

miles of the seaside place at which the British girl star was staying. Again it was demonstrated that heaven's help is for the pros. The sun burst through, Miss Weathered recovered, a battery was borrowed and the British authorities who were handling the forthcoming Ryder Cup sailing arranged to have the camera bond waived.

The Prince of Wales interested himself in the pictures and requested a set of them when completed. Edward the En-deared, top-sergeant of the realm, is quite a motion picture golf fan himself. He got the bearings of his own Filmo hot taking pictures of Jones early this summer.

Films Are Analyzed

In analyzing the films George has made some very interesting and instructive charts. Measurements were made of the paths of the clubhead and hands and the movements charted. Miss Weathered, by the way, has the nearest technically perfect swing of the lot. Many of the old stand-bys in instruction are eliminated by a study of these pictures, among which is that old line, "the clubhead must lead the hands." At the point of impact only Vardon has his hands and the clubhead nearly in line. Miss Weathered's hands are a few inches ahead of the clubhead and Jones' hands are almost six inches ahead.

NOW is the time to start thinking about improving those weak golf holes on the course. Collect several hundred score cards of actual rounds played by your members, dubs and sharp-shooters, average the strokes needed on each hole of the layout separately, and you will be able to pick out the holes that need tightening up.

Don't be guided by popular opinion. Just because the conviction has grown that Number Five is too easy, is no reason to tear up the hole. Very possibly, your averages will disclose that two or three others are poorer holes than condemned Number Five.

RESPONSIBILITY for replacing divots should be fastened on the caddies. Drill it into their heads that they *must* retrieve and tamp into place every divot their player takes. Don't leave it to the players alone.

One alibi less



"I'd have had a birdie if my putt hadn't hit a worm cast!" That's one alibi you won't hear at your club after you have sprinkled your greens with Dolco Diworma. Because this powerful chemical kills the worms so that there are no casts.

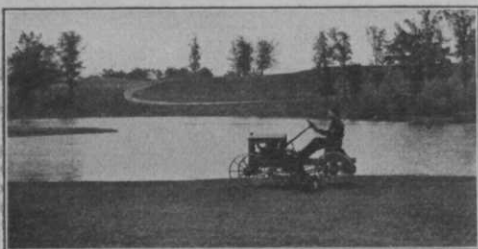
Diworma drives them to the surface where you just rake them up. No dead worms rotting in the ground and attracting ants! No harm done to the grass when simple directions are followed.

You just dilute *Diworma* in 250 parts of water and sprinkle. And the easiest way to apply it is with the new Dolco Sprinkling Cart. Write for complete details about this quick, easy, economical method of maintaining true, level greens.

DOLCO DIWORMA



The C. B. Dolge Co., Westport, Conn.



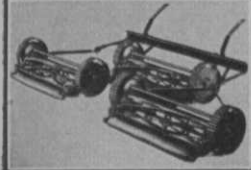
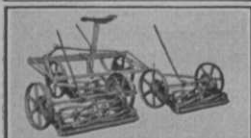
Thousands of NATIONAL mowers have satisfied owners covering every state in the Union.

NATIONAL MOWER COMPANY

839 Cromwell Ave.

St. Paul, Minn.

Write for Catalogue



NATIONAL POWER QUINT

The mower that can go and cut where you can only wish the others could.

More compact.

Goes up steeper hills.
ENGINE DRIVEN
MOWERS.

Wing cutters fold in.
Can back out of narrow places.

Follows the contours of the ground.

Price complete,

\$1285.00

NATIONAL Standard Fairway

Triplex **\$365.00**

Hardened Gears
Running in Oil.

Quint... **\$660.00**

NATIONAL Junior Fairway

TRIPLEX 86 in.

\$185.00

NATIONAL MOWER COMPANY

839 Cromwell Ave.

St. Paul, Minn.

Write for Catalogue

Price Protection Not a Misery of Pros Alone

PROS complain about the cut-price competition that assails them from time to time. Manufacturers of golf goods mourn at the price-cutters wrecking their price structures. What to do?

