

might well be written upon the subject all full of interest and useful information.

The greenkeeper has a varied as well as extensive charge; his greens may be compared with the finest, but the fairways must be kept under control and this calls for a different method than those applied to greens. Club officials have long recognized the fact that to maintain good putting greens they must be top-dressed, fertilized and watered; not so with fairways which are usually left to look after themselves outside of cutting and rolling in season.

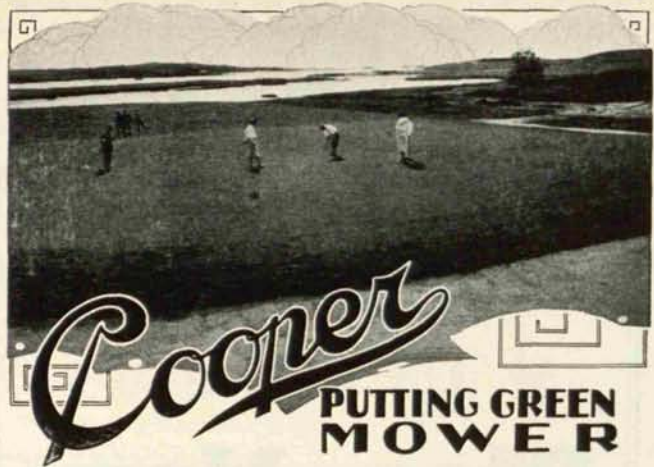
More Attention to Fairways

THIS is one of our great problems we have to face in Canada. The present day golfer demands better fairways. Generally speaking there usually is plenty of grass on our fairways, but how often do we see it undernourished.

Plants require food just as animals do. Greens are top-dressed and fed regularly, but fairways are more or less neglected. Club officials would do well to appropriate a sum of money each year for fertilizing fairways. On established courses where the turf is thin, top-dressing with compost would be too costly. Unless the club owned land not in use one could not get top soil for the purpose of top-dressing.

Fairways would be greatly benefited by the use of good top soil. When turf is thin and undernourished, weeds and clover will take possession—a sure sign of the absence of proper fertilizer. If a well-balanced fertilizer suited to the particular soil were used, the grass would respond. Two great drawbacks in Canada are insufficient moisture for the ideal turf production and the shortness of the seasons.

Last summer, for an example, with very little or no rain from the end of June till October, undoubtedly our fairways suffered during that long period of drought, more especially on light sandy soils. I am expecting to find turf on our fairways to be very much thinner at the arrival of spring as the result of the prolonged dry spell of last summer. Unless the soil contains sufficient properly balanced plant food the grass plant will not spread and cover the ground; weeds will come into the thin spots

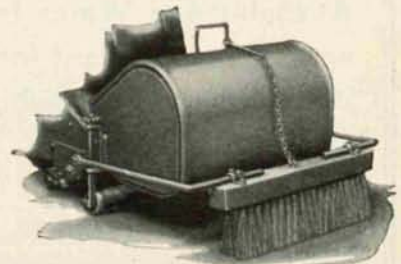


Designed to meet the demands of progressive greenskeepers.

Not only trims the grass to perfection but adds with each cutting the gentle rolling action that rolls without packing or injuring the turf. Fabricated steel and aluminum alloy frame construction provides strength with minimum weight. The smooth traction roller with independent cast aluminum sections and standard differential drive, permits easy turning and maneuvering without danger of injury to turf.

Finger tip control; 4-cycle Briggs and Stratton motor; reel and bed plate one detachable unit; anti-friction and roller bearings throughout; grease packed gears; and independent reel and traction drive that eliminate the necessity of a transport cart, all are distinctive Cooper features.

Grass catcher can be very quickly attached. Improved Cooper brush attachment makes it easy to scientifically combat Worm Casts, Brown Patch and destructive fungus growths.



In addition to this special putting green mower, there is also the Cooper Power Mower in two popular sizes 20 and 27 inch . . . for lawns and bunkers. Cooper riding sulky may be used with either size.

Cooper Manufacturing Company
530 South First Avenue, Marshalltown, Iowa, U. S. A.

