

However, he has a broad stock of leading brands and a thorough price range in clubs and balls. He makes a strong point in his sales talk on the volume he does assuring him the best the manufacturers have to offer. He also makes it plain that each club coming into his shop is personally, expertly inspected. He gives the customers "the works" on that line to the effect that they are sure when they buy from Montessoro and may be taking a chance when they buy from stores, where golf is just one of many lines.

On the golf bag business Bert does very well. He shows and explains the difference between bags. He shows them a good bag that he has had 17 years and compares it with some of the cheap and worn bags that members have fallen for. He points out the differences in leather, stitching and design and ends up with the clincher, "I'll give you this good bag if you can point out any detail where a cheap bag is anyway near as good."

Shop Looks Like Business

With all the stock Montessoro has there is a tendency to cram the shop so full of merchandise it would look like a warehouse instead of a shop. He avoids this by arranging his displays with the idea of featuring a wide variety of brands and prices so his prospective customers realize they can get anything they want. The shop is well lighted and it is kept as clean as a hospital operating room.

Displays are changed frequently so the shop visitors don't get accustomed to seeing the same old stuff but expect to see something fresh and new.

The thing that stands out about Montessoro's success for and at the South Side club is that it is no accident. It is the result of thought and work that Bert previously proved were along the right lines. Prior to coming to Decatur he was at Oregon, Ill. for four years. Oregon is a town of only 2,000 people. When Bert went on that job the club had only a few members. When he left it had 210 members and he had sold 210 sets of woods and irons. Remember in both the Oregon and Decatur cases that while Montessoro did all right by himself as a business man on these jobs, his first thought was to see that the clubs got members and that those members got great value from their club dues because of the golf service given them by the pro department. That is the tip-off to why officials and members of the South Side club who have been around know that

it's better business for the club to pay a salary to a real golf business man like Montessoro than to take a chance with some simple fellow who would eagerly offer South Side the Denver and Philadelphia mints, 210% of the shop profits and meals at all hours, for the South Side job.

Liquor Companies Muffing Club Influence Chance

RAN into one of the famous old-time liquor salesmen the other day and got to talking about the club liquor situation.

Said he confidentially: "The club manager these days is the chief teacher of the proper use of liquor. He alone can present the stuff properly in a way that fits into the right sort of an atmosphere of refinement and conviviality. Prohibition has ruined drinking elsewhere, even in the finest hotels. Look at the loose women in these good hotel bars if you don't think so."

To which your correspondent responded: "Then why doesn't your company advertise its liquor in golf magazines and give the managers a hand in this responsibility of education?"

Again he talked frankly. "Because my company and most of the other big liquor companies don't know what in the hell it's all about. I'm glad I'm getting to be an old man and won't have to see prohibition again but it's coming, sure as anything you know, if the club idea of sensible drinking isn't encouraged among the public that doesn't belong to clubs.

"What do you think would be the best liquor company service idea to work in the golf field?" the veteran was queried.

"I don't know for sure," he began, "but maybe it would be to have some well-trained women on a service staff going around to work with managers on the best ways of liquor service to women at golf clubs. That's the one spot where most of the old-time and new managers are pretty much at sea. But where in the hell would you get the women? It looks like the managers will have to work out most of the answers on liquor themselves. The golf clubs are about the most important spot in the liquor business today, but that's only one of a thousand things the new people in the liquor industry don't know."

PAY UP!

New Plan for Green Section Solicits Funds From All Those It Helps

MONEY sufficient to enable the Green Section of the USGA to function in the manner urgently required is to be solicited from sources outside the present membership of the USGA, according to plans drawn up at a meeting of the USGA executive committee held at Oakmont, June 7.

Hundreds of clubs that annually write in asking for Green Section help but which do not belong to the USGA, will be asked to contribute the \$30 yearly dues to the USGA. It is expected that many of these clubs will realize their responsibilities in Green Section research financing and grab an oar instead of stowing away as steerage passengers. There is to be a temporary reorganization of the Green Section committee. In the new line-up representatives from various sections of the country will be appointed. These men will be those whose interest in the Green Section's work and problems is such that they will be active in seeing that clubs in their districts belong to the USGA and will be active in obtaining funds required by the Section.

