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No. 262 New Series

JANUARY 1967

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—Charles Robins

## JANUARY

## CONTENTS

Page	3 TEE SHOTS
	4 WET UNDERFOOT—(continued)
	7 GOLF COURSE MAINTENANCE EQUIPMENT
	11 HON. SECRETARY'S NOTES
	11 SPECIAL OCCASIONS
	12 NEWS FROM THE SECTIONS
	15 SITUATIONS VACANT
	16 MRS GREENKEEPER

EDITORIAL AND ADVERTISEMENT OFFICES: Addington Court Golf Club, Featherbed Lane, Addington, Croydon, Surrey. Telephone: SANDerstead 0281. SUBSCRIPTION RATE: 14/- for 12 issues post paid. Published during the first week of each month. LATEST COPY DATE: 8th of month prior to insertion. All rights reserved. Reproduction of original articles and photographs in whole or in part is prohibited. This Magazine shall not, without the written consent of the publishers first given, be re-sold, lent, hired out, or otherwise disposed of. *Contributions and photographs of interest are invited.*

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# TEE SHOTS



by the Editor

Among other forecasts for what greenkeepers will endure in 1967 is one by a Mr O. O. Clapper of New England.

He sees courses with two groundstuffs — the night team doing all the cutting — the day team spraying, fertilizing, changing holes and general maintenance to ensure that all machinery will last the next night.

Since automatic water systems started, the benefits of night watering have disappointed nobody. You are now warned about what may follow.

Lighting the last few holes may be included in the changeover in order to get the maximum number of people on to the course during the daylight hours. If there still is a course. . . .

The Canadian Golf Superintendents Association was formed last October. It was surprising to learn that they had no organisation of this kind before in that country.

The news will have a special impact in France where there is no word for "greenkeeper". The Canadian Association has classed itself for the purposes of French Canadians "L'Association Canadienne des Superintendants de Golf".

The Germans, on the other hand, have a short simple answer to the problem. It is "Platzmeister" — "course-master", or, to be slightly pedantic nowadays, "green-master". Perhaps it is a pity that this never developed as the equivalent to "Club-master".

Mr C. R. Skogley, Professor at the University of Rhode Island, is on sabbatical leave to tour Europe. Since September he has been installed with his family in Woodbridge. He is working with Fisons on a screening programme for turf grass fungicides. In one of his first newsletters homewards he said: —

"I have visited two golf courses and have golfed on one of them. It was a beautiful course but to a poor golfer rather hair-raising. The roughs consist mainly of heather, bracken, fern, gorse and the like. General conditions are quite good but very unlike anything I have previously seen."

At many continental golf clubs, the clubhouse is closed on Mondays or Tuesdays. The day is not far off in this country when we can make out a strong case for closing the course as well. One complete day, uninterrupted by golfers should boost ground staff productivity. It would also, as one of our opposite numbers in the States picturesquely remarks, give the greenkeeper "a day when he can work on his course without getting hell for doing the job he was hired to do".

# WET UNDERFOOT

By

J. D. JOSS

Advisory Officer, The Sports Turf Research Institute

**L**AST month methods of draining land by pipes or channels to lead excessive water away were dealt with. These are direct ways of removing excess water and lowering the water table, but often conditions in the sub and top soil above the level of the actual drains impede water penetration and lead to wet surface conditions. Treatments to correct such faults are now discussed, but little or no benefit will be derived from any of them if inadequate means of sub-soil drainage exist.

## Sub-Soil Cultivation

This operation is *not* the same as mole draining. At a glance the same machine is used, i.e. a mole plough, but there is a vital difference in the attachment on the vertical share. In the case of sub-soil cultivation a sub-soil shoe is fitted and this has a lifting and shattering effect on the sub-soil. In view of this, sub-soil cultivation is an essential operation on land where level adjustment using heavy equipment has resulted in the breakdown of the land's natural drainage crevices and excessive compaction in the sub-soil region or where a "pan" exists for any reason at all. These conditions seriously hinder water penetration to any sub-soil drains and frequently lead to waterlogging of the top soil.

Sub-soil cultivation to be most effective should be done when the sub-soil is as dry as possible. However, as it is usually required during constructional work its timing is governed by the amount of subsequent work in relation to the proposed period of establishment, e.g. seeding. The work can be done even on relatively small areas, e.g. golf greens, and it is carried out following the return of top soil to the graded area and before any tile drains are introduced. Heavy equipment should not be used after its completion. Where a

complete drainage layer of aggregate tapped by underlying drains is to be introduced into a golf green sub-soil cultivation is unnecessary.