It seems to be getting more evident that the pros' only protection against damage by the price-cutters is better merchandising. For 10 years there has been a bill in Congress that proposes to enable the manufacturer to prevent buying of his goods by a retailer who will not maintain the established retail price. The bill has been subjected to expert aid and expert criticism but never has been passed, despite frequent alteration. The price demoralization suffered by the drug industry, for instance, is immeasurably tougher than that in the golf business, but neither the drug people nor any of the other seriously affected businesses have been able to get anywhere with the legislation for the simple reason that many merchandising authorities claim the old law of supply and demand applies stronger than any other legislation.

In support of the opinion that legislative price fixing is just some more bunk legislation like prohibition, Herbert Corey in a recent issue of *Nation's Business*, cites the collapse of the British government attempt to fix and maintain a high price on rubber, the flop of Brazil's attempt to maintain a coffee price, Japan's failure to preserve camphor monopoly prices, the Chilean nitrate price-fixing bust, the European beet growers sugar price maintenance tragedy and the sad fate of the Mexican plan to fix the price of Mexican hennequen for binding twine.

When powerful governments have been unable to maintain prices, the prospect for pro and manufacturer success in this direction seem slim.

Which again goes to show that about every way the pros look in this new giant business of theirs they see a major problem. That means the smart students of business alone will fatten on the survival of the fittest in pro golf.

A HIDDEN bunker, one that cannot be seen from the shot area, serves no purpose in making the shot tougher for the golfer. The only excuse is around greens to prevent off-line shots from rolling down into ravines or onto adjoining tees.

FREE TEE DEALS NEAR END OF ILL-FATED HISTORY.

Supplying patented tees free to golf players, a practice that two years ago reached its apex as an evil in the golf business, is practically through as a disturbance in golf goods merchandising.

Golf clubs that supplied free tees to their members found that the members kicked because the type of tee each individual preferred was not given away. As is customary with free deals, no matter what type of merchandise was distributed gratis, the most active voices in the club always wanted something else. Tees by the thousands ran up golf club costs and resulted in additional expense policing the grounds as no one stopped to pick up a free tee. The tees given away as advertisements became so common that they lost their novelty advertising value.

Tee manufacturers who consider the pro business interest as well as the desire of each player to keep his club operating costs low, have discouraged the free tee deals. The Granby Mfg. Co., makers of the "Peg" tee, pointed out in a March GOLFDOM advertisement that the average player's expense for tees during an entire season is only about what it costs him for one good golf ball. Granby further commented that the spirit of the times in calling for elimination of wasteful practices in club operation, sounds the signal for cancelling free tee distribution.

Nieblo Mfg. Co., "Reddy" tee makers, record one of their numerous observations anent discontinuance of free tees at golf clubs.

Nieblo says: "The Oakwood G. C., Cleveland, Ohio, decided in 1926 to throw out all the sandboxes and install ball-washers in their places. Each member was asked to buy tees from their pro. After this plan had been in operation several months, the Oakwood club reported that it was entirely satisfactory, as not one complaint had been registered from any of the 400 members."

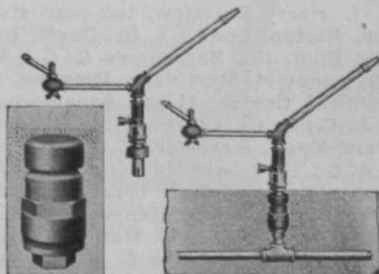
Another angle not to be overlooked is the relation of the club professional to the membership. The pro is employed by the members, and one of his duties is to run the pro shop, which means that he must keep a complete line of up-to-date golf supplies, at his own expense, for resale. One of the outstanding advantages to the pro in having tees in his shop is that almost every member at one time or another comes into his shop for them.

C. C. Prindle, Secy., North Hempstead C. C. covers the expense phase of the situation in the two last paragraphs of a letter to Nieblo, by stating:

"We were giving away approximately 10,000 tees a month which in the course of a year means an item of about \$250.00. Recently we discontinued the practice."

