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CHICAGO WHEEL & MFG. CO. 1101 W. Monroe St., Dept. G. CHICAGO 7, ILL. it possible for the greenkeeper to receive, in informed quarters, recognition for highly commendable professional advancement.

Dickinson told of the continued need and expansion of turf maintenance education in view of the great increase of demand for superb turf. He said that the selection of students for the "higher learning" in turf maintenance should be carefully made to preserve the present high standard of personnel in the profession. The scope and technicalities of the curriculum Dickinson outlined in a manner that made plain the greenkeeper had to know enough answers to scientific and business problems to need an extensive practical education.

O. J. Noer, Milwaukee Sewerage Commission, gave Tips on Maintenance, illustrated by selections from his vast library of Kodochrome slides. Noer showed soil samples with layering that told him who happened to be greenkeeper at each time a layer was formed. He pointed out that sand layers caused trouble $\frac{1}{2}$ inch below the surface in July and August and that heavily matted turf preventing free movement of air and water was another source of serious trouble.

He showed examples of compaction and mower turning damage on greens, of scald, iron deficiency and sclerosis, detailing treatment for the latter. He also showed trouble resulting from tree roots growing much farther than supposed. He showed slides of goose grass tees in St. Louis and slides showing how U3 Bermuda tees were obtained in six to eight weeks in St. Louis. Noer said you'd better not have shade if you want good Bermuda growth and showed slides illustrating adverse effect of too much shade. He also gave material on handling Bermuda encroachment in bent greens.

Of interest to many was Noer's showing of bent fairway slopes facing south having localized dry spots due to excessive mat of grass. The nomadic expert advocated plenty of use of the aerifier in September to break up turf matting. He said that among last year's lessons one that stood out was that soil physically and chemically in good shape has turf standing drought quite well.

Studies Water Use

Prof. H. B. Musser, Penn State College, illustrated his talk on Use and Misuse of Water with charts. He said plenty still had to be learned about the function of water, effect on germination, nutrition, on soil organisms and on use of fertilizer. The deficiencies and excesses of water are an important part of the "know how" of course maintenance, said Musser. How much water to put on is influenced by capacity of the soil to store for plant use. The Pennsylvania Agricultural Experiment Station is studying the relationship of overwatering and compaction. Musser opined there was much waste in overwatering of bluegrass.

Fred V. Grau, L. S. Dickinson, Jesse De France, O. J. Noer and H. B. Musser con-ducted a Question Box. Among answers were: Excess phosphorus has tendency to cause sclerosis provided reaction of soil is above Ph 6; control of fairy ring by perforating with 1/4 inch rod about 4 inches to bottom of mycelium mass, with rod holes 3 to 4 inches apart, and pouring in Bordeaux mixture; combination of chemical and organic nitrogen fertilizers most effective in New England; cutting pearlwort out of bent greens about only sure way of elimination now; excessive clover an indication of fertilization not being in proper balance; apply treatment for snowmold at half rate in late winter after snow disappears. One problem nobody could answer was how to route bag carts to avoid excessive wear around greens.

Bermuda-Rye Switching

Phillip Cassidy conducted the Thursday morning session. Henson Maples, supt. of the three courses at Pinehurst, N.C., gave the very practical talk on Turf on Courses for Winter Play which GOLFDOM carries in full. Clyde Bryant, Dow Chemical Co., talking on New Chemical Herbicides for Weeds and Grasses, told that temperature is more of a factor than early indicated in 2, 4-D use. Somewhat higher dose of 2, 4-D has been found advisable for early treatment. Bent injury most likely during hot weather. Bent greens 2, 4-D treatment most risky; longer bent fairways stand 2, 4-D fairly safely. Salt formulations of 2, 4-D involve less hazard. On white clover 2, 4-D is relatively ineffective and 2, 45-D is recommended for white clover kill when the plant is rapidly growing. There is no one-shot deal with 2, 4-D Bryant said. Treat a season, skip a season, then treat again, he suggested.

He illustrated with slides his remarks on MC2, a new product of methyl bromide with tear gas as a warning agent. The MC2 applied within an air-tight enclosure gave excellent control of quackgrass, Johnson grass, Bermuda grass and most common weeds. Details of this part of Bryant's talk are given in this issue of GOLFDOM.

Rating Bents in Play

Wm. Glover, supt. Fairfax (Va.) CC, spoke on The Behavior of Named Strains of Bent Under Actual Play. His interesting report appears in this issue of GOLF-DOM.

W. G. Strathern, sales counselor, gave an amusing talk on sales policies of the greenkeeper. In advising them to become salesmen he emphasized, "don't argue—persuade" and urged that they learn to ask



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questions in a way that makes it easy for the other fellow to say "yes."