Gentlemen: Please send literature and specifications of the Cooper Putting Green Mower.

Name _____

Club _____

City _____ State _____



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MILORGANITE

*used on more than 1500 golf courses during
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Exceptional Mechanical Condition facilitates uniform distribution and makes it an excellent carrier for lead arsenate, sulphate of ammonia, etc.

Milorganite supplies valuable Organic Nitrogen, the vital plant food element for turf grasses. Its nitrogen is Highly Available and Water Insoluble. Upon application its plant food is gradually released, thus furnishing long, continuous feeding.

While ample reserves have been accumulated, it is suggested that clubs anticipate requirements early to insure prompt shipment during rush season.

**Milwaukee Sewerage
Commission**
Milwaukee, Wisconsin

and rob the grass of what plant food may be there. A very important factor in maintaining the fertility of a soil is the upkeep of its humus contents.

Fertilizing to Eliminate Weeds

WE HAVE seen the effects of fertilizing in eliminating weeds from greens. With so many different kinds of fertilizer on the market, the selection of a fertilizer is no small item of golf course maintenance, but one that must be carefully considered, and how much should be applied per acre.

Top-dressing with compost and the use of fertilizer will improve our fairways to a large extent, but alone will not certify a green turf, during the hot summer months. It must have water to insure this. No golfer of today wants to play on turf that is parched and the soil hard baked for the want of moisture. An irrigated course is essential to real golf and the maintaining of a good green turf with a climate such as ours.

The work of top-dressing should be done as early in the fall as possible, the month of October being the best month for this work. Material for this should be all prepared in readiness so that there can be no delay in the work proceeding, and play not interfered with. This also applies to fertilizing fairways early in the month of October, better still September, providing there is enough moisture in the land.

A great mistake in the past has been with the clubs not taking full advantage of the fall of the year when weather conditions are ideal for work of this kind. They put off a great many of the most important items of the season's work till spring with the result that it is very rarely done at all.

Club officials who are thinking of using fertilizer in the spring for the improvement of fairways would do well to apply fertilizer as early in the month of April as possible to insure getting the best results, bearing in mind that often-times the month of May is dry. This work should be left entirely to the greenkeeper; he will see that the time is used to the best advantage to get best results for the money spent, and to show results by improving his

fairways to the satisfaction of the club's Green committee.

New Fairways

IF CLUBS would spend a little more time and money in the preparation of fairways before seeding a course, it would well repay them in results. This can be accomplished by ploughing under a liberal supply of barnyard manure or by sowing oats or any green crop and ploughing under. Either method will afford ample humus and fertilizer to give the new seed a good start. After two years it may be necessary to work out a system of fertilization to keep the grass growing in a healthy condition.

A CORRECTION

In the December issue of the NATIONAL GREENKEEPER on How We Maintained Our Golf Courses in 1929, you have my letter headed "Heavy Rolling Makes Healthy Turf."

When I wrote this letter I wanted to make it plain that heavy rolling does not make healthy turf as I found by using heavy mowers on one nine and light ones on the other nine.

I wish you would correct this in an early issue.

(Signed) Lawrence Huber, Greenkeeper
Elks Country Club
Worthington, Ohio

Hyper-Humus

Gives Quick Response on PUTTING GREENS

Gentlemen:—We used Hyper-Humus during the present year to replace mushroom manure or compost in top-dressing (one-third Hyper-Humus, one-third topsoil and one-third sharp sand, by volume), and find that it gives very quick response when applied with fertilizer. It is much handier to use than compost and, if costs are considered, we believe it is much cheaper. We know that it contains a high percentage of useful bacteria which quickly convert such fertilizers as Urea, ammonium sulphate and cottonseed meal to the readily usable form.

Very truly yours,

W. W. Rhodes,
Green Committee, Wilmington Country Club, Wilmington, Delaware.

Write for literature and approved methods of application to

HYPER-HUMUS COMPANY
Newton, New Jersey

from

Newton-New Jersey



ARMCO *DRAINED* COURSES are ready— for play EARLIER and LATER



Speaking of speeding the season's arrival—Armco Perforated Pipe as subdrainage for fairways and greens is equal to an earlier spring and a late winter.