A Full Inch of Water With This New Quick Coupling Valve

For modern, hoseless systems, the new Economy Quick Coupling Valve is a boon to better water distribution. It is a true valve, not a snap valve, and allows full water passage. Its seat is leather, non-leaking, easy to replace. The opening and closing operation is positive—and no hose to buy.



Economy Sprinklers take care of every sprinkling situation, making every water system entirely adequate. They are economically and efficiently aiding the greenkeepers on half the golf courses of this country and Canada. Simple and rugged, there is an Economy Sprinkler for every need—for quick coverage, large and small coverage, for low and high pressure water systems.

Write for the name of our agent nearest you. He can give you demonstration and some worthwhile information.

ECONOMY IRRIGATION CO., Inc.
21 Spokane St. Seattle, Wash.

Distributors in Leading American and Canadian Cities

An almost half the golf courses in the U.S. and Canada

ECONOMY SPRINKLERS



GREENKEEPER STUDENTS AND THEIR INSTRUCTORS IN THE 1931 WINTER SCHOOL AT MASSACHUSETTS AGRICULTURAL COLLEGE

1. Harry Bairstow, two-year student at M. A. C.; 2. Julius W. Torok, Wee Burn Club, Norton, Conn.; 3. Dr. Davis, Botany Department, M. A. C.; 4. James F. Carberry, Lake Bluff, Ill., Shoreacres C. C.; 5. Timothy O'Connell, Sidney (N. Y.) G. & C. C.; 6. Sylvanus H. Martinage, Methuen, Mass., Merrimac Valley C. C.; 7. Sanborn Caldwell, Lynnfield Center, Mass., Sagamore G. C.; 8. Professor Gunness, Engineering Dept., M. A. C.; 9. George Figel, Turtle River, Minn., Bemidji C. C.; 10. Robert L. Mitchell, Salem, Mass., Kernwood G. C.; 11. Parker Moulton, Peabody, Mass., two-year student at M. A. C.; 12. Edwin Hansen, Concord (Mass.) C. C.; 13. Paul Wanberg, Waltham, Mass., Weston G. C.; 14. Carl Treat, Auburndale, Mass., Woodland G. C.; 15. Charles F. Carter, Cedar Rapids, Iowa, Kenmore G. C.; 16. Thomas F. Burke, Woburn, Mass., two-year student at M. A. C.; 17. Harry F. Quinn, Franklin (Mass.) C. C.; 18. Charles F. Bernard, Sandwich, Ill., Sannank C. C.; 19. James Twohig, Springfield, Mass., two-year student; 20. Henry J. Travers, Lexington, Mass., Paul Revere Club; 21. Henry J. Toole, Amherst (Mass.) G. C.; 22. Professor Markuson, Engineering Dept., M. A. C.; 23. Dr. Cubbon, Agronomy Dept., M. A. C.; 24. Professor Dickinson, Horticultural Div., M. A. C., in charge of winter school; 25. Joseph Whitehead, Cromwell, Conn., Middletown G. C.; 26. A. Wells Hare, Springfield, Mass., two-year student at M. A. C.

Massachusetts Conference Has Attendance of 200

(Continued from page 29.)

college; "Appreciation of Landscape in Golf Courses" by F. A. Waugh, landscape authority from M. A. C.; and round table discussions on "Soils and Fertilizers," "Golf Course Drainage," and "Water Systems," led by members of the M. A. C. staff; "How the Massachusetts Golf Association Can Help the Greenkeepers" by Talbot C. Chase, president of that body; "Some Water Relations of Turf Plants" by H. B. Sprague of the New Jersey Experiment Station; "Some Interesting Facts on Golf Course Mowers," by L. S. Dickinson of the division of horticulture at the college and director of the winter school; and motion pictures which included golfing with Jess Sweetser and construction and other factors in golf course management.

Wisconsin Course Emphasizes Greens Maintenance

(Continued from page 28.)

further the value of these talks, F. W. Duffee of the agricultural engineering department discussed the best kinds of mowers to select.