There also will be an effort made to obtain Green Section contributions from such associations as those of the mower, seed, fertilizer, club and ball associations, green-keeper associations and the PGA, inasmuch as the Green Section work has direct and important bearing on the work and profit of the members of these associations.

No subscriptions will be accepted from individual concerns that could benefit directly from any tests made by the Green Section to the exclusion of other companies. An exception to this ruling is to accept contributions from individuals who feel that they have benefitted directly or indirectly from Green Section work.

The Executive committee appropriated \$750 for work in Mid-West turf garden; this money to be spent under the direction of Dr. John Monteith, jr., technical head of the Green Section.

Now It's Up to You

In the letter to members of the Green Section and Advisory committees and members of the Executive committee, which told in detail of action taken at the Oakmont meeting, Harold Pierce, chair-

man of the Green Section committee of the USGA, bluntly stopped the buck-passing that has been going on since the Green Section ran short of money.

"Quit kicking and kick in" is the substance of the Pierce advice and that it's the right answer no one can doubt. The USGA is fully cognizant of the vital value of the Green Section to golf in the United States but the Association isn't disposed to take up counterfeiting to raise money.

Pierce concludes his official letter with these paragraphs:

"The income from our member clubs this year will be in the neighborhood of \$21,000. We have appropriated \$15,750 for Green Section work. In past years when our receipts from tournaments were larger than they are today, we spent more per year on Green Section work than was received from member club dues.

"In other words, those that claim that Green Section work is more important than the other functions of our Association would do well to remember that if we had not been able to use funds received from gate receipts, far less money would have been spent in the past in research work.

"The officers of our Association can not be expected to do all the work, so this letter is an appeal to you to go out and do your part and get the money necessary to carry on this more important work which is vital to every golfer, though very few realize it."

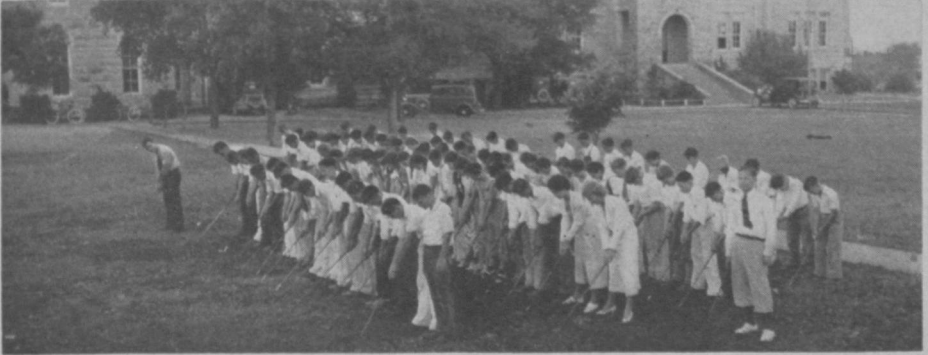
Demonstrations Replace Lectures On Mass. State Program

IN PLACE of the usual formal Lectures at the Massachusetts State College Lawn Day which is to be held July 23 at Amherst, Mass., under the direction of Prof. L. S. Dickinson, the day will be devoted to a series of demonstrations and discussions concerning the important factors influencing the culture of fine turf grasses. The demonstrations will show the correlation of each factor one with another and will typify conditions found in private estates, home grounds, parks, golf courses and cemeteries.

There will be opportunities for discussion and for the visitors to practice the theories brought out by the demonstrations.

The programs as arranged are unique and will be well attended by those interested in turf management.

Sessions will be conducted by the following members of the MSC department of agronomy: Lawrence S. Dickinson, Elfriede Klaucke, Benjamin Isgur.



Girl and boy students responded with equal enthusiasm to Schneider's golf lesson invitation at Kerrville.

TEXAS TUTOR

By WILL F. ADAMS

EVEN down into south-central Texas, the revival of golf instruction among school boys and girls is on. Sammie Schneider, pro at the Kerrville CC, with an eye to the future, is following the advice of George Jacobus, PGA president, and of GOLFDOM. Kerrville is a resort town of the 5,000-population class 65 miles northwest of San Antonio. Visiting golfers make much use of the 9-hole daily-fee and membership links during summer, but the pro has been working to secure more home players. His methods in reaching and teaching youngsters might be adapted by other clubs to their communities.