Because Armco Drains, *just under* the surface, take off snow as it thaws and rain as it falls, leaving the ground always "prepared"—firm—solid! Casual water? Never again!

Greenkeepers and architects prefer Armco Corrugated Pipe because, it being of pure iron, they can put it in this season and forget it for many years to come. Nature's test proves this superior drainage product to be longer lasting than any other corrugated metal pipe used for drainage.

Ask the greenkeeper of an Armco drained course. And—write for the facts on efficient golf course drainage. Without obligating you at all, an Armco Engineer will call and discuss your drainage problem, if you desire.

Armco culverts and drains are manufactured from the Armco Ingot Iron of The American Rolling Mill Company and always bear its brand.
Key NG3

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Middletown, Ohio

ARMCO *Perforated* PIPE



FRED A. BURKHARDT

\$250.00 in Cash Prizes for Best Convention Stories

PRIZES

1st Prize	-----	\$100.00 in cash
2nd Prize	-----	75.00 in cash
3rd Prize	-----	50.00 in cash
4th Prize	-----	25.00 in cash

ALWAYS progressive and anxious to improve and forge ahead, the Executive Committee of the National Association of Greenkeepers of America passed a resolution at its meeting in Louisville authorizing Fred A. Burkhardt, chairman of the Show Committee to offer \$250.00 in cash prizes for the four best stories from greenkeepers on the Louisville Golf Show and Convention.

It is the wish of the committee to find out exactly what the greenkeepers thought about the Show and Convention—whether or not it was better than previous meetings and suggestions for changes or improvements to consider for next year.

In other words the Greenkeepers' Convention and Show is not the business of just a few officials but of the entire greenkeeping fraternity and everyone should feel in duty bound to assist with intelligent and helpful ideas.

So here's your chance, boys—get to it. Both praise and criticism will be welcome as long as it is constructive and for the good of the Association.

STORIES

Stories should be limited to 1000 words written either by hand or typewritten on one side of the paper only.

Stories must cover—(a) Features of the Golf Show. (b) Features of the Educational Conferences. (c) Comment on improvements over previous shows and conventions and suggestions for next year, if any.

AWARDS

All stories will be copied and submitted in duplicate to the judges without name or address, but with a distinguishing letter such as a, b, c, etc., for identification. By this method they will be judged on their merits alone without knowledge of who wrote

them or where they came from so there can be no favorites.

The story receiving the highest aggregate number of points from the three judges will be awarded 1st prize—the second highest, 2nd prize, etc.

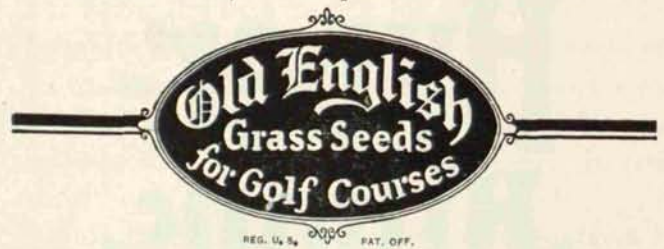
Announcement of the winners will be made in the May issue of the National Greenkeeper mailed April 25. In this and following issues the prize winning stories will be published.

TIME LIMIT

All stories must be in the hands of Fred A. Burkhardt, 405 Caxton Bldg., Cleveland, Ohio, on or before March 15, 1930.

JUDGES

John Morley, President, Youngstown
John MacGregor, Vice-president, Chicago
Robert J. Hayes, Vice-president, New York.



Beautiful Greens

... and fairways on hundreds of fine courses in all parts of the country are living tributes to the excellence of "Old English" grass seed.



Clean, hardy, tested seed—that is what the "Old English" seal stands for.

Samples and prices will gladly be submitted on request. Our golf department is also ready to advise on special problems.

The Philadelphia Seed Co.
Old English Grass Seeds
103-105 Arch St. Philadelphia Pa.



