Bulletin *of the* Green Section *of the* U. S. Golf Association

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A MONTHLY PERIODICAL TO PROMOTE THE BETTERMENT OF GOLF COURSES

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Annual Meeting of the Green Section January 4 and 5, 1924

The annual meeting of the Green Section was held at Hotel Astor, New York City, with sessions in the morning and afternoon of January 4 and a morning session January 5. Mr. Findlay S. Douglas, President of the Metropolitan Golf Association, presided. The attendance at each session was over 200. Great interest and much enthusiasm were displayed. An elaborate luncheon was served January 4. Mr. P. D. Maxwell, of the Dornick Hill Country Club, Ardmore, Oklahoma, was elected to a vacancy on the Green Committee of the United States Golf Association. The officers of the Committee for 1923, and also its executive committee, were re-elected for the year 1924. The following addresses were delivered at the sessions:

Opening Address. President J. Frederic Byers, United States Golf Association.

The Vegetative Planting of Putting Greens. Illustrated with colored lantern slides. Prof. Lyman Carrier, Green Committee, United States Golf Association.

Drainage. Wendell P. Miller, Agricultural Engineering Department, Ohio State University.

Watering the Fairways. William F. Brooks, Minikahda Club, Minneapolis.

The Soil Foundation of a Putting Green. Frank B. Barrett, Hollywood Golf Club.

The Experiences of a Green-Committee Chairman. H. Kendall Read, Country Club of Atlantic City.

The Japanese Beetle. B. R. Leach, United States Department of Agriculture, Riverton, N. J.

The Brown-Patch Disease. R. A. Oakley, Vice-Chairman, Green Committee, United States Golf Association.

Preventing the Seeding of Crab Grass. Robert Scott, Baltimore Country Club.

Bermuda Grass and Its Strains. P. D. Maxwell, Dornick Hills Country Club, Ardmore, Okla.

The Chicago Green Section and Its Work. Leonard Macomber, Active Chairman, Green Section, Chicago District Golf Association.

How the Green Section Helps the Golf Clubs. George Low, Baltusrol Golf Club.

The Green Section; Its Needs and Its Opportunities. C. V. Piper, Chairman, Green Committee, United States Golf Association.

We are able to publish a few of these addresses in this number of THE BULLETIN; the remainder will appear in early issues.

The Green Section is greatly indebted to President Wynant D. Vanderpool and Executive Secretary T. J. McMahon, of the United States Golf Association, and to Messrs. Findlay S. Douglas and Frank B. Barrett, of the Metropolitan Golf Association, for their spendid work in making the meetings so great a success.

Does your greenkeeper get The Bulletin? If not, see that his name is on the mailing list. He is the man who needs assistance. Any member club may obtain any number of additional subscriptions for The Bulletin, for use in connection with the work of its own club only, for $2 per year.

Opening Address of President J. Frederick Byers

Annual Meeting of the Green Section, January 4.

The officers of the United States Golf Association are very proud of this remarkable movement which has been inaugurated by the Green Section. A little over three years ago it was a wonderful conception of Dr. Piper's, who, with Dr. Harban and Prof. Carrier and Dr. Oakley, started this movement, which was then more or less of an experiment. Little did we think then that in less than three years the Green Section would attain a membership practically as large as that of the United States Golf Association; but today this is the fact. The reasons for this are many; but I think one of the main reasons is the fact that the golfers of the country have come to realize the tremendous economic value of the information given out by the Green Section. It is difficult to estimate the saving and the economic value of its work, but its steady growth proves that the golfers of the country, the green committees, and the greenkeepers have come to realize its tremendous value. I would just like to read a section of the report of the Executive Committee of the United States Golf Association to be presented tomorrow at the main session. This is submitted by Mr. Alan D. Wilson, Chairman of the Committee on the Green Section:

"The Committee on Green Section report that during this, the third year of its existence, the membership has increased from 550 to 647 clubs and is now practically on a par with the membership of the United States Golf Association.

"The proposed cooperation with the Department of Agriculture for experimental and research work has been accomplished, the United States Golf Association contributing $3,500 a year to the Green Section funds for that purpose.

"The hoped-for field service has been established, and has proved so popular and resulted in so many requests for special visits that it is feared it will unduly increase the expenses of the Section. In view of the fact that for geographical reasons this service can not be given to all member clubs, it is thought the fairest method will be to arrange some plan by which the clubs which demand and receive this special service will pay for it. Routine visits of inspection will, of course, be made as heretofore without charge.

"During the year 12 numbers of THE BULLETIN, of 2,000 copies each, have been issued, 162 inspections have been made of the courses of member clubs, and the number of district Green Sections shows a gratifying and constant increase.

"We would like to call the attention of the member clubs to the unselfish service of the three men in the Department of Agriculture who have made the Green Section possible, Professors C. V. Piper, R. A. Oakley, and Lyman Carrier. For three years these men have edited THE BULLETIN, made hundreds of inspections, solved many problems, given much advice, answered innumerable inquiries, and discovered and made practical the vegetative method of planting bent,—and all this without remuneration of any kind, with no hope of reward except in their opportunity to spread the doctrine of good turf and in the chance to teach the clubs of this country how fine turf may best be secured and maintained.

"The practical results accomplished in the improved condition of golf courses and the rise in the general standard of maintenance in the past three years are the best proofs we can give of the immense debt of gratitude we owe to these men."

I think Mr. Wilson has really expressed, in that short report, all that I could say. But I do wish to say, on behalf of the United States Golf Association, that I think the golfers of the country owe to these gentlemen, Prof. Piper, Dr. Oakley, and Prof. Carrier, a debt of gratitude which can not be expressed in words; and I would like to say personally that I can not tell them how much we appreciate it in our committee.

I am very glad indeed to see such a large turnout here today, and I wish all the luck in the world during the coming year to the Green Section.

The Experiences of a Green Committee Chairman

Address Delivered by H. Kendall Read, of the Country Club of Atlantic City, Before the Annual Meeting of the Green Section, January 4, 1924.

Mr. Chairman and Gentlemen of the Green Section: When Dr. Piper wrote me asking me to speak on this subject, I made up my mind that they were indulging in a chuckle down there in Washington, because I felt that if any man was qualified to speak as a "green" committee chairman, I was the man, as I do not think anybody was ever any greener than I was a few years ago when I started in with this work.

I got into green committee work very unexpectedly. The Country Club of Atlantic City, I guess, is no different—no better and no worse—in the way in which it has been run than many of the other golf courses throughout the country. The green committees of the past have been recruited from the members of the club—good players, or men who had considerable to do with its management or were interested from a financial standpoint. But the green committees were just the usual green committees, and there was no particular effort made to blaze any new trails or to change any old systems; and they just simply went along.

I was put on the committee first as a member. And, by the way, I am not speaking in any boastful sense, but simply because I have been asked to give my own experiences. I shall not give you all my experiences, because that would be too funny.

We have had all sorts of stormy times, as you always have when you try to break new ground and change old methods. The chairman that year (two years ago) sent down from his office to my home in Atlantic City everything he had relating to green committee work—maps, estimates on different work that was to be done and in course of construction and various plans submitted by different prominent architects as to changes in the course here and there; and with this came the curt advice that I was to go ahead and run the course.

I am reminded of a story of a farmer who was working in a field, and suddenly from a road hard by, a cloud of dust flew up, and he heard the sounds of a fierce struggle going on; and he was naturally interested. He left his plow and ran over to the fence, and, looking down the road, he saw a fellow farmer holding desperately on to a very wild ram—holding on by the horns, and he was having a fierce time of it; and, being friends, the farmer said, "Do you want me to come there and help you hold that ram?" And the friend replied, "Not much; but come here and help me let him go." That was just about my experience; I had a ram by the horns, but had no way of letting it go. I started out to get some information; and there is where the fun began.

Fortunately, we had had audits of our accounts made regularly over a period of years, and I got from the auditing concern reports for the two years previous as fully itemized as I could get them, separating all

the different items that go to make up the greenkeeping budget. That was rather interesting. There were two items on this list of expenditures that stood out very prominently. One was labor, which, of course, is always a big item in green committee work; and the other was grass seed. We had bought lots of seed. The year before, the seed bill exceeded $4,000. We have 27 holes, by the way, and they used seed very generously, according to that statement. However, they had some excuse, because in the past they had been acting upon advice that had been given to them by "experts." Among the things that were sent down to me by the chairman was a report written by a very prominent seed expert connected with a well-known seed house, and that report is interesting reading. Just last night I copied one paragraph which is especially interesting in the light of present-day information. That report is dated September 30. I will read one paragraph of it. This is a kind of summary:

"However, to get the full benefit of this seeding, the greens should be prepared and seeded down within two weeks' time, and it is quite possible to get the young grass up strong enough to allow you to come right back in November with the winter seeding and another dressing. This will give you a good start early in the spring."

That meant 100 pounds of seed to a green—the first 50 pounds the middle of September and another nice generous dose about the middle of November. I can easily see how, acting upon such recommendations, that they could spend $4,000 for seed very readily in the course of a year.