He planned a 5-weeks course for beginners and offered it as a gift to students in junior and senior high school. Over half of them responded. Education officials readily consented and gave their cooperation. The pro-instructor taught three hours a day for three days per week. His classes literally were already organized for him as he took over four of the daily physical education periods.

Girls Flock to Classes

Choosing the golf instruction was voluntary with students. The first day 93 boys turned out. The girls, thinking the training was not intended for them, asked to be taught. When the pro emphasized the fact that the classes were wide open to girls, so many came out that the four sections totaled 250. The percentage of boys and girls was 50-50, and the daily attendance well over 200. They were from 14 to

Schneider Stirs Golf Interest Among Students in Town of 5,000

19 years of age, and from as low as the sixth grade. Schneider believes that where other pros try a similar plan they should be sure to make it clear that girls are eligible. The girls in his classes were as eager as the boys and were not backward about showing it.

The instructor sold clubs to pupils who had none at a very nominal price. Students who had irons at home were told to bring them to practices. "Some of the students brought out clubs that I didn't even know were in town," Schneider declared. "They would have made quite a collection of relics."

Use Cotton Balls

After learning something of fundamentals, including how to grip and swing, the future golfers practiced with cotton balls. Conditions on the campus—as would be the case in many towns—forbade the use of real balls. Two ranks of pupils faced one another and drove the cotton balls back and forth between them.

"You would be surprised how many clubs one can see swinging on private lawns now," the pro smiled. His instructions kindled the spark in a number of would-be players who otherwise would not have been reached. Without the incentive of group teaching, some of them would have lacked interest. Others could not have afforded paid lessons.

At this writing, school has just closed; hence chance had not yet been allowed for indications of immediate results. A

strategic time was selected for the classes—the last few weeks of the school year. Vacation was to set the youths free to use the links soon after the lessons ended. The pro reminded students whose parents



SAM SCHNEIDER

were club members that they could play on the same membership. To others, he arranged to offer a student rate of one-third the regular annual membership fee.

Student golfing received encouragement also when a boy's junior college team in the same town won six of seven state-conference events. All four of the team members had received instruction under Schneider. An annual amateur invitation meet held in the Texas town in mid-June struck more than usual home attention as a result of extended golf knowledge among school youths.

The pro-instructor is elated over interest aroused by the kid lessons, and plans to repeat them. Part of his returns came in soon after school closed. His complete returns he was satisfied to leave to the future. More golfing fathers there have a closer point of contact with their sons. Boys swinging practice clubs are safe from undesirable street influences. Niblic gouges in home yards where none ever appeared before were prophetic of more flashing irons on the fairways and more income at the clubhouse.

THE "cut" on a slot machine in the locker-room of a midwestern golf club is used to finance extras on the club's entertainment program. Money left over at the end of the season is spent for a stag dinner called "The One-armed Bandit's Party", the one-armed Bandit being the slot machine.

Rhode Island's Sixth Field Day Interests Large Group

SIXTH Annual Greenkeepers Field Day at Rhode Island State College was especially well attended this year and got a good break in weather. A number of research men from neighboring colleges were present, green-committee chairmen attended in company with their greenkeepers, and exhibitors were well represented. Sprinklers, spike rollers, and mowers were demonstrated.

Inspection of the experimental areas is always an interesting part of the program. This year the killing effect of sodium arsenite spray treatments on the chickweed in old lawn turf was striking. A set of plats, to compare grasses under heavy play which were planted in 1933, were badly worn in late fall of 1934, and were severely injured during the winter, demonstrated the value of Kentucky bluegrass as a constituent in mixtures for this use.

After lunch in the college banquet room the speakers were introduced by Dean G. E. Adams as follows:

"Sports and Their Turf Requirements" by C. W. Perkins, Supt., Yale University athletic fields.

"Cooperation" by Guy C. West, Greenkeeper, Fall River CC, President, New England Greenkeepers Club, and Editor "Newsletter."