**JOHN
QUAIL
SAYS:**

I WISH to thank members of the National Association of Greenkeepers of America for the support they have given me in the past and for the confidence they have in me in selecting me for the third consecutive term as Secretary. I will endeavor to make this year a banner year and will to the best of my ability serve the association faithfully.

Somebody once said "Let George do it." And whoever said it must have had George Davies in mind. George surely did do it in Louisville, and how.

Mack Burke from Canton, thought he made a mistake and went to Chicago. Some playful Louisville folks staged a shooting match right near Mack's room. Mack checked out of that hotel about four a.m. and looked for more peaceful and quiet quarters.

Alec Binnie from Chicago cut his vacation in California short so he could attend the convention. That's what Alec thinks of our conventions.

We missed several of the old faces this year. Capt. Rees, Emil Loeffler, Charley Ream and Bob Henderson were among those who were unable to attend. They sure missed a lot and we hope they will not miss another.

Joe Mayo, that energetic little fellow from way out west, was much in evidence. Joe carried a sample of turf all the way from Pebble Beach just to show the eastern boys what he can grow out west. He says the porter on the train would water it for him but the son-of-a-gun didn't have a lawn-mower on the train so he couldn't cut it for him.

We were very sorry to learn of an accident that prevented Mrs. Lewis Evans from accompanying Brother "Lew" to Louisville. She broke her leg while coasting with Lew a few weeks ago. We missed her and little John as they were familiar figures at our other conventions. We wish her a speedy recovery.

That congenial Scotchman, the one and only "Scotty" McLaren was the life of many parties. Where Scotty is, there joy reigns supreme.

J. S. Clapper, President of Toro, had a few tricks with him beside a good exhibit. His card trick and magic pencil had quite a few of the boys guessing.

Mr. Robert E. Power, editor of the *National Greenkeeper*, was unable to attend owing to sickness. We missed him and hope he will be able to be up and about very soon.

Colonel Morley and Fred Burkhardt are anxious to tell everyone the correct time. I think they want to display the new watches they are so proud of.

George Davies and Mr. Bemiss, manager of the Kentucky Hotel tried their best to keep the boys from singing the National Anthem of the Association. From all reports, they succeeded.

Once more, boys, three cheers for George Davies and Louisville, Fred Burkhardt and his committee and all those who helped to make the Fourth Annual Convention of The National Association of Greenkeepers a success.



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McWANE Precalced Joint Cast Iron Pipe means:

1. Permanence. No rust, no repairs.
2. Unskilled labor can lay it.
3. Saves numerous costly fittings.
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THE low wheels on the Bulldog cutting unit permit a Simple pinion-and-pawl drive. High wheeled mowers necessitate a chain-of-gears that can cost high when anything goes wrong. Bulldog repairs, if any, can be made right on the job.

In addition, the Bulldog drive cuts wear in half by driving each cutting unit from *both* wheels. (Most mowers drive by just one wheel).

There are five special reasons why Ideal Bulldogs mean smoother, healthier fairways at lower cost per season. Send today for illustrated details.

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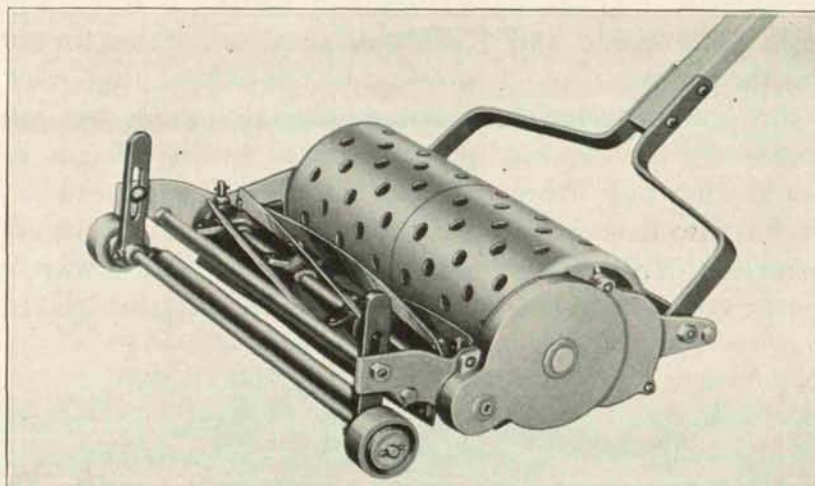
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Ferndale (Detroit) Mich.