Time for the spring seeding was coming on, and I was as green then as the grass out there. It was suggested that we should prepare for this seeding. I asked where we had been buying our seed, and was told that it was from a reputable house. I was advised that we ought to have 50 or 60 pounds to a green. We had 27 greens, and it was not hard to figure that out. We cut it down to the very low figure of 50 pounds to a green; and not having any more information than I had at that time, I bought it. No one could tell me the kind of seed we had been using on our fairways or greens. They were simply mixtures prepared by the seed house. Then I hied myself to the office of the manager of the seed house from which we had been buying, and asked him what seed he had been selling us, what formula they were giving us for our fairways and our greens. He started looking through some archives but could not find it; no doubt it was there, but he could not put his finger on it. I asked him to get it for me. He said, "I will phone up to the foreman of the warehouse, who makes up the orders." He did that, and I finally found out, after a very tedious hunt, what we were paying that $4,000 or $4,500 a year for—I am ashamed to tell you what it was; I am not going to (laughter). I have learned some things since then, and there is a limit to credulity, and I don't propose to test yours.

While talking to this seedsman and asking him questions (I was after all the information I could get), I noticed that he would reach up to a shelf and pull out a volume he had up there; and he did this so often that I made up my mind that this must be a very valuable book—kind of a bible. I finally got up my nerve and said, "Will you let me look at that book?" And he handed it to me, and it was a book by Flint on grasses, written in 1857. He considered it most valuable, and thought it reliable. But he could not tell me where I could get a copy, it was too long out of print. Finally I managed to get one at Leary's Old Book Store. And I found that the way they distinguished the grasses in that book was by the flowers (laughter). They had to wait until a grass grew long enough to

blossom (laughter). I could not see where that was going to do me much good on our golf course.

I remember that just about that time I bumped into a book written by Piper and Oakley. I got a copy of that in Wanamaker's. As I was passing through the store I met a prominent golf man in our locality, and said, "I have here a book by Piper and Oakley on grasses." He shook his head and said, "Well, you want to go a little slowly." He was an older man than I, and had a fatherly interest, I imagine, in my early struggles. He said, "You know, there is a lot of experimental stuff being pulled off these days; but you don't want to get far off the old well-beaten path that has been tried out and is known to be sound. That book is all right, but I would not put too much credence in it." I went home with the book and used it religiously up to the time the BULLETINS came out, and I have been using them ever since.

About that time I heard that there was such a thing as a Green Section in Philadelphia. There was a local section there, and our course was not a member, and I immediately took steps to see that we got into it.

There was a meeting held shortly after that and Dr. Oakley was the speaker of the evening, and I remember that that was the first time the term "vegetatively planted greens" ever tickled my ear. I was sitting by a man who I knew had been chairman of the green committee of a prominent club for many years, and I listened as long as I could without showing any undue disrespect, and then I asked this man alongside of me, "What the devil is he talking about?" And he answered, "I am damned if I know."

Now that is about the situation, I imagine, in which a great many of us have been. This is new stuff, and I think a great many people are somewhat timid about going ahead and trying it out. We tried very hard to get Dr. Oakley to come down and look over our course. He asked me to write him about our troubles, and said that they would give us what help they could. We told him that this was no case for absent treatment. We said, "We are in real trouble here, and we want some real help." After plugging him with a good many letters, Prof. Carrier finally made us a visit.

At that time we promised Prof. Carrier that whatever recommendations he would make to our club, or the Green Section would make to our club, would be carried out 100 per cent. If he told us a certain thing was desirable to do, or if the Green Section told us so, we would not fiddle about it or monkey with it, but would do it absolutely, as far as we were able; and I believe that is a very important thing, gentlemen. I think that if you are tied up, as you ought to be, with the Green Section, you should take advantage of the data which they have prepared and the published results of their researches. I do not think you should take it in any half-hearted fashion. If you intend to go along with them, you want to go the whole route; and you will not be very far wrong if you do.

After Prof. Carrier had been there, we started a bent nursery, and after that we put in another one and we have had them going since May of 1922; and we ourselves have put down eight vegetatively planted bent greens. We had 13 greens, built a few years ago, which were not very good; but now we have vegetative turf on eight of those greens. Gentlemen, we are sold on the vegetative green; there is nothing in the world to compare with it. Some of those greens that we put in are the prettiest pieces of turf, I think, that any one could possibly get—absolute uniformity of color, texture, and growth. You have just one kind of grass; and after

you have a vegetative green of creeping bent, and have had the pleasure of working with it and developing it, I do not think you would be satisfied with anything else. These greens, if properly planted and taken over the initial stages, require less work and upkeep than any other piece of turf you could have. We will never put any other kind of grass on our greens but bent, and by the vegetative method. We grow all our own grasses; all the strains that we have, we have gotten from our own turf. We grew three strains in the nursery beds, and we put down every one. We singled out one as the most desirable, and all our future work will be confined to the use of that one grass.

Now I want to tell you something about that. We found that grass in front of a tee which had been tramped over for goodness knows how many years. Still it looked good, was bushy and close-jointed, and had all the earmarks of a good bent. We started to take it up—Prof. Carrier was there that day, and we got a spade to get a little sod. We started to dig with that spade, but we could not make any impression on it. Then the groundman finally got in with his No. 10, and kicked on it; and finally, gentlemen, that spade buckled up and bent. The only way we could get that sod started was by edging in with another spade down at the corner of it, and in that way we got through that turf of bent. I have never seen such tough, resistent stuff in all my life. There was a mass of runners that were at least 1¼ or 1½ inches thick—just one solid mass. You could take a two-inch strip at the top and tear it down the whole length, just the same as you would tear a strip of linen, and it would keep its width absolutely uniform all the way down. You could shake the dirt away from that two-inch strip, and with the runners that were left you could tie it into a double knot like a piece of string, and then untie it, and it remained the same. I do not believe there is a man in this room who could have taken that two-inch strip and have broken it with his hands.

Now, that is what bent can do. That is what bent did do in this particular instance. I wish we had that all over our fairways.

When we took the tops off the old greens to replace them with this vegetative bent, some very interesting things developed. We came to our old friend, Brother Humus. These greens had been treated according to instructions, and they had been given liberal doses of humus, and when we took the sod off you could hold it up and count the applications of humus that turf had received. There it was, in its original form—that pasty, putty-like layer, which never had amalgamated or lost its identity; it had not worked into the soil at all. You could read the history of the applications of humus by the layer-cake lines. If you tore the sod apart, you would find that the roots of the grass would go down to the first layer of humus, and then curl up like a sick chicken. We have never bought a pound of humus since then; we do not believe in it—certainly not put on in that way, at any rate.

Now, just a word or two about vegetative planting. I do not want to repeat something that has been said, but in planting our greens vegetatively I made up my mind that one of the essential things was keeping the stolons moist, and I thought that if water was good on top of the stolons, it was good underneath. Before we plant the stolons on top of the greens, we always water the greens. In other words, we get a moist bed to put them on, and then water them immediately after the top-dressing is put on. We are on sandy soil, although the top soil of our greens is from our own compost, which is pretty good suff. No. 4 green on our regular course we planted late last spring. We had things ready in the late afternoon, so

we planted about one-quarter of that green late in the day. Then we stopped. It was right near the bent bed, and we simply took the bent up as we needed it. We finished our planting on that green the following morning. There was only a difference of 12 to 15 hours in the planting time between the first quarter and the last three quarters; but it looked to me as if there were almost ten days or two weeks difference in the growth of those two sections of that green. In other words, the quarter that was planted in the late afternoon, when no sun hit it, showed a tremendous difference, and made a much earlier start than the grass that was planted the following morning, which was a hot, sunshiny day, and where, even in spite of frequent waterings during the day, there must have been considerable evaporation and consequently more or less drying-out of the stolons. The quarter of the green planted the latter part of the day so far outstripped the balance of it that there is no real comparison; it was the same grass, planted by the same men, the same machinery used, and the same methods employed, the only difference being in the time of planting.

Now, composting. We do not lose anything in the way of material for composting. We save all our green clippings, all the leaves raked out of our somewhat scanty woods, pine needles, and so forth; and nearly everything that we have goes into the compost pile. We have used a tremendous amount of top-dressing. There was a tract of land opened up alongside of us for building lots, which had been a good farm, and we made a contract with the men who were doing the street grading for the use of the top soil. I think we got about 4,000 cubic yards of pretty good top soil off of that farm. I am such a firm believer in top-dressing and compost that we do not lose any opportunity at any time to get hold of material of that character. On top of that we spread 80 tons of manure that we had bought at a farm sale. We have used in the last two years 35 carloads of mushroom soil on our fairways; but with all that soil, with the thousands of cubic yards of compost which we have acquired, with all the work that we have done in building new greens, with the multiplication of tees, and with the enlargement of old ones, we have spent less money than we spent before.

The biggest part of our saving probably was in seed. They used to spend $4,000 or $4,500 for seed; but if they sell me $500 worth now, I feel that I have been stuck. The only seed we use is bluegrass with a little redtop for the fairways and tees. We have not put a grain of seed on our greens for a year and a half. I kept that a secret for a while, because I was afraid I would be ordered shot at sunrise, by the members of the club; but our greens have never been in such fine condition before. The bents have come in fast; the clover has largely disappeared. Of course, we use ammonium sulfate; we believe in that as a fertilizer; and the greens have had four doses during the season. The ammonium sulfate surely did wonders for those greens. Where before you had to look for the bents, now you can not look anywhere without finding them. Beside the 35 carloads of mushroom soil, we have used about 75 tons of clay. We got that from a brickyard near the club. They have a stratum of soil which they get into before they reach the brick clay, and for us it is fine for composting and top-dressing; it is a kind of sandy clay; it is not pasty or thick, and we do not hesitate to put it right onto the fairway just as it comes.