Detailed instruction in preparing soils during the construction of greens was given by O. J. Noer, formerly of Wisconsin's soils department. The subject of fertilizers was also assigned to Mr. Noer, and to C. J. Chapman of the soils department. E. R. Jones, professor in agricultural engineering, explained the drainage side of the question.

Pests that attack greens were, of course, a theme of vital interest to many of the greenkeepers. A. S. Dahl, disease specialist of the Green section, gave worthwhile instruction in controlling snow mold and

GOLF SHELTERS

Ready to Erect

Handsome shelter houses that are a credit to your course now cost no more than the ordinary home-made variety. The beautiful Hartmann-Sanders' shelter at the right, for instance, costs only \$285 made complete at the factory and shipped to you ready to erect.

Hartmann-Sanders columns and outdoor structures have been recognized as embodying the highest standards of the industry in both design and construction for thirty years.

Descriptive literature showing structures furnished for many leading Clubs of the country, will be mailed free. Hartmann-Sanders will be glad to prepare original designs to fit your needs, if stock designs do not suit.



Also benches, bridges, lattice fences, pergolas, swimming pool shelters and garden structures of unusual character. Write!



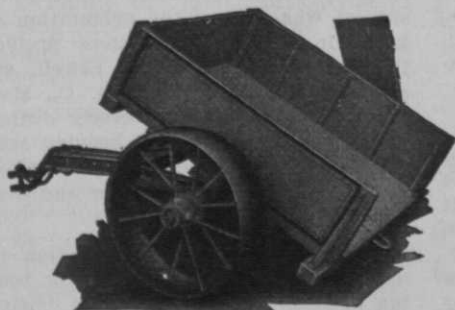
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Johnson's Dump Cart

$\frac{3}{4}$ Yard Capacity
10" x 30" Wheels

Price \$60.00

Grass Seed—Equipment

ARSENATE OF LEAD

TORO EQUIPMENT

BUCKNER SPRINKLERS

STANDARD—POLES—CUPS, etc.

BALL WASHERS

MILORGANITE

NU-GREEN

SEMESAN

J. OLIVER JOHNSON, INC.

World's Largest Golf Course Equipment House

MORGAN, HURON and SUPERIOR STS.

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Phone: Monroe 6580-1-2-3-4

Reduced in price as much as 33 1/3%

Takes spreading
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WRITE
at once for
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All-Purpose
DISTRIBUTORS

NEW SIZES AND FEATURES

Increased and simplified production now brings you a Distributor that seeds, fertilizes, sands, top dresses, and spreads chemicals—at a big saving. Four sizes, ranging from 18" to 48" spread, and priced from \$8 to \$30. New Automatic Control feature. Write for Circular and nearest dealer's name.

THE SALEM TOOL CO., Salem, O.



Greenkeepers from five states are here in this group photo of the 1931 Wisconsin short Course.

large and small brown-patch. C. L. Fluke, agricultural entomologist, explained how to rid greens of white grub. Weed nuisances, their avoidance and control, were taken up by A. L. Stone of the agronomy department.

New Features on 1931 Program

New subjects on this year's program were introduced by Kenneth Welton of the Green section, by J. G. Dickson, plant pathologist in the College of Agriculture, and by F. H. Elwell, professor of accounting at Wisconsin. Mr. Welton gave an excellent talk on the proper locations for

traps, and how they should be cared for to give the best service. Mr. Dickson's subject was that of the orientation of the green in regard to the snow problem in the northern states. Mr. Elwell, who is secretary of Maple Bluff G. C., Madison, in addition to his university duties, explained a new system of keeping accounts which would help to make a greenkeeper's work in budgeting a simple and accurate matter.

Besides giving clear instruction in the use of native plant materials for beautifying greens, F. A. Aust, of the department

Clean and Dry golf balls

QUICKLY-SAFELY-THOROUGHLY

with **Ann Arbor**

GOLF BALL WASHER and DRIER

Backed by a Liberal Guarantee

ANN ARBOR GOLF BALL WASHER and DRIER
948 GREENWOOD AVE.



