



Members of the 20th annual Winter School for Greenkeepers at the Univ. of Mass. Last Row (L to R): Inst. Turner, Prof. Cornish, Dr. Sieling, Prof. Dickinson, Inst. Murphy, Prof. Hanson. 3rd Row: J. O'Leary, C.C. of Northampton County, Pennsylvania; H. Mathieu, Mathieu Tree Co.; G. Bergdoll, Koshkonong Mounds Golf Club; D. Sullivan, Brookline C.C.; W. Zikorus, Woodbridge C.C.; S. Goryle, Milford C.C.; Director Verbeck. 2nd Row: C. Wagner, Sunningdale G.C.; J. Csepel, Madison

Golf and C.C.; A. Thomas, Anacostia Golf Course; J. Eonta, Connequenessing C.C.; W. Smith, Orange Hills C.C.; T. Forhan, Lincoln C.C.; J. Howell, Rosehall Nurseries; W. Bednarski, Tuscarora C.C.; J. Bottomley, Midway Golf Club. 1st Row: A. Mantell, J. Krak, Meadow View Golf Links; M. Nye, Battle Creek C.C.; A. Chalmers, Old Oaks Country Club; J. Misenti, Edgewood Golf Club; H. Mallon, E. Curran, Lexington G.C.; J. Roach, C.C. of Virginia; R. Komacek, Vestal Hills C.C.

## U. of Mass. Turf Meet Stresses Economy, Labor Maintenance

By GEOFFREY CORNISH

A varied program, part of which was experimental, was presented to 150 turf managers at the Annual Turf Conference of the University of Mass. held in Amherst on March 9 and 10. As a result of these experiments, Professor Lawrence S. Dickinson and Geoffrey Cornish of the Section of Agrostology will stage a conference next year which will be entirely different in approach from any yet attempted.

The Massachusetts Section of the New England Turf Association under Pres. Homer C. Darling of Juniper Hill GC, assisted the Section of Agrostology in arranging the program. Anthony Longo, Superintendent of Yale GC and Pres. of the Connecticut Greenkeepers Association and Phil Cassidy, Superintendent of Weston GC and representative of the National Association, acted as chairmen.

Arthur Cody, V-P of the New England Greenkeepers Association, opened the conference in absence, due to illness, of the Pres., Harold Mosher.

Dr. Ralph A. Van Meter, Pres. of the

University of Mass., addressed the visitors during the conference.

The final exercises of the 20th annual Winter School for Greenkeepers were held in conjunction with the conference. Twenty-three greenkeepers, pro-greenkeepers, assistants and managers, successfully completed the ten week course. Carlton E. Treat of Montclair (N.J.) GC made the graduating address.

Outlines of papers presented are given hereunder together with an account of the annual meeting of the turf association which was held at conclusion of the conference.

### Care of Trees and Shrubs

Professor T. Mathieu, arboriculturist of the University of Mass., divided tree work on golf courses into two parts. First there is tree work which can be handled by the greenkeeper and his crew. This includes pruning, planting, spraying, and fertilizing. But before any tree work is done by a greenkeeper, Prof. Mathieu stated that insurance should be checked to

make sure that it covers off the ground work. The second type of work includes cavity filling, cabling and bracing. The club should hire an arborist for these operations, Prof. Mathieu stated, and explained how a greenkeeper can judge and hire a good arborist. The lecture concluded with a detailed description of planting deciduous and coniferous trees and shrubs.

#### **Clover Control in Turf**

Clover is controllable in turf, Prof. Cornish stated, although some turf growers are giving up in despair. Research of pasture workers who encourage clover is of value in our attempt to eradicate it. Some general factors concerning growth habits of white clover were listed and the conclusion was reached that in most cases, a modification of the watering program and in all cases, a system of aeration is necessary in conjunction with a chemical program to obtain lasting results. Cornish reviewed effective chemicals. He quoted Claude Bryant of the Dow Chemical Co. who spoke at the Nation Conference in regard to effective application of 2-4-5-T at the rate of two pounds of the acid per acre. Sodium arsenite and arsenic acid were 80% effective under certain conditions, Cornish stated, but the utmost precaution was to be observed in their use for fear of permanently damaging basic grasses and sterilizing the soil. Small scale tests should always be carried out before these chemicals are used in wholesale amounts. Recommendations were given in regard to the long established method of eradicating white clover by sulfate of ammonia.