In putting on mushroom soil, we use a chain harrow. We could not live without this tool We chain-harrow our fairways; we put the mushroom soil on, and chain-harrow it thoroughly. We put in our seed, and chain-harrow it again. Then we roll it in two directions. We find you can dress a fairway in that way, with a generous application, and there is not

much objection from the members. There is really little inconvenience, if you do it that way.

We never handle material twice; we always haul it directly from the car at the railroad siding to the fairway on which we are going to use it.

The Country Club at Atlantic City has become famous for several things, but for nothing, perhaps, any more than the multiplicity of its artificial bunkers and mounds, all of which mean hand work. We had literally hundreds and hundreds of those abrupt mounds on our course—sharp little pockets and cops; and I suppose all of you have some of them. We had one cluster of 64 cops. You put a man in there working on Monday, and he is still there on Friday. Now, that is all nonsense. We wonder why we have to spend so much on upkeep; but we are right now getting rid of all that, and you will not know our course when you come down there again. We have simply gone in there and ripped all that junk out from stem to stern; removed all of those abrupt mounds and all the old cross-bunkers, and we are now rid of all that crazy stuff. We had 145 of those things on one hole. That is a fact. We will not build a single mound anywhere which you can not drive a team of horses over with a mower or chain-harrow. In other words, we are through with hand-labor, so far as we can eliminate it. There is where your big item of upkeep comes in, as I see it.

We are doing something else that may interest you. At the present time we are going in between the fairways of parallel holes, and turning it all into a rolling sandy waste, with no grass, no upkeep. That is what the Green Section has been pleading for; and we can do that down in our sandy country. It is really beautiful, and it is easily kept up; and when we want to shake it up a little, we can drive a chain harrow over it. There is nothing that we are building at the present time on which we can not use a horse or power machinery. We are building four new greens and abandoning four others, and everything we are doing is always with an eye to cost of upkeep.

I have taken up too much time already, I am sure. I have simply been rambling along. There is just one passing thought that I want to leave with you, and that is that the Green Section deserves full credit for whatever we have been able to accomplish at the Country Club of Atlantic City. When I started in I didn't know any more about turf than a child knows. Information on the subject was practically nil; and I never found any really reliable information until I found the Green Section; and when I did find it, I tied right up to it 100 per cent, and the results down there that we have been able to bring about through this connection have been so satisfactory to the club that the Board of Governors are generously supporting us at the present time in all these new improvements. Without the Green Section these results could not have been accomplished.

New Offices of the United States Golf Association in New York City

The executive offices of the United States Golf Association have been moved from 55 John Street to Room 712, Bowery Savings Bank Building, 110 East 42d St., New York. Mr. T. J. McMahon, the efficient Executive Secretary of the Association, will be in charge at the new location. A cordial invitation is extended to all persons interested in golf in any of its features to visit and inspect the new offices.

Bermuda Grass and Its Strains

Address of P. D. Maxwell, Dornick Hills Country Club, Ardmore, Oklahoma, at the Annual Meeting of the Green Section, January 5.

Mr. Chairman and Gentlemen, it gives me a peculiar pleasure to substitute for as distinguished a gentleman as Dr. Hinman, of Atlanta, who has been as much to our southern golf as some of the other leading lights of the Green Section have been to your northern golf.

I have had a somewhat interesting golf experience. Twenty-seven years ago I had a breakdown in college, and was sent to the semi-arid regions of the west to recover from tuberculosis. At that time, 1897, I went to what is now Oklahoma; it was then Indian Territory. I do not believe there were then five golf courses in America west of the Mississippi River. There were not over 50 east of the Mississippi River, or in the whole country, probably. Surely there were none within 500 miles of our section of the country. It was the last place in the world that any one coming from the home of golf, Scotland, would select for a golf course, because golf is a game played on grass; and Oklahoma is a short-grass country, very short grass, with none of the finer varieties—bluegrass and bents. If you would use those terms on the average golf course in the south today they would think you were talking Russian. But with civilization coming nearer to us all the while, in 1907 we were given statehood and in 1913 the ways of civilized man penetrated into our wilderness, and a few of us, at least, had heard of golf. Reading an article in Scribner's Magazine, written by Mr. H. W. Whigham on the establishment of the National Golf Course near Southampton, Long Island, in this out-of-the-way place in Oklahoma I said I thought golf was just a game for the effete, and I wondered if it was possible to have a golf course in our part of the world. That article was very attractively written, and described the National Golf Course from a landscape standpoint as well as a test of golf. My wife was the artist of the family. It was she who found this article, and she said, "I wonder if that thing could be adapted to this section of the country. We have a beautiful piece of ground out north of our city, and I wonder if it could be adapted to golf?" I do not think either of us had ever seen a golf course before. That was in 1913. Well, I began making inquiries, and they said yes, there were a few golf courses in north Texas. I visited them, and they all had sand greens. I wonder how many of you have ever had the displeasure of playing on a sand green. That was all we had in that part of the country.

I first wrote to the Department of Agriculture at Washington, and at that time we did not have the efficient Green Section that we now have, and it was rather scant information that we got. They said, "We are afraid you are a little too far south for bluegrass and a little too far north for Bermuda." So there we were between the devil and the deep blue sea.

I then made a trip through the southern country, visiting the few Bermuda green courses in the cities of Houston, New Orleans, Atlanta, and in Florida, and I found that was all that we had to go on, that we must have Bermuda grass if we had anything. But there was a dearth of information, as there seems to be all over the country now, in regard to grass. No one seemed to know much about it. They would tell me how to plant it and how to top-dress it, and how to bring it out, and all this and that, but they were overlooking what I now think is the most important thing with respect to grass, either in the south or in the north, and that is the selection of the particular strain to propagate.

The vegetative method is very old in the south. Until a few years ago that was the only way we did propagate Bermuda grass in our lawns; that is, by taking roots from one yard and transplanting them into another. The matter of seeding Bermuda grass came in only comparatively recently, as seed is now being produced in Arizona and New Mexico, but never in Mississippi or Louisiana or farther eastward. In 1915, as I say, I made this trip through the south, and then came on east. I walked right into Mr. R. C. Watson's office, who was then occupying the position to be held by Mr. Vanderpool, and told him I was just a seeker after knowledge and would like to have the privilege of visiting a few of the eastern golf courses, having no social connections or acquaintances in the east; and he very kindly gave me a letter to a dozen or more of your prominent courses, and I visited them.

At that time I would say to the average greenkeeper I found in the east, "What kind of grass is this?" And he would say, "I don't know what it is." And he did not know what it was. Many of them would just say, "Bluegrass." The idea that I am trying to get over to you is how little they knew about this complex problem, as Dr. Piper has reiterated time and time again, and we are still in the elementary stage. The only way to get these problems solved is by enthusiasm. The information that I have gained has been by traveling over practically all of the southern country.

It remained for the Green Section to really point out to us what was the trouble with our southern grass, Bermuda, namely, that there were different strains of it. After visiting practically every golf course in the south, over a period of five or six years, no one ever told me that there were different kinds of Bermuda grass, and I ought to have known it, by looking at my own greens, because by one look at the ones I planted three or four years ago I can now see that they are spotted as much as this rug on which I am standing. I do not believe that 20 per cent of this audience even really appreciate the idea of selective strains—how important it is, what it has done in the last four or five years for the betterment of our greens, and what it will do under the guidance of scientific men such as those in the Green Section. Last evening I scratched down a few remarks, but I do not know whether I should impose them upon you or not. When I re-read my notes this morning, I said, "They sound as if I had copied them or made a stenographic report of Lyman Carrier's remarks here yesterday morning." So I do not think I will impose these remarks upon you.

The main idea I want to get to you, is that of proper selection. In my opinion, the most important thing which has occurred in the development of American golf is the discovery of the vegetative method in the propagation of the bents and the subsequent and continued selection of the finer strains of this variety. I do not believe any considerable part of my audience appreciates the magnitude of this discovery and its effect upon the future of your greens. Bermuda grass is much like bent; it is a creeping grass, and will grow fairly well in almost any soil, but better in sandy loam with clay subsoil, and still better if plenty of manure is mixed with the subsoil. I know the vegetative method is going to revolutionize the development of Bermuda grass, and therefore southern golf; and that is the real object of my remarks.

I have come as a self-appointed representative of the southern section, to express our gratitude for what the Green Section has already done for us, and to ask that you may, if possible, give our southern courses the

same careful attention and study as you have done so notably in the development of the bents (applause).

(At the conclusion of Mr. Maxwell's address, Dr. Piper furnished the following additional interesting information on strains of Bermuda grass.)

