YOU know what the trouble has always been — you have never had enough fertilizer for your fairways.

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An application of 100 pounds of Nitrophoska per acre is equal to 400 pounds of ordinary fertilizer. And costs very much less.

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We will again Report
The GREENKEEPERS' CONVENTION

Following the gathering at Louisville last Spring we published in pamphlet form, an account of the proceedings. Several thousand copies were distributed. We heard from many sources that the service was appreciated. The Columbus Convention, which promises to outdo all previous, will be reported in full. A digest of all the addresses will be printed as will the discussions which follow. Greenkeepers may have this report without charge.

Be sure to stop at our booth and sign up for your own copy and one for your Greens chairman. If you can't attend the convention by all means write us for a copy.

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may fuse together to cover large areas. The patches are usually a dirty white or gray color and may have a pinkish cast. Individual plants have a bleached appearance which is very characteristic. When wet the leaves have a slimy feel due to a soft rot of the leaf tissue.

The fungus attacks the leaves mainly, and at times the patch is covered by an aerial mycelium or cottony growth. Sometimes this aerial growth is so abundant that the leaves are matted together and form a thick layer over the affected area. When this occurs the stems are also injured and the sod must be replaced. Other patches may not have an abundant aerial growth and are not as severely injured so that the turf recovers and the patch disappears after the second or third cutting in the spring. In many cases the grass although not killed is weakened so that weeds, especially clover, are allowed to come in.

The disease has been found by Mr. Dahl to be caused by a fungus organism as is Brown Patch. However, it is not the same organism that causes Brown Patch. It is caused by Fusarium nivoli, which is closely related to the organisms which cause cabbage yellows, seedling blights of grains, flox wilt and many other important diseases on agricultural crops. It is a common soil organism and is very widespread in its occurrence.

ORGANISM LIVES IN THE SOIL

This organism lives in the soil in a dormant state and when conditions become favorable it attacks the grass and causes the diseased patches in the turf. In the laboratory the organism has been isolated from diseased grass leaves. The organism has then been grown on artificial media and on sterile grass clippings in test tubes. Pots of grass have been inoculated with the fungus growing on the grass clippings. These pots are placed in moist chambers which are kept at a temperature between 32 degrees to 41 degrees Fahrenheit.

After a few days the mycelium of the fungus appears on the grass leaves and begins to enter them. Soon it spreads over the entire pot and the grass dies. Wheat, oats, barley, rye, creeping bent, red top, blue grass and fescue have been thus artificially inoculated in the greenhouse.

Mr. Dahl stated that the snow mold fungus also
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causes other diseases on grain. It attacks the grain at each stage of development. In the fall it causes a seedling blight, later it causes snow mold during the winter and early spring. In the early summer it attacks the stems at the crown of the plant, causing a disease known as foot rot; later in the summer it causes a head blight. Usually all of these diseases are most serious during wet seasons. On golf courses it remains in a dormant state during most of the year and attacks the grass only when conditions are favorable.

The fungus must have a temperature down near the freezing point, a supersaturated atmosphere, and is found on greens when the snow drifts and melts slowly in the spring. High organic matter in soils, tender grass and snow or unfrozen ground encourage the development of the disease.

CALOMEL USED FOR CONTROL

In his work on control measures, Mr. Dahl has experimented with different rates of calomel (Hg2Cl2) and corrosive sublimate (HgCl2). He has applied rates of 1, 2, and 3 oz. per 1000 sq. ft. These treatments were made on plots of 500 sq. ft. which were placed side by side on the same green with areas between each plot which received no treatment. The treatments have been applied both in water solution and dry and no difference has been observed between the two methods.

The method recommended is to mix the chemical with a bucket of soil or sand per 100 sq. ft. and broadcast it over the area to be treated. The results showed that the 1 oz. treatments were not effective; the 2 oz. treatments lessened the injury considerably and the 3 oz. treatment gave a good control. In some cases there was some snow mold patches even on the 3 oz. treatments but these were few and the grass was not seriously injured. There was very little difference between the calomel and corrosive sublimate.