#### **Equipment Overlooked**

Professor Lawrence S. Dickinson and Paul J. Murphy, visiting instructor for the Winter School, conducted a demonstration of equipment that is often overlooked by a greenkeeper. Pieces of equipment examined and recommended for a golf course were a farm level, a rain gauge, a hand level, a recording thermometer, a subsoil auger and a soil sampler. The total cost of all these was found to be around \$105. It was shown how these items would more than pay for themselves.

#### **Soil Aeration and Root Development**

Dr. Theodore Kozlowski, Plant Physiologist, recently appointed head of the Department of Botany at the Univ., stated that in order to maintain healthy grass, it is necessary to have oxygen continuously supplied to roots in adequate amounts. Interference to such supply can be effected by compaction or excessive amounts of free soil water. Dry soils always have a larger air content than fine or compact ones. Dr. Kozlowski stated that under special conditions of compaction of wet

soils, the air content may be reduced almost to zero. It has been shown that earthworm burrows raised the air capacity of a loam soil from 9% to 32%.

In many turf soils, the oxygen content is usually less than optimum. Roots may not begin to show definite injury until the oxygen content drops below 15%. Reducing the soil oxygen to about 3% practically stops root growth of most plants. Poor aeration is commonly an effect of compaction. Direct causes of such compaction include player traffic, proper and improper use of equipment, precipitation and artificial water. Among the aggravating causes of compaction are soils of too heavy texture, soils low in organic matter, overwatering, poor drainage, too acid soils, too alkaline soils and necessary eradication of earthworms.

Dr. Kozlowski showed data and graphs which indicated increased dry weight of tops and roots, increased carbohydrate content, nitrogen, ash, calcium, potassium, magnesium, and phosphorus of plants in aerated soils as against plants in un-aerated soils.

#### **Hedging Against a Possible Depression**

Professor Dickinson stated that we can learn from what has happened before and in sound maintenance planning the possibility of a depression must always be borne in mind. A greenkeeper can do a great deal now to help his club and himself in the future if a depression does come. A reserve should be built up by sound cultural and management practices. Nine suggestions as follows were made by Professor Dickinson.

- 1) An accurate record of costs should be established so that if cuts are necessary, the greenkeeper can show his club where to make them.
- 2) Start this year to build up fertility levels in the soil by proper fertilizing.
- 3) Carry out all possible drainage and repair construction on the course.
- 4) Renovate all inferior turf areas.
- 5) Complete a careful evaluation of workmen.
- 6) Purchase an extra fairway unit.
- 7) Purchase an extra putting green mower.
- 8) Avoid new construction that will add to maintenance costs.
- 9) Encourage new construction that will reduce maintenance costs.

#### **Fairway Renovation**

Toney Mascaro of West Point Lawn Products Co., showed a complete operation in motion pictures of fairway renovation. Mr. Mascaro's pictures showed aerial and ground shots of the operation. The renovation program started in August, included four applications of sodium arsenite, a complete aeration, fertilizing, and

*(Continued on page 104)*

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mix asphalt. This material is easily obtainable and the work can be done with your own labor. Cold mix is more porous and does not hold too much moisture. It will not get too hard and yet in the hot weather does not become sticky.

Tile outlets in creeks should be kept open, and broken tile replaced. Creek beds should be kept free of rubbish, broken tile, etc. Keep water flowing freely to prevent it from becoming stagnant.

The entrance and driveways to the club should be neat and clean, a few flowers or shrubs in the right place makes it colorful and pleasant, good turfed areas stand out here. A member or guest will get his first impression of your club as he is driving in. This also holds true around the starting tees on the course. A little extra fertilizer around the lawns, maybe a flower bed, here and there, shade trees, bulletin board, bag racks, etc., all make the area seem more pleasant and inviting to the players.

Shelter houses should be kept repaired and painted. See that they are kept clean at all times.

I would like to mention again that we must realize the demands for specialized turf by the golfer. If we do not have this type of turf on our courses, we should present the club officials with a well-

thought out plan to make these changes. If we can't live with it, we should get rid of it. The sooner we do this, the sooner we will be recognized as experts in the field of turf.

## U. of MASS. TURF MEET

*(Continued from page 80)*

reseeding. Final shots indicated a good catch of grass.

### Retaining Labor

Greenkeeping superintendents from different types of golf courses presented ideas as to how labor could be retained by a club in competition with industry. Professor Cornish introduced the subject by stating that the need for skilled greensmen was becoming progressively larger with the introduction of new equipment and chemicals. Much of the burden of retaining labor fell on the superintendent who first has to convince his committee that the expense of training replacements is great.