DR. PIPER.—Mr. Maxwell's paper reminds me of a letter I received a few days ago from a gentleman who had heard about "Atlanta" Bermuda grass. He wrote, "I think you fellows are all off; I have just been down to Atlanta and they don't know anything about it." He added, "Bermuda grass is Bermuda grass." But he wrote me that he had been at the East Lake Club at Atlanta. That is one of the courses I have never had the pleasure of visiting. I wrote back, "If you had gone to any other golf course in Atlanta you would have found out all about Atlanta Bermuda." Now some six years ago we got together about six strains of Bermuda grass and grew them in plots, and they were very, very different indeed. One of them, from Manchuria, China, was the best of the lot, and yet, was not particularly good. Ordinary Bermuda will make pretty nice turf on clay soil, but on sandy soil very poor turf. Later I found that in Atlanta on many putting greens there were two very different strains of Bermuda grass, one immeasurably superior to the other. I called Dr. Hinman's attention to it on his course. As a result his greens are now nearly pure Atlanta Bermuda, which is infinitely better than any other strain I have yet seen. This Atlanta strain of Bermuda grass is a big advance over ordinary Bermuda.

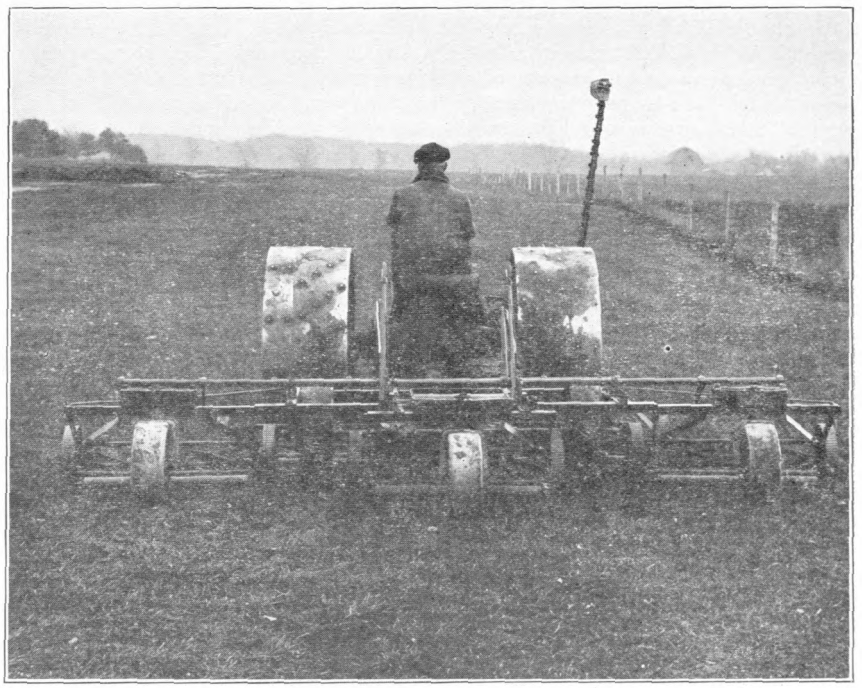
DEATH OF JOHN M. INGLIS

It is with regret that we announce the sudden death of Mr. John M. Inglis, the faithful greenkeeper at the Country Club of Virginia, Richmond. Mr. Inglis was well versed in southern turf problems, having been for a long time in charge of the course of the Country Club of Montgomery, Alabama, and later of the Savannah Golf Club. While at the Country Club of Montgomery he developed wonderful Bermuda grass putting greens, which gave him a national reputation. From Savannah he went to the Country Club of Virginia, about three months since. During this short time those in charge of his work at Richmond became wonderfully impressed with the remarkable efficiency he displayed in his chosen work. His death is a loss to American greenkeeping.

GREENKEEPERS' REGISTER

The editors of The Bulletin will be glad to receive letters from greenkeepers seeking employment and place such men in touch with golf clubs needing services of greenkeepers.

New Member Clubs of the Green Section.—Spring Lake Country Club, Waco, Texas; Fargo Country Club, Fargo, N. D.; Arlington Country Club, Arlington Heights, Ill.; Arcola Country Club, Ridgewood, N. J.; Shawnee Country Club, Lima, Ohio; South Shore Country Club, Buffalo, N. Y.; Lynx Club, Milwaukee, Wisc.; Round Hill Land Corporation, Greenwich, Conn.; Congress Lake Club, Hartville, Ohio; Cedarhurst Country Club, Wickliffe, Ohio; Taconic Golf Club, Williamstown, Mass.; Greenville Country Club, Greenville, Ohio; Green Valley Country Club, Wheaton, Ill.; Wappoo Country Club, Charleston, S. C.; Minakwa Country Club, Crookston, Minn.; Carroll Country Club, Carroll, Iowa; Rockaway River Country Club, Denville, N. J.; Northampton Country Club, Northampton, Mass.; Fox Hill Country Club, Pittston, Pa.; Topeka Country Club, Topeka, Kans.



A 5-unit mower equipped with wide-faced wheels and roller casters to support the assembly frame and relieve the cutting units of its weight

A Costly Experience

A number of instances have come to the attention of the Green Section where clubs have turned the whole matter of the layout and construction of their golf courses over to dealers in golf supplies. It is not a logical arrangement. This does not reflect on the honesty of commercial concerns that employ golf architects as agents, but it is not the way other big construction jobs are let. We have never heard of a case where the dealer who supplied the materials was given carte blanche for the plans and specifications of the club-house.

It has been the purpose of the Green Section ever since its organization to help golf clubs get full value for the money they spend. But in many cases the Green Section does not have an opportunity to advise in the matter of the big expenditure—that of constructing the course. It is much more satisfactory to the Coast Guard to keep a ship off the rocks than to salvage a wreck; and so we print the following statement of a typical case that it may serve as a warning-light to some other club contemplating constructing or remodeling a course.

Not long ago we received the following letter from a golf club:

"After carefully studying the Bulletin of the Green Section of the United States Golf Association I am bold to ask your opinion on the following, and I trust you will be frank in making your replies, because I deem it of vital interest to our club and to myself since my views are bitterly assailed and if I am wrong I would like to know it.

"In the summer of 1921 a representative of a seed concern secured the contract to build 16 new holes on our course, the consideration being that we should purchase our seed and materials from the firm he represented. A very capable superintendent came at the rate of $300 per month plus travel expenses and board at the club-house while on the job. He constructed a splendid set of greens. These greens were built with a layer of cinders, in which the drain tiles were set; on this, a layer of inverted sod; and then the seed bed, which was composed largely of top soil, sand, and great quantities of commercial humus. The humus was impregnated with some kind of 'acid,' as it was represented that the acid seed bed was necessary for the propagation of Chewings' red fescue which was to be planted. We were promised such velvety greens of fescue that the salesman would win his reward for the general supervision without charge, in this demonstration, by showing others in this section that the finest putting green in the world could be grown here, as well as elsewhere, if the proper methods were used.

"We paid this concern $7,000 for seed and material, and expended over $35,000 in labor and other items in the construction work.

"The seed planted was one-half red fescue and one-half redtop. It was represented to us that the redtop was necessary as a 'cover crop,' and that within a year, or a year and a half at the most, it would be entirely crowded out by the fescue.

"We quickly got a stand of grass, and were all enthusiastic. The following spring and summer the greens were in fairly good condition but the stand of turf was rather thin. Whether there was any red fescue on the greens at this time, I am not prepared to say; I do not know.

"In the fall the greens were rather poor, and it was necessary, on the advice of the same salesman, to fork the greens and top-dress and reseed them.

"This spring we had a crop of mainly coarse grass, and on investigation I learned that it was redtop, and I could find no trace of the red fescue.

"During the summer our greens were practically barren, even the redtop disappearing in July and August, and the only things that were green were some white clover and weeds. It was represented that clover would not grow in the acid seed bed; and upon investigating the reason for its being there, I was told that during the previous fall the greens were in such condition that forcing was necessary and that therefore a dressing of bone meal was used, and that this produced the clover. We had a tremendous crop of weeds, and our extra expense for weeding this summer was close to $2,000.

"All through the summer the greens were in such terrible condition that there was much dissatisfaction among the members. The Board of Governors decided that the thing necessary to do in order to pacify the members and to bring the course into proper condition, was to engage the services of an expert to recondition the greens.

"This expert, charging $400 for four personal visits and typewritten instructions covering the procedure, proposes the following (bear in mind that all seed and material is to be furnished by his company):

"First.—'Your greens are hidebound and sour, and the first operation is a liberal dose of Bordeaux mixture.' I questioned the application of Bordeaux on the ground that the lime in the mixture would induce the growth of clover and was in direct opposition to the 'acid' seed-bed theory. The operation was abandoned. I also questioned the statement that the greens were hidebound, because they were as porous and friable as greens possibly could be; and it was my theory that the barrenness during the summer was caused by the lack of moisture-holding properties occasioned by the incorporation of so much commercial humus in their original construction.

"Second.—He prescribed a special spiked roller, at a cost of $316, to be used in aerating the greens preparatory to the application of the top-dressing and in spiking the top-dressing and seed into the greens afterward. I remember reading that the use of spiked rollers for such work was questionable and that the object desired could better be accomplished by raking and disking.

"Third.—The top-dressing was to be preceded by the application of a liquid named * * * at $1.50 per gallon f. o. b. New York, this liquid to be diluted with water.