Mr. Dahl has also carried on experiments on the use of straw covering for greens and on fall fertilizers. He has found that straw covering encouraged the development of the disease and in some cases the injury was so great that the grass in those plots was entirely killed out. He stated that it was inadvisable to cover greens with straw especially where a susceptible grass was grown or where there as a large amount of organic matter

Continued on page 30
Dandelion and Plantain Eradication

By E. A. CROMBIE, Greenkeeper
Edgewood Country Club, Pittsburgh, Penna.

Due to the farms in the immediate vicinity of the Edgewood Country Club being abandoned and no effort made to cultivate the land, the dandelion and plantain situation got so bad that drastic action had to be taken to eliminate it. In the early spring, during blossom time, the rough next to the fairways was yellow with dandelion blossoms. Each of these coming to seed means an extra crop not only in the immediate vicinity, but they may be carried by the wind an indefinite distance.

We tried to eliminate these weeds by the use of cad-dies. The quantity removed by them was enormous, but it was an extremely expensive proposition. Later, however, we found that the fairways on which we had spent so much time and money were in practically the same condition as they were prior to the time that these weeds were removed. This forced us to find some other solution.

Later, I read an article in one of the United States Department of Agriculture bulletins in which they stated that they had been very successful in some experimental work on dandelion eradication. After seven (7) applications of "Sulphate of Iron" solution they had eliminated practically 98 per cent of the dandelion. Also, that it did not affect the grass in any way, but there was a possibility that it may retard, to a small extent, some of the bent grasses on the greens.

Our condition was such that it was imperative that we do something at once, so it was decided to try this "Sulphate of Iron" solution. We did not want to run too much risk, so we experimented with the dandelion and plantain in the rough, paralleling the fairways, and after five (5) applications of this solution two weeks apart we feel that our experiment has been very successful. We have had an extremely dry season, which has re-acted against this to a certain extent, and we believe that had we had an average summer rainfall the results would have been very much better.

Our method was as follows:
1. We used the Government formula—that is, 1½ lbs. of Sulphate of Iron in granulated form dissolved in 1 gallon of water, filtering it through 4 thicknesses of cheese cloth.
2. We purchased a "Friend Power Sprayer" of 200 gallon capacity, with motor attachment.
3. We rigged this up with a drag attachment composed of steel door mats. The object of this attachment was to bruise the fibre in the dandelion leaf before the solution was applied.
4. The spray nozzles, set about 18 inches apart, were arranged on a frame, set back of the mats, and operated at approximately 150-lb. pressure.

It is the intention next spring to go over not only the rough, but the fairways as well, and continue this process until the dandelion and plantain situation is entirely eliminated.

The photographs sent herewith show the apparatus used for bruising the plants, and both a side and rear view of the sprayer in operation.
Indiana Greenkeepers’ Meeting
By CHESTER COVAL, Secretary
Avalon Country Club, Indianapolis

The third annual meeting of the Indiana Greenkeepers’ Association was held in Parlor E at the Lincoln Hotel, Indianapolis, Indiana, on December 6, 1930, with a large attendance.

Various topics of interest pertaining to the betterment of golf courses in general were discussed with the usual spirit of good fellowship prevailing throughout the entire meeting.

Through the good influence and the splendid response of its members, the Indiana Greenkeepers’ Association has become one of the outstanding organizations of its kind in the state.

Mr. Victor George of LaFayette who has served as president of this organization since it was instituted was re-elected as President for the ensuing year. Mr. Carl Coy of Tippecanoe Lake Country Club, first vice-president; Mr. E. A. Yergin of Elkhart Chishiana Country Club, second vice-president; Mr. George Hawkins of the Indianapolis Country Club, treasurer, and Mr. Chester Coval of the Avalon Country Club, secretary.

It was unanimously decided that all members of the Indiana Greenkeepers’ Association would attend the National Greenkeepers’ convention to be held at Columbus, Ohio, February 3-6, 1931.