Canadian Address: Aikenhead Hdwe., Ltd.

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IDEAL GOLF COURSE EQUIPMENT

There is No Lighter-running Greensmower



THROUGHOUT this entire mower, only the finest materials and workmanship have been used. Weight has been reduced—strength increased. It weighs but 54 pounds (complete with grass box). Ball bearings insure smooth operation.

Frame and rollers are aluminum. The four-inch, seven-blade, high speed reel shaves with razor keenness. A trial with this finest of greensmowers will put it on your staff for all time.

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d., 17 Temperance St., Toronto, Ontario
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— IDEAL GREENSMOWER

Short Course for Greenkeepers

University of Wisconsin devotes five days to interesting study of problems of course maintenance and turf.

BY H. HANKINSON

THE first greenkeepers' course ever held by a state university in the Mid-west was conducted by the College of Agriculture at the University of Wisconsin, Madison, from February 10th to 14th inclusive. Fifty-nine greenkeepers from Illinois, Minnesota and Wisconsin were enrolled in the course.

Faculty members for this course included the best that could be secured in the various fields. Specialists were selected not only from the College of Agriculture, but also from other places, so that expert instruction in all phases of golf grounds management could be given.

The subjects covered a wide range of interests from maintenance problems, golf grounds equipment and land drainage, to discussions regarding care of turf and plantings and the preservation of natural beauty on golf courses.

The best kinds of grasses for golf courses and greens and the care of turf were presented in detail in several lectures by John Monteith, grass specialist in the Greens section of the United States Golf association. The soil as a basis for plant growth and the use of fertilizers were handled in a practical way by O. J. Noer, soils and fertilizer specialist, and by C. J. Chap-