"Fourth.—The top-dressing was to be prepared with one ton of * * * fertilizer at $110 per ton, in connection with soil, sand, and rotted manure. My contention is that there is no commercial fertilizer on the market that is worth $110 per ton for growing grass on a golf course, and that the use of such was wholly unnecessary.

"Fifth.—He proposed to sow a mixture of 80 pounds of red fescue and 20 pounds of South German mixed bent, a total of 100 pounds of seed, per green. My contention is that this is entirely too much seed for reconditioning greens, and that the use of the red fescue is inadvisable, in view not only of our own previous experience but also of the fact that my investigations disclosed the fact that not a single greenkeeper in our entire district had ever produced a red fescue green, notwithstanding all had tried it time and again.

"Sixth.—He proposed a top-dressing of oyster shell.

"Seventh.—He proposed a covering of sheep manure as a mulch for the winter.

"I argued forcibly against the above program, but without avail, believing that better results could be obtained, and at a vast saving in money and labor, by simply raking up our redtop greens, preferably with a disk, and then in a top-dressing, or seed bed, of good rotted manure and soil, sowing about 25 pounds of South German mixed bent seed to each green, and then giving it the ordinary care that greens should have. Am I right in my belief? It seems to me that the operations of this 'expert' are right in line with the warnings given in your article entitled 'Quacks and Suckers.'

A member of the Green Section replied to this letter as follows:

"You ask for a frank reply to your letter. I will give it. Your club has been outrageously swindled. Nearly everything done in the construction and seeding of your greens was contrary to common sense and the experience of all who have ever been successful in growing fine turf. We know of a dozen or more instances where golf clubs have gone through the same heart-breaking experience that your club has. In fact, it was the frauds perpetrated by these golf 'gyps' that made it necessary to organize the Green Section. It seems to be the policy of these fakers to do such a miserable job of construction and seeding that their high-priced experts can get another opportunity to soak the club for additional seeds, fertilizers, and equipment. Redtop and red fescue help admirably in such a nefarious scheme. The seeds of both of these grasses germinate quickly, and the seedlings last long enough so that the course can be turned over to the club in a very promising-looking condition; but when these grasses are cut down to putting green length, especially in a climate such as you have, they last but a very short time.

"As to the recommendations of the expert, I do not see that I can add anything to the comments you have already made. I agree fully with everything you have said.

"Now, what is to be done in a case like this? It seems to me that the

first essential for the successful growing of turf on your greens, is a realization on the part of the members of your club that they have been soundly bunkoed. They should then show a willingness to discard for all the time the advice of these self-styled experts and try only those things which experience has shown to be needed for growing turf. My advice is to get along as best you can with these greens until next summer, and then, about the latter part of August, open them up, scrape off as much of the humus and cinders as you can, and pulverize and mix together all the remaining top soil and sods, using a team and disk harrow. The sods should be sufficiently rotted by that time so that they will cause no trouble. Then I would seed to bent grass, from the 1st to the 10th of September, using not to exceed 5 pounds per 1,000 square feet of green, or I would plant them vegetatively with creeping bent. If the finances of the club do not allow for treating all the greens at one time, I would take one or more greens, and do the job right while about it. In the meantime I would suggest that you get along with as little expense as possible on these old greens, seeding them each fall to redtop, and depending upon the summer weedy grasses, such as crab grass and others, for turf during the hot weather. It is a hopeless undertaking to try to produce good turf with what you have, by hand-weeding.

"I assure you that the Green Section will be glad to render your club any assistance it can to help it out of its present unpleasant condition. There are several golf courses in your district which have solved the grass-growing problems to the extent that they have very good turf. I feel sure that the chairmen of the green committees of these clubs will be glad to share with you the benefits of their experience."

Appreciating your greenkeeper.—Earl B. Kent, Highland Country Club, Attleboro, Mass., in his letter of December 22, 1923, writes: "My greensman has just gone to the Galveston Country Club, Galveston, Texas, to take charge of that course. * * * This is a promotion for him I promised him several years ago,—that as soon as I thought he was ready I would try and place him with a larger club. * * * I have another lad who has worked for me five years, and after two or three more years I will do the same for him. I think this way of doing things keeps the men happy and gives them something to work for."

The editors of The Bulletin are always glad to publish contributions from greenkeepers, chairmen of green committees, or others having information of interest to present to its readers on the subject of turf maintenance.

Back Numbers of The Bulletin.

These are available as follows:

Vol. I (1921). Reprint, in paper covers; price, $2.25.

Vol. II (1922). Following months are available, all other months exhausted: March, June, July, August, September, October, November, December; price, 35 cents per copy, index included.

Vol. III (1923). Bulletins for all months are available, except April; price, 35 cents per copy, index included. (Reserved for member clubs.)

Binders. Price, 50 cents per set.

Some U. S. Golf Association Decisions on the Rules of Golf

Question.—On August 26 my club had a qualifying round of 36 holes for the championship of the club, and on Saturday, September 1, the first round of match play was started. Kindly advise me whether or not a player who played 9 holes of the course before starting his match is disqualified on account of playing in advance of his competitor on the day of the competition, and if so, what his standing would be, having played through the tournament and winning the championship.

ANSWER.—There is no penalty for a competitor playing over the course before the match play rounds. The penalty is imposed in medal play only.

Question.—A, engaged in match play with his opponent B, shanks a ball over the hill into the rough in a place where he believes it is out of bounds. In order to save time, he plays another ball and makes another shot with almost exactly similar results, and then repeats the performance with a third ball, whereupon he plays a fourth ball, which lands on the green. When the players reach the place where the first three balls are presumed to be, they find that all three balls are in bounds. A then proceeds to play his first ball, and picks up the second, third, and fourth balls which he has played. B claims that A has no right to play more than one shot until after it is absolutely determined that the first ball is out of bounds. Which is right?

B also claims that if A plays two shots with the provisional ball, he must continue to play the provisional ball and regard the first ball as out of bounds and consequently out of play. Which is right?

ANSWER.—Answering your first question, the rules for a provisional ball are made in order to save delay; therefore the player is entitled to play a second or a third provisional ball.

Your second question is answered by Decision No. 47 of the Rules of Golf Committee of the Royal and Ancient of St. Andrews, in which a player holed out with a provisional ball and then found his first ball, which he presumed was out of bounds, on the course. The Royal and Ancient decision is, that the provisional ball shall be disregarded and the hole played out with the first ball.

Question.—Will you kindly inform me if there is any rule, and if so the number, which penalizes a player in match play who plays at and strikes the flag-staff from within 20 yards of the flag-staff?

ANSWER.—There is no rule to penalize a player in match play who strikes a flag from any distance. This is covered by Rule No. 32 in the Rules of Golf.

Question.—The following came up in the playing of a handicap tournament at our club. A gives B one stroke on 18 holes, the stroke falling on the second hole. At the end of the 18 holes, the match is a tie. The players proceed to play, tying on the 19th hole, and on the 20th hole B claims a stroke handicap, the same as on the first 18 holes. A claims that the handicap stroke does not apply for extra strokes. The 20th hole was played, resulting in A taking 6 strokes and B seven. A claimed the match. B refused to concede the match and asked that the balance of the 18 holes be played. Which is right? Please advise us as promptly as possible what the custom is in a matter of this kind. We understand the Rules of the United States Golf Association do not recognize handicap play; but surely there is a method recognized somewhere for conducting handicap tournaments.

ANSWER.—In all cases similar to the one you describe where a handi-

cap match ends in a tie at the completion of a round, a full 18 holes must be played off in order to determine the winner.

The Green Section; Its Needs and Its Opportunities

Address of C. V. Piper, Annual Meeting of the Green Section, January 5.

Gentlemen, I will have to make my remarks very brief, and I will try to make them pertinent. We will have to take a few moments for a business session, and then we are going to see some moving pictures of Bobbie Jones in slow action, so that you can see exactly how he does it. I had intended to show a series of slides dealing with golf architecture, but our apparatus is not very satisfactory for the purpose. Golf architecture is a subject which we shall have to study more seriously. The great majority of our American golf courses are not anywhere nearly as good as they should be. Anybody can lay off a mediocre golf course, but it takes a creative artist to lay off a golf course that is a fine test of play and at the same time a thing of landscape beauty. There are not many such courses in America. I think the British are beating us here. They have published two books on golf architecture. In this country we have not published one. The Green committee is at work on one now. Practically every other technical, scientific, or commercial organization has a society, and many of them publish journals. The golf architects ought to organize. They are advancing. Many of them are doing some fine work, for which they deserve thanks; but there is altogether too much mediocre work yet. It is going to improve the more rapidly as more golfers learn to appreciate what good architecture is; and that is the reason why we should all study it. There ought to be a reason for every bit of construction on a golf course, and the architect should be able to explain that reason clearly.

Now I want to explain briefly what the Green Section is, as I find there is a great deal of misapprehension in regard to it. It is a cooperative organization of the golf clubs, who supply the funds through their annual dues. It cooperates with the United States Department of Agriculture. The United States Department of Agriculture is a public-service organization, and the study of the problem of turf as relating to parks, lawns, golf courses, and so on, is one of its functions. With the money from the Green Section, the men in the Department of Agriculture are able to do more investigational work than they would otherwise be able to do; that is, the Green Section funds, to some extent, supplement the Department's funds, although thus far the Department has been putting in more money than has the Green Section.