"Applying Experimental Results to Turf Improvements" by Everett Pyle, Greenkeeper, Providence municipal links.

Dr. H. J. Wheeler, early director of the Experiment Station, sketched briefly the advance in general knowledge of soils and fertilizers that has taken place since one set of lawn plats was planted 30 years ago. He mentioned that today the average progressive greenkeeper has a great deal better insight into the problems of soil fertility than the best soils specialists had in 1905.

At the annual meeting of the Rhode Island Greenkeepers Club (the 6th) the following officers were reelected:

E. J. Pyle, Triggs Memorial GC, Providence, R. I., Pres.

H. D. Hall, Gloucester CC, Harmony, R. I., V.-P.

H. F. A. North, R. I. Agr. Exp. Station, Kingston, R. I., Sec.

Martin Greene, Wanamoissett CC, Rumford, R. I., Treas.

LONG ISLAND GA has the biggest tournament schedule of any district association.

POPULATION: 4000; COURSE: 1A

By C. B. MILLS

NOT that it's any different from any other golf course in many matters—it has greens, fairways and rough with here and there a bunker, yet there is a difference to the extent that total operating costs last year amounted to a mere \$1,800. And from that modest sum enough was extracted to do a bit of tree planting and for an extra \$400 the little clubhouse was constructed. But don't get the idea that we had lousy greens. They would do credit to many a famous course.

At our Marysville, Ohio (4,000 population when we're all at home) course, where the grocery clerks play too, the president of the club is also president of the local bank. In early spring he wouldn't think of sipping his morning orange juice until he had driven out to the course to see if his two German Settlement workmen, who do small farming near the golf estate, have weeded No. 6 as instructed and turned over the compost pile again. He gets the same thrill seeing new grass pop up on a washed fairway that comes from a long past due note being paid in full.

Started on Low Costs

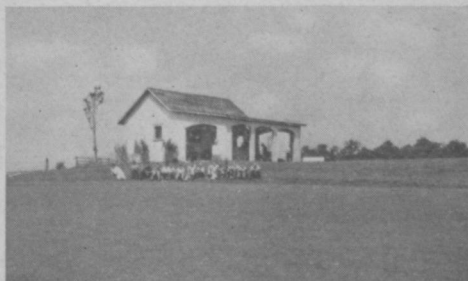
Finances have worked out splendidly at Marysville. Three years ago when farms were being virtually stolen, the club bought 100 acres for \$1,900. Half was used for the 9-hole course. The remainder was rented for sheep pasture, producing enough revenue to pay the taxes on the full hundred. A few months ago that fifty acres was sold for \$1,100 cash so the course property stands the club \$800. Enough stock was sold originally to pay for the farm and for course construction. It takes 50 full family membership at \$25 per year, about 20 of the out-of-town variety at \$15 and green fees at 50 cents to pay operating expenses.

The course is managed by the local high school coach who keeps an eye on his prospective football material by making caddies of them and does he have discipline! His summer amounts to more than a vacation by reason of receiving a small monthly salary, a cut on the green-fees and a profit on his refreshments and golf supplies. He even has time to train his

On Minimum Investment, Marysville's Layout Is Adequate, Enjoyable

three small children in the ways of good golf.

It is probably true that at these small town courses, golf is played more for golf's sake. A man who has been deeply bitten by the bug can leave his office by four and have one leg in his knickers by four-



Four hundred dollars built this compact little clubhouse.

fifteen. At four-twenty he has joined a foursome either pre-arranged with three cronies or assembled on the spur of the moment with a group he could call by first names and middle ones too if necessary. And isn't it a fine tribute to golf that here you can enjoy it regardless of whether you end up at a Casino de Paree type of cocktail bar or drink a bottle of ginger ale on a bench which carries an advertisement of the local furniture dealer.