GREENKEEPERS ATTENDING THE UNIVERSITY OF WISCONSIN'S SHORT COURSE

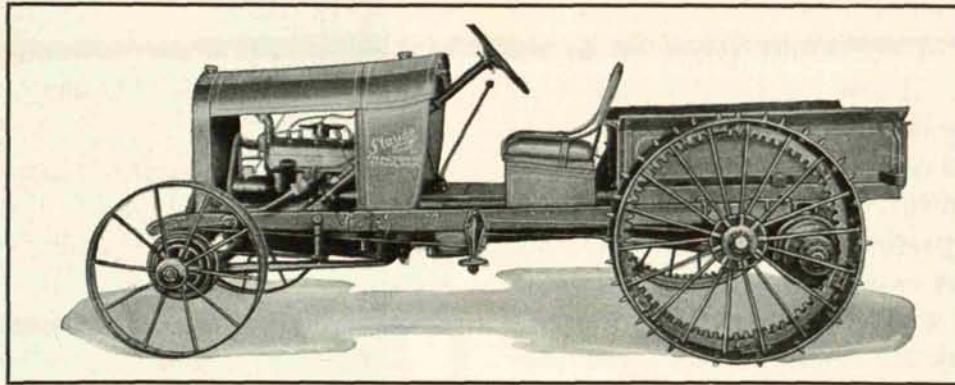
BOTTOM ROW, left to right—H. W. Schmitz, Sparta, Wis.; F. J. Ramey, West Salem, Wis.; John Bauer, Prairie View, Ill.; Adam Fleck, Brodhead, Wis.; C. R. Binkley, Freeport, Ill.; R. Kurtz, Milwaukee, Wis.; V. Miller, Milwaukee, Wis.; W. Merrifield, Delafield, Wis. SECOND ROW—E. A. Leitzinger, Cambridge, Wis.; F. Boeye, Northbrook, Ill.; F. J. Dinnelli, Northmoor, Ill.; H. Neipert, Jefferson, Wis.; P. F. Sieber, LaCrosse, Wis.; D. Gates, Williams Bay, Wis.; Fred Peters, Waukesha, Wis.; E. A. Fox, Racine, Wis.; C. B. McCann, Eau Claire, Wis. THIRD ROW—Harry Stewart, Cambridge, Wis.; C. L. Kalitoski, Westfield, Wis.; H. J. Wittenberg, LaCrosse, Wis.; Will Bryant, Brown Deer, Wis.; H. Bergan, Winthrop Harbor, Ill.; P. Brockhausen, Wauwatosa, Wis.; Don R. Boyd, Northbrook, Ill. FOURTH ROW—P. G. Wagner, West Bend, Wis.; P. W. Sommers, Elkhorn, Wis.; Otto Schael, Wausau, Wis. FIFTH ROW—R. E. Farmer, Milwaukee, Wis.; V. S. Bietz, Beloit, Wis.; F. B. Reinhardt, Beloit, Wis.; Dick Ryerson, Milwaukee, Wis. SIXTH ROW—J. Glaster, Delavan, Wis.; M. P. Christensen, Racine, Wis.; H. W. Kubiak, LaCrosse, Wis.; F. L. Johns, Platteville, Wis.; E. J. Simons, Rockford, Ill.; A. R. Ludwigsen, Hartland, Wis.; E. Foster, South Milwaukee, Wis.; E. J. Levenhagen, Milwaukee, Wis. SEVENTH ROW—B. M. Donagan, Bloomington, Ill.; R. E. Meyers, Baraboo, Wis.; E. M. Iverson, Williams Bay, Wis.; J. N. Monical, Maywood, Ill.; R. R. Springer, Rockford, Ill. EIGHTH ROW—A. J. Gillett, Rockford, Ill.; F. J. Hartwell, Hinsdale, Ill.; J. S. Bone, Madison, Wis.; Mavor Boyd, Hillside, Ill.; J. B. Boyd, Northbrook, Ill.; L. W. Quigley, Wauwatosa, Wis. LAST ROW—L. R. Bloomquist, Minneapolis, Minn.; R. Zwerg, Madison, Wis.; R. B. Michael, Oconomowoc, Wis.

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Built Especially for Golf Course Use. Fulfills Every Requirement

The Staude Golf Course Tractor can be used from the construction to the maintaining of the golf course. Any make of mower, roller, disc, plow, etc., can be easily attached to it. The Staude is low in first cost, low in operating cost and repair costs are practically nothing. The Staude is sold on a money back guarantee.

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man and E. J. Graul, professors of soils in the College of Agriculture.

Among other worthwhile things in his talks, Mr. Noer stressed the importance of the physical characteristics of soils and showed that many disappointments in the matter of turf were the result of neglect to get good physical structure at the start.

Seed Expert Gives Advice

IN lectures and seed demonstrations, A. L. Stone of the Wisconsin agronomy department informed the greenkeepers of the impurities to be found in cheap mixtures of grass seeds and warned against purchasing seeds from companies not known to be reliable. In his laboratory section, students of the course were shown how to detect certain weed seeds, chaff, and other matter detrimental to good stands of grass.

Diseases of grass and other pests of golf courses, such as animals and insects, were discussed in an enlightening manner by A. S. Dahl, disease specialist of the United States Golf association and by H. F. Wilson of the

Wisconsin economic entomology department.

Drainage problems were handled by E. R. Jones and F. W. Duffee, College of Agriculture engineering department, and home-made devices and commercial equipment for golf courses were taken up by C. A. Tregillus, manager of the A. D. Lasker estate at Lake Forest, Illinois.

Franz A. Aust, associate professor of landscape design, gave suggestions and advice in the care of trees. He also pointed out that responsibilities rested with greenkeepers everywhere in the matter of helping to preserve natural outdoor beauty. The golf course, he said, should be maintained as a portion of America's beautiful countryside and seldom landscaped to resemble a city estate.