Round Top—A New Club
Williamsport, Pa.—The Round Top Golf Club, a new organization which has held an option on 80 acres and the big residence of the Round Top farm, situated on the hill within a short distance of Hall’s Station, has closed a deal for the property, and work on the course has been begun.

Answer the Call
By FRED A. BURKHARDT, Chairman
Show Committee, the National Association of Greenkeepers of America

Columbus is calling the greenkeepers to the 5th Annual Greenkeepers’ Convention and Golf Show. Take heed and enrich yourself of the constructive educational program and also see the new golf maintenance equipment.

The game of golf has spread rapidly through this North American continent of ours and has progressed in vast strides. So our Golf Show and Convention has to meet the demands of finer golf courses. We are having an exceptionally good educational program. Even if we had nothing else to offer, you, as a progressive greenkeeper, cannot afford to miss it. On the Speaker’s program are men of national reputation in golf course turf and maintenance problems.

The Show room will also be of interest to men who like to see the latest in machinery that is built to help you maintain your golf course. What better place could you go to compare the different manufacturer’s equipment than to one room, which contains them all with their materials open to everyone. Anyone thinking about buying new equipment or replacements for their old should see the display before making a final decision on their purchases.

The chairmen who are interested in turf work will find that our educational program is very instructive and they will also have a chance to look over a Golf Show that is put on by greenkeepers for the benefit of everyone interested in turf maintenance. Park and cemetery superintendents are always welcome because their problems are our problems and we would like to see everyone that is interested in turf take advantage of this show and program of ours.

The Show is going to be larger, the educational program better and all we need to make it a real success is to have everyone interested in turf work come to Columbus the first week in February.
The Annual fall meeting of the Board of Directors of the National Association of Greenkeepers of America, was held in New York beginning Monday, November 17th, and lasting through until Thursday, November 20.

The headquarters were at Hotel Roosevelt and the following members were present:

John Morley, Youngstown, Ohio, President.
John MacGregor, Chicago, Ill., First Vice-President.
Lewis M. Evans, Ardsley, Pa., Second Vice-President.
William J. Sansom, Long Branch, Ont., Canada, Third Vice-President.
George Davies, Louisville, Kentucky, Fourth Vice-President.
Robert J. Hayes, Pelham Manor, New York, Fifth Vice-President.
Fred Burkhardt, Cleveland, Ohio, Treasurer.
John Quaill, Pittsburgh, Penna., Secretary.

President Morley presided and opened the meeting with an address explaining purposes of the meeting and asked for the cooperation of the Board in carrying out the program.

The president presented a letter from Mr. G. V. Jones of the Baltimore and Ohio Railroad offering his services gratis as transportation manager for the association to handle the usual transportation work for the 1931 Convention and Show. A motion was made that we accept his services and the motion was duly seconded and carried. The secretary was instructed to notify Mr. Jones of his agreement.

President Morley appointed the following committees to report at the next session of the Board.

Finance—Hayes, Davies and Sansom.
Golf Show—MacGregor, Quaill and Evans.
Conference and Convention—Evans, Burkhardt and Davies.
National Greenkeeper—Lundstrom, Sansom and Quaill.
Law—Burkhardt, Quaill and Sansom.

SECOND SESSION ON THURSDAY

The second session of the Board of Directors was held on Thursday, November 20 and was presided over by John MacGregor, first vice-president because Colonel Morley had been taken...
ill and was compelled to leave for home, accompanied by Fred A. Burkhardt. All the other members of the Board however were present.

The various subjects assigned to special committees were brought before the meeting and discussed on the floor. It was decided that the books of the secretary, treasurer and Show committee be closed December 31st each year and be audited by a public accountant, and it was also decided that the secretary select an auditor to recommend and install a suitable bookkeeping system to take care of all accounts and that the adopted system be followed explicitly.

The Board was unanimous in the opinion that the speakers should exclude all commercialism from their lectures.

Since some revision in the By-laws seems to be necessary the Chairman appointed Messrs. Evans, Burkhardt and Quaill to act as a committee and to report at the Annual meeting.