Keeps 'Em Young

Two old-timers, both comfortably over sixty but with sixteen enthusiasm fight it out every night it isn't stormy—a summer shower goes unnoticed. If one wins too easily his perennial opponent finds an errand out past the course early the following morning and stops to brush up on his putting or approaching. If that fails to bring the desired results, he slips down to Columbus for a session with a pro. One of these two is a real estate operator and not wishing to acquaint his retired farmer clientele with his sporting habits, leaves this inscription on his office slate during the summer months: "Gone to the country." His pal whose nickname is "Dad" sells automobiles. He really does but we never know a fellow who had as many



Jock Anderson, pro at Techny Fields fee course (Chicago distr.) has Helen Hicks as guest star for his Saturday morning free class of New Trier high school girl students. The classes were started by Anderson and the smart young lady who has charge of girl's athletics at New Trier. They run from 45 to 70 pupils every Saturday morning through May, June and September. It is estimated that 200 of the school's girl pupils have attended these classes.

prospects on the same road as the golf course. Incidentally these two play in the low eighties and high seventies. Dad was the inspirational spark plug and did much of the "dirty" work in building the course. He still takes time to handle ably the multitudinous tasks of green-chairman.

Players are about alike wherever you find them. Here we have those air-tight matches where a man with asthma would not be tolerated in the gallery and then there are those where extreme razzing only omitting tripping, is permitted.

Some of the boys decided last year that razzing should be dispensed with in one operation so a "costume woof" tournament was arranged. It brought out some unique creations. Costumes from Henry the Eighth to Mahatma Ghandi stalked the greens that day. There was even a gallant golfer in a sulky with a caddie assuming the role of horse. During the play there was noise equal to the county fair with horns, tick-tacks, squawkers and cap pistols contributing to the din. It was hoped that this outburst would result in a turn to perfect golf etiquette, the rules of which appear on the back of one's score card. The party itself was a huge success but the objective only partially realized.

Our club also has the same percentage of players who can nonchalantly kick the ball into a better lie, cough while an opponent is putting, blame every one that fails to drop on some weed the greenkeeper missed, or in a fit of displeasure wrap a six dollar driver around a tree when the ball sails out of bounds. But it is as congenial, as lacking in dullness and as thoroughly sold on golf as you will find in these forty-eight states. Once a week or almost as frequently there will be an informal "eat together" party on that little porch. When the sun goes down the coal oil lamp is lighted because the utilities haven't gotten out that way yet. So when

Illinois Pros Leading in Free Kid Lessons

CLASS instruction of youngsters gets a boost with the tie-up between the Illinois PGA and the Chicago Park district. After the Chicago Tribune-Daily Fee public golf school concludes, pros of the Chicago district are to give free group lessons to kids at six spots in the Chicago Park system. Boys and girls under 17 are eligible.

Midwestern pros are going strong for this kid instruction business. Harry Cooper has been giving free group lessons at the Glenbard high school and coached its golf team to victory in its season's schedule with other schools in its territory.

Jock Anderson, pro at Techny Fields fee course, has been teaching free a class of from 40 to 60 girls from New Trier High School Saturday mornings. Helen Hicks was Jock's guest co-teacher one Saturday recently.

When you see how these kids are coming out for pros' free class lessons you become confident about the future of golf.

What the pros all over the country are doing in this market development among kids is something that manufacturers must bear in mind when they rate the importance and value of pro trade and then determine what discounts are to be allowed the various classes of golf retail outlets. This market development among women and children through the free group lessons given by pros is doing a lot to balance any beefs manufacturers may have about pro credit in spots.

you city folks want to settle down a bit to enjoy all the intimate pleasure the game itself affords, come to Marysville and we will admit you to our circle.

SHOE PUBLICITY THRU LESSONS

By FRED E. KUNKEL

**Store Offer of Golf Instruction
Attracts Over 700 Pupils**

A PLAN for increasing the popularity of golf and making professional lessons available to all beginners and dubs as well as average players who seek to promote their game, was recently sponsored by The Wm. Hahn Shoe Company in Washington, D. C. It offered a course of golf instruction for men and women, boys and girls, consisting of 6 three-quarter hour

lessons at the public golf courses, by professional golf instructors.

The only cost, a small enrollment fee of \$1.75 which was charged to test sincerity of purpose, covered the full six-lesson course as well as the use of all clubs, balls, tees and necessary equipment. Each pupil signing up and paying the fee could drive 25 or more balls per lesson. The caddie fee was only 10c per lesson.

