

Inspect Equipment

But for lack of space the large display of equipment would have been even larger. However, with the idea of a strictly educational rather than a commercial display being emphasized, one machine of a type without regard for the make was exhibited with the working parts bared for close inspection by the visitors.

Pulsation of loads may sound like a dry subject but applied to mowers it becomes quite interesting. The idea is that the fewer the reel knives coming in contact with the bed knife at the same time, the greater the chance for pulsation and consequently, the cutting becomes uneven. On the other hand, with four reel knives striking the bed knife simultaneously, the cutting is well done although of course the pull is bound to be harder.

Enlightening facts were brought out in respect to watering and water systems. It was only necessary to use a small amount of soil, a piece of filter paper, and some water to demonstrate how, following the point where the saturation point of the soil is reached, water leaches through and takes along with it the valuable plant food. And how easy it is to almost drown a green! A good average rate per minute for a sprinkler to throw is five gallons and a sprinkler of this type playing for six hours on a green would approximate one-half inch of rainfall. This amount of water in this short space of time may be compared with the four inches which is a normal month's rainfall in Massachusetts.

Two important points were demonstrated by the soils division. Humus is looked upon by some as excellent for the growth of grass but a plot of grass in poor condition proved what is true in this case, namely, that humus lacks food value and also has a toxic effect on the plants. The notion that nitrate of soda becomes quickly available to promote growth was also shown to be incorrect, while super-phosphate, or nitrogen in ammonium form, influenced a luxuriant growth of grass.

Consider Construction

One of the centers of interest was the model 18-hole course, measuring 12 by 14 feet, designed architecturally by Walter B. Hatch, associate of Donald Ross. From time to time the class during their ten weeks' course built it up bit by bit, attempting to solve the different greenkeeping problems as they arose.

A model drainage system proved instruc-

tive. Lack of proper drainage as an important factor in winter-kill was one of the conclusions reached.

With tremendous amounts being expended on courses each year it is meet and proper that this be done in a business-like way. Visitors received worthwhile hints and information at the cost-keeping and analysis booth.

A program was presented in connection with the exhibition which included an open forum on both days for the threshing out of greenkeeping problems, an address by Mrs. Patterson of the International Seed Laboratories, and a special meeting for green-chairmen and committee members who listened to a talk by Professor Dickinson.

Coincident with the meeting, the New England Greenkeepers held their annual meeting.

Rutgers' One-Week Course Well Attended

FIFTY-FOUR enrolled in the one-week course in turf management held at Rutgers University, College of Agriculture, New Brunswick, N. J., February 25-March 1. While the majority of the students were from New Jersey, there were representatives from New York, Pennsylvania, Massachusetts and one, Mrs. E. B. Whitman, the only woman in the class, came from Houston, Texas.

Those who attended during the week were enthusiastic about the course, which was directed by F. G. Helyar of the university's faculty, and at the conclusion of the sessions, presented the Rutgers department of agronomy with a substantial sum for the purchase of laboratory equipment. As a result of the interest shown by this year's class, next year's curriculum will bear down heavier on soil physics, chemistry, drainage and the physiology of plant growth.

The lecture outlines, which will appear in GOLFDOM during the coming months, are excellent as examples of well directed practical study. Among the subjects handled were: summary of fertilizer experiments; climatic adaptation of turf grasses; the weed problem on turf; the form and function of grasses; some pointers in caring for turf; principles of starting new turf; soil acidity and liming; turf grasses for the cool, humid regions of the U. S.; commercial fertilizers; soil

physics; soil types and plant growth; modern turf management; soil micro-organisms and plant nutrition; soil adaptation of turf grasses; renovating poor turf; seed testing and seeds of turf plants; turf-infesting insects and their control; turf diseases and their control; composting materials and composting. Among the lecturers were such well known turf specialists as Dr. J. G. Lipman, Howard B. Sprague, H. R. Cox, A. W. Blair, J. S. Joffe, R. L. Starkey, E. E. Evaul and Clyde C. Hamilton.

Pennsylvania Research Work Led by Valentine

By A. KREBS

TWENTY-THREE years ago, Joseph Valentine went to work at the Merion Cricket Club, Haverford, Penna., just as one of the many golf-course workers. Today he is an authority on grass and has been largely responsible for establishing a greenkeepers' short course in the school of agriculture at Pennsylvania State College.

Valentine heads a committee of five prominent greenkeepers organized to outline the studies in the course. Among the subjects suggested for study are grasses for fairways and tees, prevention of grass diseases, soil acidity, etc.

The curriculum proposed to the State College by the Greenkeepers' committee in charge appears in the following statement:

"The undersigned committee, appointed to represent the Pennsylvania greenkeepers, wish to establish research work at the Pennsylvania State College on the following problems:

"Grasses suitable for putting greens and immune from diseases [in bent grasses].

"Grasses for fairways and tees.

"Prevention of grass diseases.

"How much acidity should be in the soil.

"Best fertilizers for putting greens.

"Best fertilizers for fairways and seeds.

"Control of crab and goose grass.

"Control of snow mold and winter kill.



Joseph Valentine

"Control of weeds.

"Extension work on lime, and control of white clover, especially in putting greens.

"Extension work on sulphate of ammonia and top-dressing putting greens.

"Control of weeds in compost.

"Extension work on corrosive sublimate and arsenate of lead to determine if those chemicals will weaken the bacteria of the soil."

The committee, in addition to Valentine included R. B. Rutherford, Penn State Golf club; A. M. Dunsmore, Chetremon Country club; John Quail, Highland Country club, and James Bolton, Berkshire Country club.

Golf courses in the state of Pennsylvania, according to Valentine, represent an estimated value of more than \$200,000,000, while the average investment for each course is approximately \$500,000. The valuation of the Merion Golf club alone is estimated at more than \$2,000,000.

At present Valentine is experimenting with the control of fungi that attack grass. He is expending considerable effort on the study of pythium.

Equipment Display Shows Member's Course Job

MEDINAH Country club (Chicago district) where Ralph Johnson is superintendent, is staging its first display of all its maintenance equipment during the first week in April. Medinah has approximately \$50,000 worth of equipment employed in caring for its three 18-hole courses and the grounds, and Johnson is putting on this display to impress his members with the amount of machinery and work necessary to keep their course in tip-top shape.

The display will be open for inspection during one of the Saturday night parties at the club so the members can gaze upon it and see where some of their money is spent to good cause.

IT IS false economy to instal water pipe of small dimensions. It is the operating cost through the seasons and not the original price that matters. Since the time required to water a green adequately depends on two factors, pressure and dimension of the outlet and hose, be sure to buy your pipe and hose big and your engines powerful and the saving in labor alone in one season will make up the difference in original investment.