly according to the architect's thoughtful and interesting planning. The construction departures from the plans don't do the holes affected any good but probably will not be noticed except by the more experienced golfers.

Development, operation and play at the course will receive considerable nationwide interest as an example of an alert city's action in building a fine golf course to draw tourist business.

The Gatlinburg Chamber of Commerce already has publicity going strong on the course. The course was officially opened with pros and amateurs playing golf balls activated with material from the atomic plant at nearby Oak Ridge, Tenn. Caddies with Geiger counters easily located the stray shots.



Gatlinburg's steep elevations are a treat for eyes but tough to tread. This tunnel between the 9th green and 10th tee makes the going easy.

Philadelphia Supts. Hold 30th Birthday Party

The 30th anniversary meeting of the Philadelphia Assn. of Golf Course Supts. was held at Whitemarsh Valley CC in conjunction with the Golf Assn. of Philadelphia. More than 100 attended for an afternoon of golf and the dinner session which had Charles Hallowell doing a smooth job as mc.

Pres. Alex Strachan of the supts., spoke briefly on the progress of the group during its 30 years. Joe Valentine told of the educational program the association had conducted since its start.

Handsome plaques were presented to founder members M. E. Farnham, H. F. Jewson, Ray C. Lane, Benjamin Mantell and Joseph Valentine.

Harry A. Rowbotham, pres., Golf Assn. of Philadelphia paid tribute to the superintendents for their individual and collective work in serving golfers. Charles B. Grace, sec., USGA, gave a close-up of the workings of the USGA. Paul Weiss related amusing experiences of his work during the 30 years of the association's history.

H. B. Musser spoke on "Penn State and the Philadelphia association, crediting the

supts. with invaluable practice practical teamwork in making Penn State's famed research a substantial contribution to golf course maintenance betterment.

Herb Graffis of Golfdom talked on "Looking Ahead with the Superintendents" and guessed that progress made to date indicated there would be fewer "fire department calls" by the turf specialists when unexpected trouble hits courses in years to come. He said supts. and course builders are learning the answers from their experiences in applying the findings of research.

O. J. Noer and Fred Grau, scheduled to present a showing of their slides of Philadelphia district courses, made short talks, postponing their film show until a later meeting, due to the length of the birthday party. Noer related that he came into golf turf research about the same time the Philadelphia association was formed and told of amusing incidents of his own education in helping superintendents with their trials and tribulations.

George W. Scott, Whitemarsh supt., led the supts. in the afternoon's golf with 81-7-74. Clifford Lang of DuPont was top man among the chairmen with 103-36.

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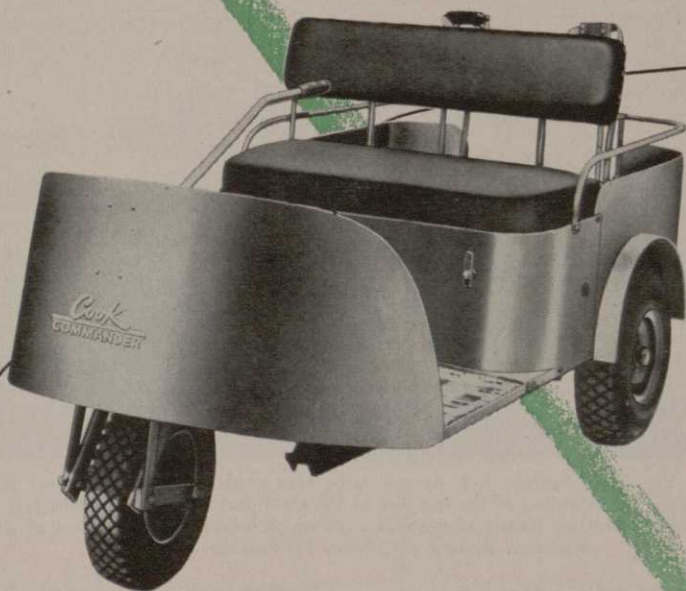
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Fine feature of the Warm Springs Ave. Range is the area used by Professional Jack Burrell in giving lessons. This area is an extension of the tee line at the right, but shielded from the rest of the tee line and from the parking lot by panels of vertical slats which admit free movement of air yet afford a maximum amount of privacy for teacher and pupil.

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BOISE, Idaho golfers have the last word in golf range facilities available to them in the year-old Warm Springs Avenue Golf Driving Range. The accent is on eye-appeal throughout this ultra-modern layout, achieved through efficient functional design.

The first thing to hit the golfer's eye is the baked enamel aluminum awning covering the entire tee line, built on steel supports constructed to withstand a 120-mph wind!

The tees are mounted on a base con-

structed like a conventional floor, with joists topped by vertical grain fir flooring sealed with tung oil and painted. The entire base is anchored to a concrete foundation.

Tee surfaces are 'Flexi-mats' with latex nylon strips in the hitting zones and containing 9 x 21 inch Fuller Brush Company tampico brush mat inserts for fairway wood and iron practice. Each tee area measures 11½ feet in width and each is equipped with Tee Queen automatic tees. Tees are separated by sturdy, neat pipe guard rails and there is an electric buzzer system at the disposal of each patron on the tee line that can be used to order additional balls or other service from the range office.

Range lighting standards are placed fifty feet apart, twenty-five feet behind the tee line, with Crouse-Hinds floodlights mounted thirty feet above ground level. Each pole carries one wide angle, two narrow beam and two medium beam width, 1,500 watt units.

The range area is fan-shaped, 150 yards wide at the tee line and spreading out to more than 300 yards in width at the farthest limits of the fairway. The depth of the range is over 300 yards from tees to back of range.