There was nothing to buy and no obligation. Lesson appointments could be made for mornings, afternoons or evenings, with night hours available on the flood-lighted driving range at East Potomac Park. The enrollment fee was payable at the time of enrollment. No enrollments were accepted at the golf courses but had to be made at Hahn's.

The feature was advertised as for one week only and the first four days found close to 300 enrolled. The idea proved so successful that it encouraged the store to continue the advertising first for ten days instead of a week only, and later this was extended two weeks, because, at the end of ten days, 700 had enrolled and they were still coming. So popular was the idea that there was standing room only in the Hahn store in the afternoons.

Golf clubs were placed around the registration desk by the pros of the different courses who thus tied up with the store, which in turn promoted golf shoes and hose, and golf shoe repairing, so that with a golf display in the store by the pros and a shoe-display at the pro shop by the store, everybody was happy and there was mutual profit.

While the interest of the campaign was largely centered in beginners or average dub players, the enrollment was by no means restricted to that class. Many average and even good players took advantage of the opportunity to enroll and learn more about golf or to perfect their games. Most of the registrants were women, who suddenly conceived the idea of learning the game at little cost. Thus it prompted many who had golf in mind to actually start learning the game for the first time.

Out of the 700 registrants, 40 per cent had never played golf before.

Due to Numerous Requests, Registration Period Extended

THIS WEEK ONLY MEN WOMEN BOYS' GIRLS'



GOLF

MAY RECEIVE
One Course of
6 (¾-Hour)
**Golf Lessons
GIVEN**
By the Professional Golf Instructors
at your choice of
**EAST POTOMAC PARK
ROCK CREEK PARK
WEST POTOMAC PARK**
THE ONLY COST

The only cost is a small enrollment fee of \$1.75, which is charged to test sincerity of purpose and covers the full six-lesson course and the use of all clubs, balls, tees and necessary equipment.

YOUR CADDY
You will drive 25 or more balls per lesson. Caddy fee, 10c per lesson; Six lessons, 60c.

**NOTHING TO BUY—OR SIGN
—NO OBLIGATION**

Lesson appointments may be made for mornings, afternoons and evenings, with night hours available on the flood-lighted driving range at East Potomac Park. The enrollment fee is payable at time of enrollment. All enrollments must be made this week at the registration desk in the Hahn Shoe Store, 14th & G store only. They have kindly granted space for that purpose.

No Enrollments Accepted at the Golf Courses

**NO CLUBS NEEDED
CLUBS---BALLS
TEES---ETC.
FURNISHED**
Without Further Cost

**ENROLL
NOW AT**

Wm. Hahn Co. 14th & G only

SPECIAL ATTENTION GIVEN LADIES

GET YOUR OWN GROUP TOGETHER

THE PATH TO PERFECT FAIRWAYS

By KENNETH WELTON

THERE is an increasing demand throughout the United States for better fairway turf and I am sure this applies to Canada also. On many courses there must be a decided improvement in fairway turf to keep up with the high standard set by the putting greens.

The demand of the golfers for a uniformly thick, colorful, and weed-free turf on fairways will in time result in the development of means of obtaining such turf under almost all conceivable conditions, and ten years from now golfers may be as fussy about the condition of the fairway turf as they have become about putting green turf. However at this time there are still many clubs that welcome clover and low growing weeds on their fairways, as without them there would be much bare ground. There are entirely too many clubs compelled to resort to the use of winter rules in the fairway even during some of the best golfing months of the year.

Until recent years the majority of clubs considered that the condition of the fairways was governed mostly by the weather conditions. There was also a belief that it took a great many years to finally obtain a decent ground cover. Granting that the weather is an important factor, those interested in fairway improvement have not been content to sit back and leave the fairways to the mercy of the weather but have found there are certain ways in which we may help the grass survive poor weather conditions and take the maximum advantage of good weather. It has also been demonstrated in a convincing manner that in this country it is very disappointing to wait for age to improve fairways. And it has been repeatedly shown that turf may be close to perfect the first year.