Now there is absolutely nothing in this for the scientific men in the Department of Agriculture, except that it gives them the opportunity to do more work along lines in which they are interested. There is not any graft in the thing; there is no possible way by which a scientist in the Department of Agriculture can get one dollar out of the Green Section. If he does, he will lose his job, and probably spend his time for a period as a guest of Uncle Sam in one of his well-known apartment houses. Now I want to make this particularly clear, because a few people made insinuations that in some way or other the men in the Department of Agriculture are profiting financially. In fact, I have had one letter in which we are absolutely accused of being grafters. I do not claim that our ethics are any higher than those of ordinary men; we are probably as susceptible to the influence of money as anybody else. I recall a story of a government official during the war who was in a very responsible position. One day he was approached by a representative of a contractor, who offered him

$10,000 if he would use his influence in his behalf, but he turned him down. A few days later the ante was raised to $25,000, and he turned it down; the third time it was raised to $40,000, and he turned it down, but he telegraphed to Washington, and said, "Send another man down here at once; they say every man has his price, and these fellows are getting pretty near mine."

Now the objects of the Green Section are purely altruistic. We are trying to help the golf clubs for their own benefit and for the benefit of the public. One of my economist friends tells me that this is all wrong. He says, "You know, the function of the rich is to get all the money they can from the bourgeoisie and the proletariat, who are not able to use it intelligently; therefore, whenever there is a chance to pry money from the idle rich, that is the proper thing to do." He says, "Let these fellows get all the money out of the golf courses they can."

Now we do not take that point of view at all. We have learned that the average golf club is only a few jumps ahead of the sheriff, and that the clubs are not as rich as they are reputed to be. Some men in business, in dealing with golf courses, do not seem fully to understand this. Most of the clubs do; and I think they realize that we are working for their benefit. The best asset of a business house is satisfied customers; and a lot of the golf clubs have not been satisfied with the dealings they have had with some business houses. A part of this has in the past been due to ignorance, I am sure. I do not believe the business houses—or at least with rare exceptions— have been purposely deceitful—that is, in over-selling to golf clubs. Of course, a drummer might do that, because the bigger the bill he can sell the more his commission. I said to some seedsmen in Washington not long ago, "Gentlemen, you have a very much worse reputation in the minds of the public than you deserve; it is a little better than that of a real estate man, and not much better than that of a bucket-shop man. You ought to correct this psychology."

Now I understand some of the reasons which have brought about this condition in the seed trade, but it is up to the seed trade itself to clean house. If there are crooked people in the business, get them out. You owe it to yourselves and to your own interests to see that your business is conducted on a high ethical basis. Of course, that is pretty hard to do; but that is what they have got to do to get the right kind of reputation with the public.

In this connection, Lloyd George told a story the other day which I thought was very clever, a story of Roosevelt which I had not heard before. Roosevelt remarked, "It is very strange that whenever I say 'Thou shalt not steal' there is a panic in Wall Street."

Now we have never accused any business man dealing with golf courses of being crooked. We have never mentioned unfavorably or favorably, in correspondence or otherwise, the name of any firm doing business with golf clubs. We lean clear backwards to try to be absolutely fair to everybody. When we have anything to say, it is stated in the form of a general statement; but some people apparently take these general statements home, and say, "Well, this means me; those fellows are after me." Well, of course, we are not to blame for that. We certainly have never mentioned any firm as being crooked or as using unethical methods. We suspect that some have probably done so, and we want them to quit it.

The Green Section, for its further growth and development, depends upon you people—you people who are the members of this Green Section. There are a whole lot of clubs in the country which are not members; and

the only explanation that we can make is that they do not understand what it is all about, and I find that to be the case very frequently. They simply can not understand that here is an organization which is working for the benefit of the golf clubs, which has nothing to gain, no ulterior motive, except working for the progress and the good of golf. Some business men find difficulty in understanding that. Now, scientific men may be chumps. The ordinary man thinks that they are; he thinks they are a kind of crazy people who are working at things out of which they can not make any money. Well, they are a curious group of people, but they are working primarily to advance knowledge; and it is in this they get their satisfaction. They certainly do not get it out of the salaries they draw, because they usually get very meager incomes. That fact may operate to make them more susceptible to graft. But unfortunately we are hedged about so that we can not take graft. That may be why we are so honest (laughter).

Now, I want to make it clear that there is still an enormous amount of work for the Green Section to do, and I can not see that it is ever going to end—not alone in the matter of investigation, but also in the matter of education. Education is notoriously a long and slow process. For example, after practically every paper that has been given here, you have asked questions galore; in other words, you are after education. We are trying to put forth nothing until we have a pretty convincing argument that it is correct. And in this very complex problem of greenkeeping it is very easy to reach erroneous conclusions. You have had a couple of demonstrations of that.

Now let me say that all the questions and answers in THE BULLETIN are genuine. We have not yet been driven to the necessity of faking up questions so as to keep that column full; in fact, we have bales of them to use. I have sometimes thought it would be a great joke if I were to fake up a lot of them, and have them signed by Tom, Dick and Harry, to see how Carrier and Oakley would answer them (laughter). Unfortunately, most of the greenkeepers do not yet realize how complex some of these problems are, and consequently they do not put up to us some of the questions which we are afraid they may ask.

Mr. Maxwell spoke about the southern courses. I have had a little experience in the tropics, and was recently again down in Florida and Cuba. I went down to Cuba partly for that purpose. A new grass was recently sent to me which we knew only botanically. This grass was a native of western Mexico which somehow got into Cuba about 20 years ago. It has spread over very large areas there, and makes wonderful turf. It is such a vigorous thing that it crowds out every other grass. It looks as if it is going to be extremely valuable for the tropical and semi-tropical regions, and for many purposes I feel sure it will replace Bermuda grass. Incidentally, we have notes on a great many tropical grasses, and there is a great amount of work still to be done on them.

Now this brings me to the point of the further growth of the Green Section. The present method of financing is not satisfactory. We get letters from all kinds of people, all kinds of clubs, lots of them not members of the Green Section; but as a public service institution we are bound to give them information just as we would to members of the Green Section. We try to get them into the Green Section, of course; but we are in duty bound to give them the information. It is not the private property of the Green Section, and it can not be, as it is obtained in co-operation with the Department. I want to make that perfectly clear. We would

also like every one to get THE BULLETIN who wants it, and at a modest price. Under our present system of financing we can not do this.

There will come up before the United States Golf Association today at its meeting a scheme for re-financing the Green Section which it is hoped will be adopted and put into practice another year.

To supplement the present funds, which run about $12,000 a year, the plan proposes an endowment fund for the Green Section, the interest on which could be used for Green Section work. This would serve not only to enlarge the work of the Green Section, but to perpetuate it. There has been no publicity given to this, but some people have heard of it, and, strange to say, we have already received some contributions. One friend told me that a very wealthy man had fixed up his will so that his whole fortune would go to the Green Section. That fellow is a real golfer (applause).

Now this is a perfectly sound proposition. Whether the funds will be forthcoming or not, we do not know; but if they are forthcoming they will bring about an enlargement and perpetuation of the Green Section.

We have had lots of clubs tell us that our visits have saved them $5,000 or $10,000, and so on; but whether that means that they would put that much into an endowment fund is another question. The Green Section needs enlarging, because we in the Department of Agriculture have relatively little time to devote to its work. We need more men in the work; we need to train men who can carry on the work in the future; and all of that, in the end, spells more funds. I hope that whatever method the United States Golf Association agrees on will meet with the cordial support of all golfers.

Now, in closing, I want to thank all the Green Section members for the support they have been giving in the past. The golf clubs have been very highly appreciative. We have letters galore of the most complimentary sort, which, of course, add to our pleasure in giving service. We do not claim to be infallible. We realize that we are dealing with very complex problems, and we are perfectly willing to listen to any and all suggestions we can get. We want every greenkeeper to try experiments on his own account, and he may discover some very valuable things. The field is wide open, and we want to encourage investigation in every way, which is the only road to advancement. I think we are more and more getting to the point where the business men understand us and realize that in a broad way we are really working in their interests and not against them. The business man, the seedsman, the manufacturer, the machinery man, all other people concerned with goods that golf courses use, are doing a great deal to help in the advancement of golf. Without the machinery man, we would be nowhere in the modern golf course; and the machinery men who are getting out better and better machinery are doing a great service. I wish it were possible to mention the names of commercial men who are doing good things. It might be well now and then to mention the names of commercial men who are doing things that we do not think are so good, but it is impossible for us to do that. I want those men, business men who are making constructive advancement, to understand that we are deeply interested in their work; we are following it up as closely as we can, and we appreciate that they are real factors in the development of golf.

GREENKEEPERS' REGISTER

The editors of The Bulletin will be glad to receive letters from greenkeepers seeking employment and place such men in touch with golf clubs needing services of greenkeepers.

QUESTIONS AND ANSWERS

All questions sent to the Green Committee will be answered in a letter to the writer as promptly as possible. The more interesting of these questions, with concise answers, will appear in this column each month. If your experience leads you to disagree with any answer given in this column, it is your privilege and duty to write to the Green Committee.