Anthony Longo of Yale GC, New Haven, Conn., emphasized security. He brought up the question of insurance policies and year-round work. He discussed the skill required by a greensman in contrast to other trades. As an example, he explained the skill required in watering a green, a

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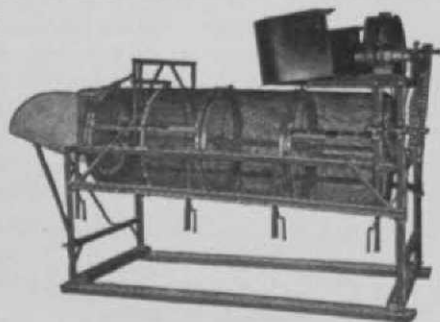
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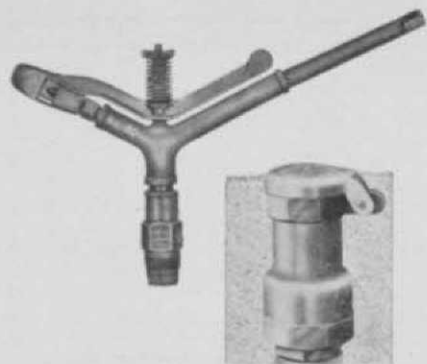
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task which laymen believe is simple.

Alvin Porter of the Northfield Inn GC, Northfield, Mass., stated that small clubs had problems in this regard not experienced by larger clubs. The small course must rely largely on seasonal labor. Mr. Porter used university students as seasonal labor, and generally managed to get the same ones to work for him each summer during the students' four college years, thus requiring minimum training of replacements.

Mac MacLeod of Mt. Holyoke College GC, South Hadley, Mass., described how he could arrange his program of work between the course and college grounds so that he could retain his skilled men year around. All his men receive sick leave benefits and annual holidays. The latter usually fall, Mr. MacLeod stated, when he needs his men most, but once the holiday program of his crew is arranged, he tries never to change the dates set for each man.

Arthur Anderson of Brae Burn CC, Newton, Mass., told of his winter work and how it fitted into his labor program. He mentioned that one greensman had been working for Brae Burn for 50 years. For seasonal labor, Mr. Anderson used university students and last summer, four

universities were represented in his labor crew.

Carl Treat of Montclair (N.J.) GC, summed up the discussion by outlining methods whereby small and large clubs could retain skilled men. He spoke of security and ideal working conditions. He emphasized fairness to the men.

#### Soil Sampling and Soil Testing

Dr. Dale Sieling, Head of the Department of Agronomy, Univ. of Mass., contrasted chemical and physical analysis of soils. He discussed limitations of chemical analysis. Analysis of soils requires three operations, Dr. Sieling says. These are, sampling, actual analysis, and interpretation. Sampling is usually completed by the man in the field and requires care and thought. Randomized sampling is necessary with the sample taken from over the whole area for which recommendations are required. Labeling and packaging for shipment require attention and the sample should be accompanied by complete information. The analysis itself is a simple operation but should be carried out under direction of an agronomist. Interpretation is the work of an expert. Faulty conclusions are made frequently from these results and sometimes there is the tendency to rely on these results when the cause of

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trouble is elsewhere. Dr. Sieling noted that chemical analysis of soils is useful and has its place, but the results only tell part of the story.

### Demonstration in Diagnosing

Professor Dickinson described an area of poor turf. Eight winter school greenkeepers questioned Professor Dickinson and diagnosed the cause of the trouble by assembling all the facts. Troubles on other turf areas were diagnosed in this manner with the audience participating. The purpose of this exercise was to demonstrate a simple and logical method of diagnosing turf troubles that could be used by all turf growers.

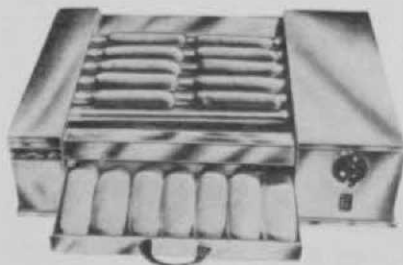
Annual meeting of the Mass. Section, New England Turf Association, concluded the two-day conference.

Homer C. Darling, pres. of the Section, presided. He outlined the accomplishments of the Section since its inception two years ago and its plans for 1950. He stressed the absolute necessity for turf research in this state. Officers elected for 1950 are as follows:

President, Homer C. Darling, Junior Hill GC; 1st vp, William Mitchell, contractor for turf construction; 2nd vp, Elliot Rogers, cemetery superintendent; Exec. Sec.-Treas., Prof. Lawrence S. Dickinson; Rec. Sec., Geoffrey Cornish.

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