Table Number 1 shows the average turf ratings on a number of gardens planted in various sections of the country. We will refer in more detail to this table later but at this time I wish to point out that two of the plots received higher ratings the first year after planting than any of the plots received during the four following years. The table shows that these plots rated higher the first year than any plot the fifth year, and higher than the five-

year average of any. These results contradict the idea some have that it takes many years to obtain a good fairway turf. These results also show clearly that the fertilized plots are much superior to the unfertilized.

Another point which should be referred to here is that the two complete mixed fertilizers and the sulphate of ammonia rate first, second and third the first year, and since the complete mixed fertilizers obtain their nitrogen from sulphate of ammonia and ammonium phosphate it is indicated that readily available nitrogen is necessary for the best development of the turf during the first year. The two complete mixed fertilizers contain available phosphorus and this is no doubt responsible for placing them well above the sulphate of ammonia which contains none.

Time of Seeding Important

Most golf clubs are handicapped in respect to fairways during the construction period. Many fairways get a poor start because they are seeded at the wrong time of year. Spring has until comparatively recent years been considered the best time to seed northern fairways but observations and experimental results have shown conclusively that fall planting is to be preferred. Most root growth is made in the late fall and early spring which enables the grass to make rapid growth in the early spring and form a thick turf to compete with spring and summer weeds and to withstand the heat of summer. Too frequently fairways are seeded without any intelligent effort having been made to rid the soil of weeds, to improve its structure, and to supply the necessary plant food elements in which it may be deficient. Lime and phosphorus are two very necessary elements both at planting time and later for the best development of grass. They do not readily enter the soil once it is firm and in turf, so it is advisable to apply them at construction time when they may be mixed with the soil.

Before planting, the soil should be brought up to neutral in reaction if possible. This would provide a supply of cal-

It is not too early to begin thinking about the fall fairway improvement program. This article is the first of two by Mr. Welton; the second will appear in our August issue.

cium for years. According to some results it is advisable to apply at least 200 pounds of superphosphate or its equivalent at planting time and on soils running less than 75 pounds per acre of available phosphorus as determined by the Truog method, two or three times this amount could be applied to advantage. Plenty of nitrogen should be applied at construction time. As much as 1,000 to 2,000 pounds per acre of a fertilizer running from 5% to 7% nitrogen should be applied. If organic fertilizer is being used, it is advisable to also apply several hundred pounds of some inorganic nitrogen fertilizer such as sulphate of ammonia, so that there is sure to be a supply of soluble nitrogen for the seedlings. If the soil is low in phosphorus, ammonium phosphate could be substituted for sulphate to advantage.

Will Soil Support Thick Turf?

I should like to impress upon those that are interested in planting fairways the fact that no effort or expense should be spared in order to procure a heavy dense stand of grass immediately following seeding. Many fairways are planted on poor waste land and if a uniform thick catch is not obtained when the fairways are planted it may require extreme methods to obtain a uniform and weed-free turf later. Some soils such as clays and silts quickly settle into a more or less puddled condition and it becomes increasingly difficult to get new grass started in the thin and bare areas. If plenty of fertilizing materials are incorporated in the

soil before planting a heavy catch may be obtained on even the poorest soils. Once a poor soil has a dense ground cover and plenty of food for the immediate use of the young plants the turf prevents erosion, weed invasion, and is able to hold and build up the organic matter of the surface soil by the return of the clippings and by root decay.

Concentrate Care On Heavy Play Areas

Having stressed the importance of proper fertilization and care at construction time we may now consider the maintenance of fairway turf. There are certain areas of the fairways from which the greatest number of shots are played and if a club can not afford to give its complete fairway area the required treatments it may find it possible to at least treat the areas where the treatments will be most effective from a playing standpoint. The rough should be left as poor as possible since the less fertilizer applied to the rough the less grass there is to cut and the less expense for maintenance. Weed control in the rough should be done where necessary with weed control chemicals of little or no fertilizing value. The rough should of course be sufficiently smooth and free of obstacles for the type of play but the thinner the grass the more likely it is to exact a fair penalty and the easier it is to find a ball in. The area for 125 to 150 yards in front of the tee should be kept as rough.