Eliminates entire
towel cost—that's
economy!

of landscape design, showed moving pictures which demonstrated a practical method of tiling around trees for subirrigation purposes. The moving picture machine also came into play for illustrating how various diseases appear when they affect turf, and for showing views of experimental plots where work in growing different kinds of grasses was being done.

Discussion and laboratory periods were as practical as both students and faculty members could make them. The discussion periods were rich in worthwhile experiences which the greenkeepers themselves related. The laboratory periods, held each afternoon, gave the men opportunity to study drainage and soil problems, to see the latest and best in mowers, and to examine grass and weed seeds.

Fine Varied Program Given at Penn State

(Continued from page 29.)

Featuring the program Thursday afternoon was the effect of soil fertilization on the development of grasses, weeds, and fungus diseases. Professor H. W. Popp, of the department of botany, presented the nutritional requirements of plants. He pointed out the important life processes of plants, including the intake of nutrients and the manufacture of compounds.

Professors Patrick and White discussed the nature and value of fertilizer materials.

Green Section Experts Help

Friday morning the conference continued the discussion of the effect of soil fertilization on the development of grasses, weeds, and fungus diseases. John Montieth, Jr., Greens Section, U. S. G. A., presented the relation of soil treatment to fungus diseases. Professors White and Patrick gave the results of experimental work dealing with the development of turf grasses and the control of weeds. Professor White then summarized the fertilizer recommendations for fine turf grasses.

Starting February 2 and running until the conference opened was the annual greenkeepers' short course. Nineteen men attended this and also stayed for the conference. They were Allison, Beck, Cruikshank, Derr, Dygert, the two Erbs, Evans, Frable, Grosjean, Henriksen, Hornby, Lenikus, Ludwig, Rye, Snyder, Swan, Wolford, and Wrye.

Soils and fertilizers, fine turf grasses, weeds, insects, diseases, landscape prob-

FERTILIZERS

for Golf Courses

BONE MEAL
SULPHATE OF AMMONIA
SUPERPHOSPHATE
MOWRAH MEAL
MURIATE OF POTASH
SHEEP MANURE
NITRATE OF SODA

In addition to supplying the above basic materials, we are in a position to advise and supply mixtures for various conditions, or furnish mixtures made up to your specifications.

**NEW JERSEY
FERTILIZER COMPANY**
FERTILIZERS & CHEMICALS
375 Tonnelle Ave.
JERSEY CITY, N. J.

One Sure Way to Cut Maintenance Costs

Use CALO-CLOR for brown-patch control. It will save 67% to 75% and keep your greens free from this pest.

*Full Information
on Request*

MALLINCKRODT CHEMICAL WORKS

2nd & Mallinckrodt Streets,
St. Louis, Missouri

Introduced last July "Come-Putts"

are already becoming standard equipment among golf clubs everywhere.

The country over, and in Europe, Hawaii, and the Philippines as well.

They fill a long-felt need for which nothing adequate has ever been offered before.

"Come-Putts" white special water-proofed composition rings of standard diameter, outline upper part of hole on golf green and make it plainly visible as much as forty feet away. Dress up greens, support turf around holes, make new holes needed less often. Non-resilient—"bounce-proof"—remove the "accidental hazard" of a misshapen or broken-down hole.

Golfers who have played courses that are "Come-Putts" equipped cannot help making comparisons if your course lacks this finishing touch.

May be renewed two or three times weekly at less than a cent a hole per day—and oh, how they do improve the game!

Sanctioned by R. & A. and U.S.G.A.

Write for further particulars, or better yet, order to-day.

CHILTON CROCKER CO.
Park Sq. Bldg. Boston

PRICES
Per 1000
1000-2000
\$27.50
2000
and over
\$25.00
Trial lot of
500
\$15.00
f.o.b. Boston

lems, machinery, drainage, and irrigation were studied and applications made to fine turf management.