In connection with the Benevolent Fund it was voted that no member can receive more than $100.00 at any one time and that the total amount in each case is to be decided by the Board of Directors. In this connection steps will be taken to change the Death Benefit Fund as soon as possible.

NEW YORK DISTRICTS ARE HOSTS TO EXECUTIVES

The Local Associations of the Metropolitan Area were hosts to the Executive Committee during their recent Fall meeting held at the Roosevelt Hotel, New York City, November 17 to 20, 1930.

Vice-President Robert J. Hayes of Pelham Country Club arranged a program that covered many places. The time we had to visit was altogether too short to do it justice as there are so many courses in the Metropolitan District. However, by touching here and there, we covered quite a bit of ground and visited representative clubs in all sections.

On Monday, November 17, we left Hotel Roosevelt and journeyed to the Oak Ridge Country Club where we were met by Hugh McGill, the genial greenkeeper of that fine layout. Here we lounged around the club house for a while waiting for the boys to gather to partake of a fine luncheon. After luncheon we walked over the course and took in some pretty sights. The weather was very poor and did not treat us kindly as there was a continual mist falling all the time. This made it unpleasant and we decided to see if we could find better weather some other place. Mr. Sobol, Chairman of the Green committee and Willie MacFarlan, the Pro (former open champion) apologized for the poor weather and assured us that it was not always
like that and extended us a hearty invitation to return at some future time and see for ourselves.

From Oak Ridge we went to the Century Club to look over some creeping bent which is attracting a lot of attention in that part of the country. Upon seeing the turf, we had no doubt at to why it was attracting attention. It was the most beautiful piece of bent that I have ever seen and I have looked at quite a lot. It was of beautiful color and the texture was very fine. It is a rapid grower and spreads very fast and forms a dense carpet which is not so spongy as some other strains of bent. Greenkeeper Henry Shakeshaft is to be complimented on developing such a strain of bent.

Our next stop was scheduled for Round Hill Country Club at Greenwich, but as we had to go past the Progress Club where Capt. D. L. Rees is in charge, we thought it time well spent to side track the schedule a bit and call on him. We found him at home and spent a pleasant time with him and we were all glad that we were in the vicinity so we could call on him.

Traveling on to Round Hill, we found a beautiful course. The natural beauty immediately commanded one's attention and the course is well laid out among the rugged hills. The huge granite boulders which outcrop everywhere act as natural hazards and also act as natural obstacles in keeping the course in good shape. In places on the fairways, they almost come to the surface and at the first signs of dry weather, they show up and all the water does not seem to be able to hold them from drying out. The swimming pool is one of the most beautiful ever seen. It is worked into the landscape and harmonizes wonderfully well. Well, it is still raining so we are anxious to be getting along so we are on the road to Lawrence Inn, where a nice shore dinner is awaiting us.

Arriving at Lawrence Inn on the Boston Post Road in Mamaroneck we were treated to a fine dinner by the Westchester Greenkeepers' Association. Mr. William A. Grover, President of The Westchester Association, was toastmaster and introduced the various speakers. The evening was a very enjoyable one and a vote of thanks was given the Westchester Greenkeepers for their hospitality.

Tuesday proved to be a better day in the way of weather. It was cool but there was no rain in the air. We were met at the hotel by Elmer Affeldt and Harry Williams who took us to look at some of the Long Island courses. The day was spoiled to some extent by the sickness of President Morley, who had to remain behind. However he promised to pick us up later in the day if he felt better.

We first visited Pomonok Club where we were received by William Joy. We were shown around the course and enjoyed a pleasant visit and all too soon we were pushed along to keep up our schedule. Our next stop was at Fresh Meadow where we were shown some fine turf and layouts by Ed O'Brien. We next stopped at Deepdale where we were driven over the course stopping here and there to admire some thing of interest.