The fairways should be tested at least every few years and if it is discovered that they are becoming too acid or too low

TABLE 1—FAIRWAY FERTILIZER RATINGS

	% Perfection Year After Planting	% Perfection Five Years After Planting	% Perfection Five Years' Average
6-12-4	78	69	69
12-6-4	74	67	66
Activated sludge	62	69	65
Bone meal	60	66	63
Sulphate of ammonia	65	56	57
Manure	51	54	51
Lime	45	54	49
Check (no fertilizer)	40	46	44
" " "	41	41	41
" " "	44	35	40

in phosphorus these elements should be applied. In areas where perennial northern grasses such as Kentucky bluegrass fescue and colonial bent make up the fairway turf, it is safest generally speaking to keep the pH from dropping below pH 6. But there are some soils such as the black loams around Chicago which show a neutral or slightly alkaline reaction and yet give a decided stimulation to grasses during drought where lime has been applied. Therefore it is good practice to apply lime at the rate of one ton per acre to one or more parts of the course as a check area, and if over a period of time good results are obtained the whole course could be limed to advantage. Because it is difficult to get lime into the soil it is best to apply it during the winter so that it may enter the soil while the soil is cracked and heaved due to frost. In areas where the frost does not affect the soil to this extent the fairways could be disked with a straight disk in order to allow the rain to wash the lime into the soil.

Results of tests indicate that phosphorus should be supplied if the soil tests less than 75 pounds of available phosphorus per acre. Although phosphates, such as may be got in the form of superphosphate or with nitrogen as ammonium phosphate, are soluble still these phosphates become insoluble in the soil and seldom seep into turf-covered soil more than an inch or two before they become fixed in an insoluble form. Therefore if the soil requires building up in phosphorus and it is decided to apply phosphates it would be advisable to aid its entry into the soil and hence its contact with the roots by cutting the fairway in several directions with the straight discs or spiking machines.

Nitrogen Is Major Turf Need

Nitrogen is required for grass growth more than any other fertilizer. It is required for all green growth of the plant such as the leaves and stems and is also used in the roots and other parts of the plant. Analyses of grass blades have shown more than twice as much nitrogen than any other fertilizing element. Nitrogen being soluble is continually being lost from the soil not only by the plant requirements but by leaching away in the drainage water. It cannot be stored up in the soil for years ahead like the insoluble minerals such as phosphorus and calcium.

Potash is also necessary for grass growth but as most northern clay or silt

soils seem to contain all of this element necessary for the luxuriant growth we will not consider it here.

Before leaving this discussion of the necessary fertilizing elements for grass growth I would like to make it perfectly clear how none of these elements may be lacking for maximum turf production. If nitrogen alone is fed and the grass lacks phosphorus or lime it will for a time grow tall and green but the development of new shoots and new plants will be much restricted so that in time the turf becomes thin even though the remaining plants will be dark green in color and will require frequent mowing. If phosphorus, lime or potash alone are applied or all three, but no nitrogen, the grass may grow well for a short time but probably before the season is over it will become thin and starved and clover and weeds will replace the grass and ruin the turf.

Don't Fear Clover Domination

At this point I should refer to the fear of some that applications of lime and phosphorus will ruin fairways by bringing in clover and weeds. This fear has been created because in agricultural practice clover is stimulated by applications of lime and phosphorus. Also tests, where either lime or phosphorus alone have been applied to turf year after year, have resulted in the ruin of the turf and a great increase in clover and weeds. But it must be realized that clover is a legume and as such has the ability to absorb nitrogen from the air to convert to its needs. Grass cannot take nitrogen from the air and hence is dependent upon the supply in the soil which it must absorb through its roots. Hence if the grass growth is restricted by lack of nitrogen the clover having all the nitrogen it requires, and if given in addition ample lime and phosphorus, will supersede the grass. Tests especially of more recent date have shown that when an abundance of nitrogen is present, there is no danger from either clover or weeds from the use of phosphorus or lime and the grass makes it best growth with all three elements present and is able to compete with and even crowd out clover and weeds.

What Test Plots Showed

In Table 1 the sequence of fertilizers has been arranged in order of the five-year average. The results of this experiment have been given in the Green Section "Bulletin" and GOLFDOM but I use them again here to illustrate some important