While most of the answers are of general application, please bear in mind that each recommendation is intended specifically for the locality designated at the end of the question.

1. Spring versus fall vegetative planting of greens; creeping bent as a grass for tees.—We have a nursery of creeping bent of over an acre in area, and also have five large tees planted to creeping bent. We are now ready to plant some of our greens to creeping bent runners taken from our nursery, and would like to know at what season of the year it is recommended that this be done so that the greens may be used for play in the minimum length of time after the planting. Our experience has been that greens thus planted about the middle of August are ready for play the first of November, but we have had no experience with early spring planting. We might add that we find creeping bent is the logical grass for tees, from the standpoint of economy in planting, economy in care after planted, and high character of the turf for teeing purposes. (Missouri.)

We have made plantings of creeping bent by the vegetative method in every month of the growing season, and we prefer August and September for doing the work, for the reason that in the late summer and fall the plantings suffer vastly less from weeds than they do in the spring. This is of particular importance where crab grass becomes a serious pest. Crab grass is especially hard on plantings made in the spring, and at that season will greatly impede the spread of the creeping bent. We thoroughly agree with you in your opinion of the great satisfaction to be derived from creeping bent tees; we do not know of any other grass that is more satisfactory for that purpose.

2. Grasses for northern putting greens, tees, fairways, and rough.—Our architect has specified for our greens a mixture of 80 per cent fescue and 20 per cent bent; for our fairways, a mixture of fescue and bluegrass; for our rough, a mixture of Pacey's short-seeded rye-grass and meadow fescue. Would you advise us to accept his specifications? (New Jersey.)

We would caution you against the use of fescue for putting greens. We have visited a great many golf courses and do not know of a single putting green that is more than two years old that is pure fescue, and we know of very few that have an appreciable amount of this grass in them, though hundreds have been seeded to fescue in the past. This is a much over-rated putting green grass in this country. We would advise you to seed your greens to bent at a rate of not to exceed 5 pounds per 1,000 square feet, using German mixed bent, Colonial bent, or Rhode Island

bent. For your fairways we would recommend a mixture of 4 parts Kentucky bluegrass and 1 part redtop, seeding at a rate of not to exceed 150 pounds per acre. This same mixture can be used also on the tees, though it would be better to seed a little bent along with the bluegrass and redtop. For the rough there is nothing better than sheep's fescue or red fescue. Both of these grow in tufts and require little attention. While red fescue does not survive when cut to putting green length, it lasts indefinitely on bunkers and rough when allowed to grow to its natural height. Rye-grass and meadow fescue are good hay grasses, but are not as good as sheep's fescue and red fescue for the rough.

3. Mowrah meal; its fertilizing value and rate of application used as an earthworm eradicator.—Mowrah meal for worming greens is now quoted as low as $50 per ton. If an average of 150 pounds of this material used as a single application on one green would produce satisfactory results, the cost will be about the same as the corrosive sublimate. Some fertilizing value is claimed for this material, the analysis given being as follows: Ammonia, 4 per cent; phosphoric acid, 1 per cent; potash, 3 per cent. We have been carrying out a program, as to fertilizing, of using practically nothing but sulfate of ammonia, with the idea of producing the acid condition of the soil which it is claimed fosters the fine grasses and retards the growth of clover and most weeds. The only exception to the above program is that we apply 1 pound of acid phosphate to 1,000 square feet twice a year, in early spring and again about midsummer. Can you advise us as to whether the above is a true analysis of the material and as to what reaction it would have to the soil—that is, acid or alkaline—in connection with the result we are trying to get? Can you tell us what quantity of this material is required to produce good results? (Indiana.)

We do not know what a fertilizer analysis of pure mowrah meal would show, but the analysis you mention is about the same as one reported to us from other sources, and we are inclined to assume that both represent good grades of mowrah meal. Mowrah meal naturally possesses some fertilizing value because of its available nitrogen, phosphoric acid, and potash content, but we would not advise a club to purchase mowrah meal because of this. It is an excellent worm eradicator if not badly adulterated, and can be used with safety. The fertilizing value of mowrah meal is in our opinion incidental to its value as a worm eradicator. After making a normal application of mowrah meal sufficient for eradicating worms, we think you will find that some additional fertilizer will help your greens. An application of some quick-acting fertilizer, such as nitrate of soda or sulfate of ammonia, at the rate of 2 or 3 pounds to 1,000 square feet, will be ample. Mowrah meal of low ash content is generally applied at the rate of 55 pounds per 1,000 square feet; for meal of high ash content a double rate of application is advised. Inasmuch as good mowrah meal is satisfactory in eradicating earthworms and does not produce any tendency to burn the grass we would regard it as a good buy at the price indicated in your letter.

4. Excessive use of inorganic fertilizers.—I am sending you 2 samples of turf from spots on our greens where the grass has died, and should like to have you diagnose the trouble and suggest a remedy. In places, the greens are rather poorly drained, although some of the well-drained spots are badly affected also. On the whole, however, the well-drained spots are comparatively healthy. Each green was fertilized and top-dressed as follows: May 5, top-dressed with 100 pounds of bone meal and 40 pounds of acid phosphate mixed in 1½ yards of compost; May 14, fertilized with a 12-pound mixture of 4 parts ammonium sulfate, 3 parts potassium muriate, and 3 parts sodium nitrate; June 5, fertilized

with 12 pounds ammonium sulfate; July 10, and also July 20, fertilized with a 10-pound mixture of ammonium sulfate 4 parts, potassium muriate 3 parts, and sodium nitrate 3 parts; July 25, top-dressed with 1½ yards of material containing equal proportions of sand and compost; August 14, fertilized with a 12-pound mixture of ammonium sulfate 4 parts, potassium muriate 3 parts, and sodium nitrate 3 parts; August 27, fertilized with a 12-pound mixture of ammonium sulfate 4 parts, potassium muriate 2 parts, and sodium nitrate 4 parts; September 11, fertilized with a 12-pound mixture of ammonium sulfate and sodium nitrate in equal proportions; September 12, top-dressed with 1½ yards compost in which 200 pounds of sheep manure was mixed; October 8, fertilized with a 12-pound mixture of ammonium sulfate and sodium nitrate in equal proportions. The injury to the turf was first noticed about a week after the application of the last top-dressing, which contained the sheep manure. (Minnesota.)

It is impossible to make a definite statement as to the cause of the injury to the particular samples you send. In our opinion, however, your applications of inorganic fertilizers were extremely excessive. It has been our opinion that with ordinarily good soil two applications of ammonium sulfate at the rate of 2 or 3 pounds per 1,000 square feet applied a month apart in the spring, and a third application in the fall, at the same rate, are all that can be expected to benefit the grass. In our experimental plots we recently injured some turf by heavy applications of fertilizer during the summer. Along with the ammonium sulfate we advise the use of top-dressings such as you have employed. As a general rule, when turf becomes sickly from any cause, it is well to give it a light top-dressing and a light application of ammonium sulfate.

5. Greens for temporary play; use of swamp muck.—We have a nine-hole course. The soil is red clay. Our greens were correctly built originally but carelessness in the method of top-dressing and general care has very nearly ruined the turf. Last fall the greens were top-dressed with about ¾ inches of swamp muck and sand. We doubt very much whether we will get 10 per cent of the old grass to grow this spring. After reading THE BULLETIN we have come to the conclusion that as good a method as any in getting them into shape is to fertilize with either steamed or raw bone meal, raking in thoroughly, and seeding with a mixture of Kentucky blue and red top. We intend to play temporary greens the first part of this season but are very anxious to be playing the permanent greens by the end of June or first of July. We also feel that eventually we wish to have our greens sown with bent seed, and had in mind that this fall we could play temporary greens again and sow our permanent greens with either South German mixed bent or Rhode Island bent. (Connecticut.)

We are inclined to think that the top-dressing of swamp muck which was given your greens last fall will not prove to be of much benefit to them; in fact, unless the muck which you used was fairly well weathered, it is quite probable that its effect will be detrimental rather than beneficial. It is always well to test muck before applying it to greens. This can be done by filling a small box with it and sowing grass seeds on it. If the young grass plants thrive in the muck the chances are that it will not prove to be toxic to greens. If the grass seedlings turn yellow after a short time, it is not advisable to use the material for a top-dressing.

We judge from your letter that you intend to do what you can to improve your greens this spring for temporary play and to remake them the coming fall. If this is the case, we think you will find a mixture of redtop and Kentucky bluegrass quite as satisfactory as any seed mixture

that you could sow; in fact, we would advise a very liberal proportion of redtop in the mixture. Redtop in the seedling stage makes very good turf, provided the plants are close enough together. It will last for a season; after that, of course it becomes thin and very unsatisfactory. Fall is the best time for sowing greens, and if you can get your green in condition for sowing next fall, we would advise you to sow either with mixed bent seed or Rhode Island bent seed.

6. General treatment of bent greens newly planted from runners.—Last fall we planted several new putting greens from creeping bent stolons. The stolons started growth nicely. Will you kindly outline a program to be followed next season for the best handling of these greens? (Wisconsin.)