Our next stop was for luncheon at the Elks' Club where we had a little snack to hold us over. From there we went to the Women's National Links where we were met by the genial Jack O'Toole and several of the other Long Island boys. After looking over the high spots of O'Toole's course we were on our way to the new Crescent Athletic Club's course at Huntington. We were met by the jovial Al Lundstrom and partook of his hospitality and inspected his new work until time for dinner.
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See our exhibit at the 5th Annual National Greenkeeper's Golf Show, February 3-6, Columbus, Ohio

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The Long Island Greenkeepers were our hosts at the Elks' Club in Huntington and the evening proved a large one. Mr. Pierce Olson acted as toastmaster and kept the ball rolling every minute. A pleasant surprise awaited us for as we were about to start eating, who walks in but our Hon. President Col. John Morley. This made the evening complete and we started in to do justice to a hearty meal as no one but a greenkeeper can.

President Morley gave one of the best talks that he ever gave. He touched on several subjects but brought home the value of fraternalism. Lew Evans kept the meeting in an uproar by his incessant jesting with the toastmaster. Several officials of the Elks' Club welcomed us and told us the place was ours and did all in their power to make the dinner a pleasant one. Several greenkeepers gave short talks and when the meeting adjourned it was with regrets that we had to call it a day, but as we had plans for another busy day on the morrow we were glad to get back home to get a little rest.

Wednesday morning dawned bright and clear and we were soon on our way to the ferry that was to carry us to Staten Island where our tour of the New Jersey District was to start. The trip on the ferry was a very pleasant way to start out as we could get a wonderful view of the city waterfront and the enormous amount of business that centers around New York harbor.

Arriving at Staten Island, we were met by Mr. Riggs Miller and a large body of the New Jersey greenkeepers. We proceeded to the Richmond County Country Club where we were shown parts of the course by Mr. Miller. Returning to the clubhouse we were alarmed to find President Morley not feeling so well and this somewhat dampened our ardor. Col. Morley decided not to make the rest of the trip and accompanied by Fred Burkhardt returned to New York.

After enjoying the hospitality of Mr. Miller we were on our way to the New Jersey State Experimental Grounds at New Brunswick. Here we were met by Dr. H. B. Sprague and his assistant Mr. Evaul. We were shown over the very interesting grass plots and experiments conducted by these two able men and found that this was a most interesting and educational trip. Dr. Sprague will
be remembered as one of the speakers at our last conference at Louisville. He will also be one of the speakers this year at Columbus. He will tell us of some of the experiments he has conducted and the results obtained during the past year.

We were entertained at lunch at a hotel in New Brunswick by the New Jersey boys and enjoyed some after dinner talks by several of those who attended.

From there we went to the Essex County Country Club and looked over the course of Mr. William Sharkey, one of the oldest greenkeepers in the country. Mr. Sharkey started greenkeeping when the profession was a pup and has seen it grow to the present size. We were royally entertained at his home and partook of his hospitality until it was time to return to New York. Coming home we traveled through the famous Holland Tubes under the Hudson River and landed safely back at the hotel.

Thursday was set aside as a day of business. The meeting of the Board of Directors was called for ten o'clock, so we put pleasure aside and settled down to work. The business finished, we reviewed the past three days' journeys and all voted that we extend to all the greenkeepers of the Metropolitan District, a hearty vote of thanks for the wonderful times they showed us and for the trouble they went to to make our visit among them a pleasant one. This was the unanimous opinion of all present. We especially wish to thank those who furnished automobiles and arranged the program and saw to it that we wanted for nothing.

Four days were not enough for Lew Evans and myself so we accepted the invitation of Bob Hayes to spend the night with him at his home and take in some more courses on Friday. So without any misgivings whatever we jumped at the chance and spent another pleasant day in New York. We traveled to Chappaqua to visit our old friend John Pirie and what a trip it was. He took us over the Whippoorwill Course and showed us some high powered construction. The very magnitude of the project amazed us to say nothing of the obstacles that had to be contended with. Blasting a fairway through solid granite, drainage, securing top soil and a host of other things were some of the things we saw. All in all it was a tremendous undertaking, and John Pirie has come through on top.