# Greenkeepers At State College

PROF. J. W. WHITE

*who presented a series of charts at the Greenkeepers' School, State College, Pa., on soil acidity and the action of bacteria.*

More than eighty enthusiasts interested in fine turf maintenance attended the 5th Annual Conference on Turf Management, held at State College, Pennsylvania, February 22 to 24, inclusive. Besides the usual Pennsylvania contingent, there were interested greenkeepers from New York and New Jersey. All regretted the inability of Mr. Joe Valentine of Merion Golf Club to be present. He was one of the original sponsors and a regular attendant to all previous conferences. Professor A. L. Patrick of the Department of Agronomy acted as general chairman.

A most instructive program was prepared by a joint committee of greenkeepers and representatives of the School of Agriculture of Pennsylvania State college. Wednesday's session opened with a talk on propagation of flowers and shrubs by Professor E. I. Wilde. This was followed by a most interesting discussion of "Turf Treatments and Insect Control," by Professor L. B. Smith. The afternoon closed with a round table discussion of turf diseases led by Dr. Thurston.

The Thursday and Friday sessions were devoted to soils as a general topic. Physical soil properties furnished the main theme, with especial emphasis placed upon its physical make-up, the functions and uses of organic matter and the distribution and use of water. The college was indeed fortunate in securing Dr. Dachnowski-Stokes of the U. S. Department of Agriculture, who is America's foremost authority on peats and their uses.

Professor Smith discussed sod webworms and their control at considerable length. He pointed out that there are three control treatments, coated lead arsenate, kerosene emulsion, and pyrethrum extract. The use of kerosene emulsion is discouraged as being unsafe because of possibility of injuring the grass, and the advisability of using lead arsenate was questioned bebecause of the possibility of building too high concentrations in the soil.

The Federal formula for preparing pyrethrum calls for 12½ ounces of pyrethrum extract dissolved in 50 gallons of water, and 111 gallons of the solution used per 1000 square feet of turf. Professor Smith furnished a substitute formula consisting of 16 ounces pyrethrum extract dissolved in 50 gallons of water. This solution to be applied at the rate of 50 gallons per 1000 square feet of turf.

Treatment with this solution proved effective, and has the advantage of being less expensive per unit area of turf treated. It was stated that the second brood of sod webworms is responsible for most of the damage, hence one annual treatment between August 1 and 15 was recommended. Pyrethrum, besides destroying webworms, is effective for chinch bugs, cut worms, any earth worms near the surface and will also destroy some ants, but is without effect upon the nests.

### ANT POISONS KILL TOO QUICKLY

In discussing ants, Professor Smith stated that most of the poisons kill too quickly. He referred to the practice of locating the nests and fumigating with carbon di-sulphide or cyanogas. A new poison was suggested, namely Thallium sulphate, which holds much promise as an ant exterminator. This is a slow poison requiring two to four or five days to produce death. The following formula was suggested:

> Sugar, 1 pound; Honey, 3 ounces; water, 1 pint; Thallium sulphate, 27 grains.

The suggested procedure calls for using this material in the small circular ice cream pasteboard cartons, procurable at any ice cream dispensary. To permit entrance of the ants, small windows or vents are cut in the sides, one inch above the bottom. A small amount of excelsior is first placed in the container, and then a sponge saturated with the solution. The cover should then be replaced on the carton. Professor Smith recommended placing the cartons out at night and taking them away early the following morning.

The old, standard formula for ant treatment was also given. It consists of the following ingredients.

> Water, 11 pints; Tartaric Acid, 7 grams; Benzoate of Soda, 9 grams; Sugar, 12 pounds; Honey, 2 pounds; Sodium Arsenite, 21 grams.

In making the solution dissolve all the ingredients except the sodium arsenite in 10 pints of water and boil for 30 minutes. Heat the extra one pint of water to boiling and then dissolve the sodium arsenite in it. After the two solutions are cold, they should be mixed. Attention was called to the fact that high-grade chemically pure sodium arsenite must be used and not sodium arsenate. When properly prepared the solution will keep indefinitely.

### JAPANESE BEETLE MAY BECOME A PEST

In discussing the Japanese beetle, attention was called to the fact that this pest made a big jump during the past year, and that it will likely become a serious pest in Pittsburgh and Erie within the next three to five years. Consequently the clubs in these districts should prepare now to grub-proof greens by arsenate treatment. So far as fairways are concerned, the thought was expressed that their treatment could wait, but with the appearance of the Japanese beetle this will become necessary.

On Thursday morning Professor Patrick introduced the subject of soils by explaining the physical make-up of soils. The meaning and significance of soil separates, texture, soil classes, etc., were discussed, as well as methods for modifying soil texture and controlling structure.

### PROF. WHITE DISCUSSES SOIL CONDITIONS

This was followed by a very interesting discussion of soil organic matter by Professor J. W. White. A series of charts was used to illustrate the various points brought out. It was

shown that increasing soil acidity results in retarding rate of decay. Tables further showed that bacteria were most numerous in soil having a Ph of 6 and maximum numbers of fungi were present at Ph 3.8 to 4.5.