Discussion and laboratory studies covered the origin, formation, and physical properties of soils, soil acidity, and the purchase, mixing, and use of fertilizers and lime.

Feature Lab Work

Class room and laboratory work was done on classification, identification, and propagation of the important fine turf grasses, including seed identification and analysis.

The characteristics, life habits, and control means of the various weeds common to golf courses were studied, and weed seeds were identified.

A brief study of the insects affecting fine turf grasses was made with reference to their control.

Considering the nature of diseases and their effect on plants, the principles of prevention and control were applied to turf grasses.

Landscape problems included factors determining the location and layout of golf courses, and study of golf course plans, grading, trees and shrubs for golf courses and club house grounds, identification, special uses, planting, and maintenance.

A detailed study was made of gasoline engines, their operation, repair, care, and adjustment. The location, design, and construction of tile drain systems were covered. Power requirements, design, and operation of spray irrigation systems, pipe friction, pipe sizes, and pumps were studied.

Members of the faculty of the Penn State school of agriculture took care of the instructional duties.



Pat. Pend.

"SOD-KUT"

a hand-power sod-cutter

Produces sod of absolutely uniform thickness and square even edges, insuring solid, tight butting, with consequent quick knitting and firm, smooth relays. Cuts a strip 13½ in. wide, any length, any depth. No horses or tractors. Two men easily cut 15,000 feet of sod a day. Weighs less than 100 lbs. and uses no weights. Can be rolled about for removing pearl-wort with absolutely no injury to greens. Meets the exacting requirements of greenskeepers for a simple, trouble-proof, convenient and ACCURATE tool. Write for full information.

Pacific Greenskeepers' Appliance Co.
28 North Ninth St., Portland, Oregon

Two Essentials for Better Turf

Cocoos Creeping Bent Seed
Lecco, the Complete Grass Food

Information upon request

THE LYMAN CARRIER CO.
Granger, Indiana

Initial Michigan Course Draws Eighty Students

(Continued from page 28.)

from the associations of the state and from the U. S. G. A. through its representatives."

Program of the Michigan State College included:

Recent Developments in Greenkeeping—Representative of U. S. G. A. Green Section.

Soils and Fertilizers—Prof. G. M. Grantham.

Laboratory Study of Soils and Peats—Dr. Harmer, Prof. Grantham—Soils dept.

Grasses for Golf Courses—Representative of U. S. G. A. Green Section.

Round Table Discussion of Grasses—Led by Representative of U. S. G. A. Green Section.

Drainage Problems—Prof. Robey, Agricultural Engineering dept.

Landscaping the Golf Course—Prof. Haligan—Landscape Architecture dept.

Gas Engines—Prof. Musselman—Agr'l Engineering dept.

Laboratory Study of Gas Engines—Prof. Musselman and staff.

Service Offered by Botany Dept., M. S. C.—Prof. Muncie—Botany dept.

Turf Diseases—Representative of U. S. G. A. Green Section.

Round Table Discussion of Turf Diseases—Led by Representative of U. S. G. A. Green Section and Prof. Muncie.

Weed Control—Prof. Megee—Farm Crops dept.

Mowers—Prof. Musselman.

Service Offered by M. S. C. in Insect Control—Prof. Pettit, Department of Entomology.

Control of Turf Insects—Representative of U. S. G. A. Green Section.

Round Table Discussion of Insect Control—Led by Representative of U. S. G. A. Green Section and Prof. Pettit.

Grass Seeds—State Seed Analyst.

Round Table Discussion of Problems in Greens Management—Led by Representative of U. S. G. A. Green Section.

IDEAL ISSUES NEW MOWER AND SUPPLY CATALOG

Lansing, Mich.—The 1931 edition of the Ideal Power Lawn Mower Co. catalog now is available from Ideal headquarters or any branch office. The book gives complete details of the current models of Ideal mowing equipment and of standard items of other course equipment and supplies.