Under normal conditions the greens should be top-dressed two or three times in the spring. It is desirable that the top-dressings should be worked down evenly into the grass each time so as to get a smooth putting surface by the time the grass is far enough advanced to permit of playing. A wire door-mat, the back of a rake, or some similar device is good for this purpose. About the last of April or early in May it is advisable to make an application of ammonium sulfate, at a rate of not to exceed 3 pounds to 1,000 square feet and to follow this with another application about the first of June. After that no more ammonium sulfate should be applied until September, unless you have brown-patch, in which case top-dressings and light applications of ammonium sulfate are advisable to hasten recovery of the turf.

7. Seeding a polo field; Canada bluegrass. We are writing to ask your advice on the seeding of a twelve-acre polo field. Canada bluegrass has been recommended as superior to Kentucky bluegrass on account of its supposed tougher texture and sod, and this can be purchased here at $20 per 100 pounds. It was impossible to complete the grading and draining of the field sufficiently early to seed last fall, but two days' work will make it ready for seeding, and we are planning to sow at the earliest possible date in April fancy redtop at 80 pounds per acre, and Canada bluegrass; together with enough oats to give some shade at the start, at the rate of 120 pounds per acre. We have been assured that some method of sprinkling will be installed by spring, and so we are planning to use the field for a few practice games in July and August. The soil is clay loam indifferently well drained. (New York.)

Canada bluegrass rarely makes a good turf, and then only on certain types of soil in central regions. We would not recommend it unless there is ample evidence that Canada bluegrass will make a satisfactory turf under your conditions. Ordinarily it makes a very thin turf, and on soil that is at all good it is quickly replaced by other grasses. We would recommend that you seed your polo field to Kentucky bluegrass and redtop in the proportion of 4 pounds of the former to 1 pound of the latter. The middle of August to the middle of September is by far the best time to do your seeding. Spring sowings rarely make a knit turf during the first season, and besides the grass has much more severe competition from weeds. We take it that under your conditions you must seed in the spring. This being the case, we would advise you to seed just as early as possible. Indeed, if the ground is all prepared, it will be best to seed on top of the snow; and just as soon as the ground is dry enough in the spring, to give it a rolling. By seeding on the snow you can ordinarily save at least two weeks' time in the spring, and these early two weeks are very important in connection with the growth of grass.

You speak of using the field in July and August. We have serious

doubts whether the turf will be very well knit by that time. In other words, it is likely to be so loose that the ponies' hoofs will cut it up badly. To some extent you can help matters by crowding the grass along with fertilizer, and indeed we would advise you to do this and to use any other means practicable for securing the most vigorous growth of grass possible.

8. Improving drainage.—We are sending you a diagram of two of our greens with which we are having trouble. The greens were constructed and seeded down the fall of 1922, and the soil was taken from the banks of the river. Our course is situated on the banks of a river, and the whole course falls toward the river. We are seldom troubled with water, as the course seems to drain itself well. We however have no tile in the greens; in fact, we have hardly any tile on our course. Is our trouble due to improper drainage? (Illinois.)

From the looks of your diagram we are convinced that the trouble is lack of sufficient drainage. It has been our invariable experience that where high ground backs a green the seepage water from the high ground makes trouble, and the trouble can not be remedied until this seepage stream is cut off. On the attached yellow sheet we are sending you we have made what we gather from your diagram would be a cross-section of each of the greens. On this we have indicated the cross-section of the best method of remedying this difficulty; that is, to have a grassy hollow between the green and the high ground so that the seepage stream passes at least 3 feet below the surface of the putting green. A good many people have tried to cut off this seepage stream by tile placed at the base of the high ground, usually without success. Some degree of success has been reached where this grassy hollow is filled with coarse rubble and nearly to the top, but generally speaking we think a grassy hollow will open drainage at one end at least (both ends would be preferable), and this is by far the best means of remedying this seepage stream of subsurface water which tends to keep the soil soggy. We are speaking rather positively on this and without seeing the greens, because we have seen so many cases where it is nothing but this seepage stream which is the cause of the difficulty.

9. Value and use of bone meal and potash as fertilizers.—We understand that a good many greenkeepers use ammonium sulfate or sodium nitrate continuously on greens without giving them anything in the way of phosphorus or potash. Do you consider this wise, or do you believe it to be better practice and conducive to better results to give greens bone meal or something in the way of phosphorus? What would you advise? (Illinois.)

It is absolutely necessary for turf grasses to have some phosphorus and potash. In many soils the supply of these elements is sufficient, but where they are lacking they must be provided. It is advisable to go slowly in applying these materials, however, as they encourage the growth of clover and many weeds. An application once a year of bone meal, which contains phosphorus, at a rate not to exceed 10 pounds per 1,000 square feet of green, and muriate of potash at a rate not to exceed 3 pounds per 1,000 square feet, will insure ample supplies of these elements. It is advisable to experiment on a portion of one green to see if you get any benefit from the phosphorus or potash before treating all of your greens.

No. 10. Measuring a putting sward.—How do you measure the area of a putting sward in square feet? (California.)

1. Rectangular or approximately rectangular swards.—Multiply the length in feet by the breadth in feet. Allowance should be made for any projections from or indentations into the rectangle.

2. Circular or approximately circular swards.—Take the distance from the center of the sward to the outside and multiply it by itself. Then multiply the product by 3.1416.

3. Triangular or approximately triangular swards.—Multiply the length of one side by half the distance from the middle of that side to the tip of the triangle.

4. Oval or elliptic swards.—Add the long diameter to the short diameter, divide by 4, multiply the resulting figure by itself, and then multiply this final figure by 3.1416.

The figures thus obtained are closely approximate to the actual area. On many putting swards the area is varied more or less, usually on the side of increase, by the tendency of the greenkeepers to keep enlarging the swards at the margins. Very accurate measurements can be made by any one with the rudiments of surveying skill, but the above rules are satisfactory for general purposes.

11. Use of peat in green construction.—We have on hand a considerable supply of peat which we are contemplating using in the following manner in the construction of some new greens. We have however been advised by some that the use of peat in this connection is unnecessary, and by others that it is actually harmful. Will you kindly give us your opinion on the matter? We propose first to run the peat through a shredder and then mix it with clay loam and sand in the following proportion: 70 per cent peat, 20 per cent clay loam, and 10 per cent sand. In the seed bed proper we will also incorporate 200 pounds of bone meal to a green. (Minnesota.)

We think your method of using the peat is exactly right. We have seen no objection to mixing either peat or cinders with clay soil in order to loosen it up and give it more spring, but we have observed disastrous results following the use of either peat or cinders in layers. The thorough mixing of peat in the soil and subsoil we believe is advantageous.

12. Tobacco dust and charcoal for ridding turf of ants and worms.—It has been represented to us that tobacco dust used as a top-dressing will rid a putting green of ants, also that pulverized charcoal if used in the same way about once a year will rid a green of worms. Do you know of any detailed experiments that have been made along these lines? (Indiana.)

We have conducted experiments with tobacco dust and charcoal but have never noticed any particular benefit from their use in the way of ridding turf of ants or worms.

13. Value of salt in exterminating weeds.—I notice that THE BULLETIN has recommended the use of salt in the treatment of weeds and other vegetation growing in roads or sand traps. Is this in your opinion as effective as commercial weed killer? (Indiana.)

Common salt is not as effective as some of the arsenical preparations in killing weeds, but those preparations are highly poisonous and objectionable in that respect. Salt is therefore safer to use, and it will kill any vegetation if applied in sufficient strength.

14. Top-dressing with mushroom soil.—What is your formula for top-dressing with mushroom soil instead of manure? (New Jersey.)

It has been our experience that mushroom soil is excellent for use as compost. For your course we think it would be advisable to mix about one-third sand with the mushroom soil before using. Many people use it just as it comes, without the addition of anything else.

Meditations of a Peripatetic Golfer

The Story of the Three Bunkers: The first conceals the second, and both of them the third. The architect should have built a screen to hide the first one while he was about it. Their heads ought to have been cut off, like the three blind mice.

All is not gold that glitters; neither is everything that looks black or smells bad, a good fertilizer.

A golfer bewails about "the exquisite displeasure of playing on sand greens." Wherever water is available, grass greens are possible.

Before you decide on a site for a new golf course, be sure and get good advice in reference to its soil and water resources.

If a series of replicas of selected holes is the acme of excellence in golf architecture, then composers of music ought to confine themselves to variations of a few famous themes.

The most impressive difficulty on a golf course is sand; then, in order,—water, mounds, rough grass.

A very shrewd chairman of a green committee says he has found out how to handle the fellow with the fertilizer. He says, "All right, I will fertilize half a green with your mixture and treat the other half as I am now doing." Most of them refuse to accept the challenge.

So far as the rules of golf are concerned, a hole may be of any length—absolutely without limit as to length or shortness. The putting sward may be 10 acres, or more if you like. The rules in no way try to tell how a course should be laid out.

The fellow who can't make two blades of grass grow where there used to be four is a poor greenkeeper.

Sand greens on a course where it would not be difficult to have them of grass! Make the greens of grass, boys, and have fifty per cent more pleasure.

The only difference between a sand pit and a grassy hollow is that the former looks dangerous. If sand is expensive, it is a waste of money to make sand pits that can't be seen. Make grassy hollows in such places.

The main function of the Green Section is to help in problems of construction and maintenance of golf courses. If you feel you are not getting what you want, please tell us so.