Laboratory Work Interesting

FOUR laboratory sections during the course gave all students opportunity to study more in detail the problems taken up in lecture and discussion periods. These groupings were particularly helpful because actual equipment and materials could be seen and handled. Labora-

tory subjects consisted of seed studies, soil problems, gas engines, and land drainage. Each group was given instruction in a different subject each day.

An hour or more every day was given over to discussions of the topics taken up in the lecture periods. These round table talks were informal; students were urged to ask questions relating to their own personal problems in golf course management, and answers were given by experts in the particular line of discussion announced and by experts in closely allied fields, one or more of whom were always present. In these round table discussions, students also profited from an exchange of experiences with other students, they said.

At the close of the four and one-half day session, the greenkeepers were agreed that the information and practical studies packed into the course might well have been extended over a period of several weeks.

Following is the formal program of the course, and a list of the students enrolled:

**Short Course in Greenkeeping
University of Wisconsin, Madison, Wisc.
STAFF**

F. A. Aust. Professor of Landscape Design, University of Wisconsin.

C. J. Chapman. Professor of soils, University of Wisconsin.

A. S. Dahl, Disease Specialist. Green Section, U. S. Golf Ass'n.

F. W. Duffee. Professor of Agricultural Engineering, University of Wisconsin.

E. J. Graul. Professor of Soils, University of Wisconsin.

E. R. Jones, Professor of Agricultural Engineering, University of Wisconsin.

John Monteith. Grass Specialist, Green Section, U. S. Golf Ass'n.

O. J. Noer. Soils and Fertilizer Specialist, formerly Soils Dep't, University of Wisconsin.

A. L. Stone. Professor of Agronomy, University of Wisconsin.

C. A. Tregillus. Manager of A. D. Lasker Estate, Lake Forest, Illinois.

H. F. Wilson. Professor of Economic Entomology, University of Wisconsin.

PROGRAM

General sessions held in Horticultural Building.

Monday, February 10

- 10:00 a.m. Registration
- 1:15 p.m. Announcements
- 1:30 p.m. Grasses for golf course, their adaptation and propagation _____ Mr. Monteith
- 3:00 p.m. Properties of soil and their relation to plant growth _____ Mr. Noer
- 4:00 p.m. Soil acidity, its detection and control _____ Mr. Graul

Ready for Spring
with a Complete Line of
Seeds, Equipment, Ferti-
lizers for Golf Courses and
Sport Grounds up-keep.
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SOUTHERN HEADQUARTERS
for
GOLF COURSE
EQUIPMENT

T. W. WOOD & SONS
RICHMOND, VA.

Tuesday, February 11

- 8:00 a.m. Grass seeds and their impurities _____ Mr. Stone
- 9:00 a.m. Sources of plant nutrients, _____ Mr. Chapman
- 10:00 a.m. Grasses for greens _____ Mr. Monteith
- 1:30 p.m. Laboratory instruction
 - Section 1—Seed studies _____ Mr. Stone
 - Section 2—Gas engines _____ Mr. Duffee
 - Section 3—Land drainage _____ Mr. Jones
 - Section 4—Soils _____ Mr. Graul
- 3:30 p.m. The use of fertilizers for turf development and maintenance _____ Mr. Noer

Wednesday, February 12

- 8:00 a.m. Diseases of grass and their control _____ Mr. Dahl
- 9:30 a.m. Animal and insect pests of golf courses _____ Mr. Wilson
- 10:00 a.m. Round table on grass fertilization _____ Mr. Noer
- 1:30 p.m. Laboratory instruction
 - Section 1—Gas engines
 - Section 2—Land drainage
 - Section 3—Soils
 - Section 4—Seed studies
- 3:30 p.m. Tree planting and care _____ Mr. Aust

Thursday, February 13

- 8:00 a.m. Principles of land drainage _____ Mr. Jones
- 9:00 a.m. Care of turf _____ Mr. Monteith
- 10:00 a.m. Round table on grass problems _____ Mr. Monteith
- 1:30 p.m. Laboratory instruction
 - Section 1—Land drainage
 - Section 2—Soils
 - Section 3—Seed studies
 - Section 4—Gas engines
- 3:00 p.m. The labor factor _____ Mr. Tregillus