A panel discussion on crab grass control brought together Dr. J. A. De France, Prof. H. B. Musser and Dr. Ralph E. Engel. De France reported on this work in which Rhode Island State college and experiment station had pioneered. Musser spoke of Penn State's recent work with sodium arsenite, PMAS and potassium cyanate, and said a lot of work would have to be done in learning how to handle the materials most effectively. Engel told of many tests during past two years of phenol mer-curies, C-Lect and PMAS. He said there was only one failure which was of treatment started late, but that the injury to turf, which would be more objectionable on a golf course than on a lawn, continued to be a serious factor. He advised checking on maintenance practices, particularly fertilizing and topdressing freedom from crab grass, in any program of crab grass control.

De France said crab grass sometimes is confused with other grasses. For chemical control application should start about the time crab grass starts germinating and continue during the germinating period. Treatments should be 10 days apart. Any time of day is O.K. for application and rain won't affect the treatment. Bents are more quickly damaged by chemical treatment for crab grass than fescues and bluegrass but at fairway lengths there's not much difference. The PMAS and 2, 4-D mixture De France didn't recommend on greens except in cool weather and at light rates. He showed slides of tests at the Kingston, R.I. station.

Turf Makes Championships

The concluding session was presided over by Everett Pyle of the Hartford (Conn.) Park dept. Jack Gormley, Wolfert's Roost CC, who was slated to preside, was hit by illness and kept confined by doctor's orders.

Richard Tufts, pres., Pinehurst, Inc., new chmn., USGA Green Section, and former chmn., USGA Championship committee, spoke on What Good Turf Means to a Championship.

Tufts said the most important man to contact in preparing for championship play is the course superintendent. Locating cups and adjusting maintenance operations to test championship qualifications requires expert services of the superintendent. Tufts mentioned that he had seen things go wrong in championship course condition for which the superintendent was in no way responsible. True putting surfaces are taken for granted on a championship course. Greens should hold a well-played shot and reject a poorly played one.

Tufts said that it often was necessary to bring rough close to the green and introduce an element of luck in shotmaking but if the greens are rather soft and hold misplayed shots the luck element is balanced. Long hitters have been throwing the game out of adjustment and provisions must be made in rough and other phases of course preparation so USGA championships don't get on the basis of "strong back and weak mind" play, Tufts pointed out.

As chairman of the USGA Green Section committee Tufts said he knew of no finer group of men to work with than the greenkeepers. He remarked that Fred Grau's decentralization program was increasing direct service to USGA member clubs. The USGA has been handicapped in Green Section and other work by being in the red in 1947 and '48 but recovering with Open and Amateur championship income in 1949.

Turf Research Reviewed

Fred V. Grau, Director, USGA Green Section, reviewed turf research saying that the advanced knowledge of turf that benefitted 20,000 athletic fields, 30,000 home lawns and innumerable parks and cemeteries, in addition to golf courses, was due to the greenkeepers. Since Rhode Island State College pioneered in turf research almost 50 years ago many colleges have gone into this field, usually because of greenkeepers arousing interest and cam-





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Now nearly half the states are cooperating in the Green Section research program; a development not dreamed of when the Green Section was started in 1921.

Grau said there are eight major points in the Green Section program: (1) Save more rainfall. (2) Use less irrigation water within reasonable limits. (3) Cultivate and aerate soil. (4) Develop "fool-proof" grass. (5) Greater economy of maintenance without sacrifice of quality. (6) Encourage more to participate actively in turf research; more use of superintendents' work as members of the research team. (7) Close coordination of agricultural scientists and agricultural interests. (8) Train more young men as expert greenkeepers, technical men and research men.

Grau showed slides of work at Beltsville and told of new grasses nearing commercial seed production stage.

Theodore Glowa spoke on Turf Maintenance at U.S. Military Academy, West Point, N.Y., outlining the job done on the school's 500 acres of turf, including a 9-hole golf course. With 2700 cadets active in drill and outdoor athletics nine months a year the grounds superintendent's work has to be planned in the administrative and professional phases, and in considerable detail in the maintenance and preventive phases. Drill and sports fields get hard wear at West Point. Glowa is trying U3 Bermuda to see if it will take the beating any better than bluegrass, chewings and alta fescue and Colonial bent, at present used.

He said use of a turf vacuum cleaner for leaves, debris, etc., had been instrumental in cleaning up crab grass seed. He applies fertilizer and 2, 4-D at the same time. Due to heavy use of the fields from March to Thanksgiving Glowa said his renovating work had to be done in winter and he'd had excellent results from seeding much earlier than is customary.

Dennis Lavender, pro-gkpr. at West Point, outlined the Academy's golf course maintenance and emphasized heavy fertilization for getting the new course in good condition quickly. His paper will appear in an early issue of GOLFDOM.