The Improved SIX BALL CLEANER



- One to Six Balls at a Time.
- Ejects Balls When Cleaned.
- It Does Not Splash.
- No Gears or Springs.
- Avoids Delay on the Tee.
- Requires Very Little Care.

Price Discount on Quantity Order

THE W. G. MFG. & SALES CO.
33 N. High St. Columbus, Ohio
Or at Your Dealer.

IMPROVES Hyper-Humus SOIL

Drought Insurance for Greenkeepers

One-third by volume of Hyper-Humus and two-thirds soil for your putting greens gives you a combination that holds moisture nearly five times longer than plain soil. Here's the comparison proved true by tests.

Common garden soil....lost.....8 oz. of water in 7 hours
A Mixture of soil and manure compost....lost.....8 oz. of water in 8½ hours
A mixture of one-third Hyper-Humus and two-thirds soil....lost.....8 oz. of water in 34 hours

Ask us for names of greenkeepers who have successfully used Hyper-Humus. Literature free. Tell us what your problem is.

HYPER-HUMUS COMPANY
51 Park Place Newton, New Jersey



Well kept walks show, at first tee, true indication of thoroughness in course care.

Keller Public Course Operation Model of Big-Play Maintenance

By HAROLD STODOLA

Golf Course Superintendent, Keller G. C., St. Paul, Minn.

THE Keller Golf Course, scene of the 1931 National Public Links tournament and the 1930 St. Paul \$10,000 Open, is a county public play establishment. The course is three years old and was designed and constructed by Paul N. Coates. He also has charge of the maintenance now.

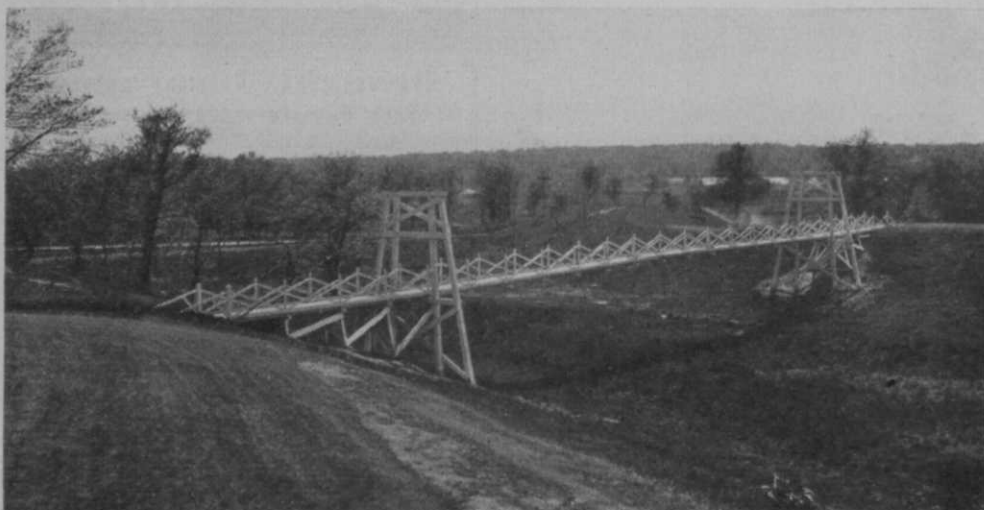
The course is 15 minutes drive from the loop of St. Paul. It is surrounded by excellent roads. The entire golfing area is surrounded by a stone wall which gives an "old English" effect. The main driveway is unusual because it winds through the course and still does not in any way detract from the natural beauty of the lay-

out. The clubhouse is well located, overlooking the course and city on one side and a chain of lakes on the other.

Two Practice Areas

There are two practice greens. One is close to the first tee so the players can hear their number when their turn is called. The other is large and some distance from the tee. Because we have so many people waiting to start off on the first tee, we try to keep them interested by plenty of area for practice putting.

We have dual tees. The purpose of this is to keep one perfect for tournaments or



Trim, substantial work like Keller's bridge on 7th hole, features course maintenance.