Additions of nitrogen tend to accelerate loss of organic matter, probably due to increased numbers and activity of soil organisms. It was said that there has been no decided increase in the organic matter content of plats on the Experiment station farm in spite of manure applications during the past 47 years at rate equivalent to five tons of manure per acre annually. Decay is so rapid that accumulation does not occur. That different materials vary in the rate at which decay takes place was pointed out.

The organic matter content of typical materials was given in another table. These were all reported on a moisture-free basis. The average amount of organic matter found in nine samples of mushroom soil was shown to be 17.93 per cent. The individual samples varied from 14 to 24 per cent. Cultivated peat was found to contain 83.94 per cent organic matter, and raw peats varied from 85.22 to 93.07 per cent, all on moisture free basis.

In the table on rate of decay, fresh dried manure, Imhoff sludge and tannery sludge decayed most rapidly, whereas cultivated peat and mushroom soil showed a low rate of decay.

The rate of decay resulting from two different top dressings used on two small plots of grass was measured at the end of 23 months. Where Imhoff sludge was used as the source of organic matter 42.7 per cent of the applied organic matter disappeared as the result of decay and where cultivated peat was used the loss was only 17.1 per cent.

### DR. STOKES TALKS ABOUT PEAT

Probably the most outstanding talk on the program was that of Dr. Dachnowski-Stokes of the U. S. Department of Agriculture. He knows his peat, and the enthusiasm displayed would indicate that he is one of the fortunate few whose hobby is also his avocation. A fine selection of lantern slides was used to illustrate the points discussed.

The various factors involved in the origin of peat deposits, a description of various kinds of peat together with their properties, and a resume of some results obtained with peat materials on the experimental turf garden at Washington were included in such easily understandable language that all felt fully repaid for the afternoon session.

Based on origin there are three main zones of peat formation which usually show in cross section. The sedimentary peats are formed from soft aquatic plants in shallow water. A jelly-like material is produced, usually acid in character, which dries into hard lumps. Once dried these peats do not readily take up water again. They are recognized by the presence of hard lumps. These peats are unsuited for use as soil conditioners.

After the lake fills, the true marshes develop with the formation of so-called sedge or rush peats, depending upon the type of vegetative covering. The peats consist largely of the rootlets. Reed peats predominate, and usually develop in ground waters containing considerable salts and the water is usually of an alkaline character. Reed peats occasionally contain injurious materials, salts originally contained in the ground water.

Woody peats are formed when forests are superimposed upon the marsh. These peats can be recognized by their woody appearance. They are not always suitable for the preparation of commercial peat products.

The so-called moss peats constitute a fourth main class. They are found in northern latitudes, and the deposits resemble large mounds. Moss peats, as the name implies, are formed by the various sphagnum mosses. In the United States they occur in two principle centers, Maine and Northern Wisconsin and vicinity. The Maine deposit is very similar to the deposits of Europe, which are worked commercially. The Maine moss peat has a water-holding capacity of about 4000 per cent.

### MOSS PEATS ARE LIGHTEST

Of all the peats the moss peats are lightest, weighing 7 to 9 pounds per cu. ft. Sedge peat weighs 20 to 30 pounds and reed peat 20 to 35 pounds per cu. ft.

The moss peats provide four to five times more coverage than sedge or reed peat. The suggestion was made that where water-holding capacity is desired, moss peats should be used, but where water movement is wanted, the sedge and reed peats are preferable.

In evaluating the different peats, three factors should be considered, their ability to improve physical soil condition, their soluble effect on soil mineral plant food elements, and their effect on the crop to be grown.

The ability of peats to overcome the injurious effects of applied soluble fertilizers was one of the most interesting results obtained in the experimental plots in Washington.

The Friday morning session was devoted to an interesting discussion of water and its uses by Professor Blasingame, and methods for sampling and testing soils for lime and nutrient deficiencies by Professor Merkle.

# Turf Culture News

New York City

An old homestead in Milan Township, between Rhinebeck and Pine Plains in the foothills of Dutchess County, has been purchased by Nellie M. Seeds, of 228 West Thirteenth Street, Manhattan, from Sackett Case. E. I. Hatfield acted as broker in the deal.

The twelve-room dwelling on the place will be remodeled by the new owner and converted into a private school. The estate consists of 200 acres, largely farm and timber lands, and an orchard.

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Washington, D. C.

The purchase of 4,468 acres of land from the Pennsylvania Railroad for use as a park has been approved by the Secretary of War. The contract price is listed as $1,675.50.

The land is triangular and is situated near the Shaw Lily Ponds, on the west bank of the Anacostia River, about a mile below Magruder Bridge, in Kenilworth.

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Bloomington, Ind.

When the municipal golf course opens in the near future under the management of the city park board, it will be one more city amusement to be controlled by that efficient body.

During the past winter improvements have been completed on the city baseball diamonds. The work was under the direction of Williard Farr. Ditches around the park property, including the golf courses have been sodded and a number of trees have been removed which will add to the beauty of the park as well as to the pleasure of golfers.

Work on trees, greens and fairways was started March 1, under Johnny Stelzel, golf professional.