Dr. H. W. Thurston, Pennsylvania State College, presented a Progress Report of Cooperative Fungicide Tests which will be printed in an early issue of GOLFDOM as will William Mitchell's talk on Remodeling and Renovating Greens.

Marshall E. Farnham, Philadelphia CC, spoke on Aerification of Greens and Fairways. Farnham gave an excellent roundup of corrective and standard maintenance work of this sort and rated aerification as

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John C. Schread, Connecticut Agricultural Experiment Station, spoke on The Tropical Earthworm and Its Control. Dr. Schread's paper on this pest which has been a great nuisance on eastern and northeastern courses will be printed in GOLF-DOM.

U. OF FLORIDA ACCENTS GOLF

(Continued from page 47)

the South by winning every meet in an eleven match schedule last spring.

This year, the Gator golfers are hard at work preparing for another tough season that will find the Saurian swingers meeting such teams as Tennessee, Georgia, Georgia Tech, Stetson University, Florida Southern College, Vanderbilt and Jacksonville Naval Air Station.

Under the able guidance of Conrad Rehling, head of the Boys Golf Program, students have made two sand traps, a beautiful green, and a large "hitting" cage that

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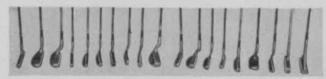
8" oval bag equipped with ball pocket and pocket-type hood.

9" oval bag equipped with ball pocket, boot pocket and pocket-type hood.

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The University of Florida is making rapid strides in the presentation and teaching of golf in its physical education program as well as in intercollegiate competition, and the University's program is rapidly developing into one of the top plans of the nation.

Local Club Big Help

In January GOLFDOM incorrect information accounted for an item that there was difficulty in university students and faculty members getting use of the Gainesville (Fla.) CC course, which is the only one in the university city. Quite the oppo-site is true, university authorities and students have hastened to advise. The attitude of the country club officials and members has been tremendously helpful to the development of the golf program at the university. Every possible cooperation is extended by the Gainesville club. L. Cal-vert Pepper, President of the Country club, says, "We are anxious for the student and faculty to use our facilities. We fully appreciate that the beginners of today are going to be the golfers of tomorrow and we welcome our opportunity. Since ours is the only course in Gainesville, we have larger crowds than we can normally handle on Wednesday (the day the stores close)



and the week-ends, but all other days we try to encourage the students to come out."

Daily greens fee for students is only 75c, except on Wednesday afternoon and the week-ends, when it goes to \$1.50.... If he wishes, the student may take a quarterly playing membership for \$25.00. To further interest young golfers in the game, the Country club permits high school students to play without charge in the mornings during the summer and every Saturday morning of the year. The crack University golf team, undefeated in every regular season match last year and looking forward to another good year this spring, does all of its practicing and plays all of its home matches at the Country club. So all's well down Florida way between

So all's well down Florida way between the Country club and the University.... GOLFDOM just got a bum steer. And we gladly set things straight again.

ARCHITECTURAL FEATURES

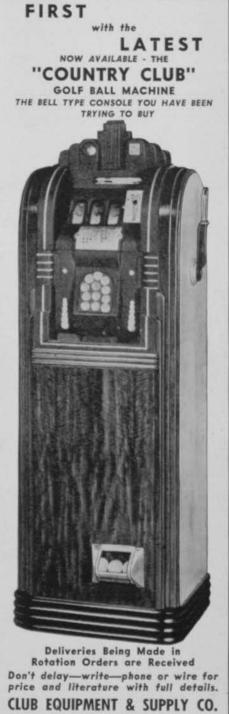
(Continued from page 60)

played the cup can be changed often and prevent the upper surface of the green from tightening up.

The ideal greens will also have good natural surface drainage and there will be no spots that will retain water after a rain. Besides this, the greens will be



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March, 1950



under-drained both by the use of a gravel layer and tiling.

On many of the holes there will be trees in back of the greens but they will be far enough away so that there will never be danger of any of the tree roots getting under the putting surface and sapping plant nutrient from the turf.

On the outstanding golf course the outline of the fairway or rough will be rigidly adhered to and will follow the architect's design in order that the strategy of the hole may be maintained. This is extremely important from a greenkeeping standpoint as many a good golf hole has been ruined by the careless cutting of the rough. In most cases, the architect who designs the golf course has a certain strategy in mind when he designs the shape or outline of the hole. If this is not kept the strategy is lost.

The golf course will be carefully planted with trees to enhance but not detract from the strategic design of the golf holes. The scale of a golf course is large and the scale of the planting must also be large.

Large masses of trees are much more effective than a single row of trees placed between fairways which look very artificial and have very little meaning as far as the design of the golf hole is concerned. On the whole, masses of shrubs



Golfdom