To gain maximum benefit from sub-soil cultivation the operation must be carried out at quite close centres and a spacing of 2 ft. should be regarded as the maximum, the sub-soil shoe being set to work at a minimum depth of 18 in. The operation should be done in the direction of the maximum fall on the land, though where really excessive compaction exists two passes would be worth while. In this case the first pass should be done at right angles to the maximum fall.

Sub-soil cultivation can be carried out on established turf where drainage is impeded by excessive sub-soil compaction, but before it is decided upon expert guidance should be obtained. The operation can sometimes be carried out in such a way as to cause little damage to existing turf but there is a risk of severe damage necessitating reseeding.

## Spiking

Turf surfaces which are slow to drain because of such causes as excessive surface compaction, or the presence of fibre, benefit from spiking. The formation of numerous slits in the ground assists surface moisture penetration but the work must be done frequently and the underlying soil must be open and its drainage adequate if benefit is to be derived. Further to this on excessively fibrous or mossy areas other treatments, e.g. corrective liming or fertilizer treatment, might be necessary to help correct the conditions favouring the fibre or moss build up.

Usually spiking on large areas is done by tractor operated machines. As depth of penetration is important, the use of long tines is to be preferred. The

lighter machines with tines penetrating to 4 in. are very useful as they can be frequently used with the minimum surface disturbance but in many situations the use of heavy models should be seriously considered. These machines have tines capable of penetrating to 9 in. but under some conditions their action is quite severe and disturbance of the surface might restrict their use.

On smaller and finer turf areas quite good machines are available for use but often hand work is necessary to obtain maximum penetration. Purpose-made hand forks can be used or flat tined garden forks and these should be inserted to their full depth at intervals of some 4 in. Before withdrawing the forks the ground can be eased up a little with advantage but great care is necessary if this is done so as to avoid leaving a corrugated surface.

### Sanding

During constructional work the incorporation into the top soil of suitable sand or other gritty material is recommended to open up heavy land and make it more permeable.

On existing turf a different approach is required for greens, tees and fairways.

On a green the application of a pure dressing of sand is seldom a good thing in that it tends to form a definite layer which ultimately forms a root break. It is better to build up a layer of approximately ideal soil by regular top dressing with sandy compost. Only in particularly wet conditions is a light dressing of pure sand really justified.

On the tees the position is much the same but conditions where sand alone can be used with advantage arise more frequently. On heavy land with open turf and a muddy surface, dressings of sand improve playing conditions substantially and the sand gets worked into the top soil by treading or during renovation work.

On fairways good, gritty sand or coarse coke breeze can be used with



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advantage much more often than they are. Sand at 10 tons per acre is soon absorbed on a muddy fairway but it is best to allow this amount to be "lost" before applying a further dressing. As an alternative to applying sand in winter to improve already muddy conditions it is worth organising applications of sand and similar materials after thorough spiking and following spring chain harrowing. At this time less damage is likely from the transport and spreading of the material.

### Sulphur Treatment

The use of sulphur on golf courses will be strange to many people but the material can have very beneficial results on golf fairways if applied under the right conditions. Heavy and moisture retentive clay soils provide wet, sticky conditions for winter play. Where this is a problem, and providing the soil is of good fertility thus promoting rapid grass growth with a tendency towards lushness, a light application of finely ground sulphur will help matters. The effect of the sulphur is to produce much improved surface drainage and firmer winter conditions. In addition there is usually an increase in the fine-

ness of the turf plus reduced weed and worm activity. This all sounds very fine but it should not encourage clubs to experiment with the treatment without soil tests and expert guidance. Whilst much good work can be done by the discriminate use of sulphur it is very easy to make a mistake which could be costly to correct. A given set of conditions are required before sulphur can be used and casual observation will not show whether these exist or not.

### Think Things Out

If maximum use is to be made of golf courses and the best possible conditions for play are to be provided satisfactory drainage is essential. Where drainage problems exist careful thought must be given to their cause since wet and sticky surface conditions do not *necessarily* indicate the need for tile drains. Any club contemplating improving drainage would be well advised to obtain expert guidance so that the money they spend results in maximum benefit. It is true that the inherent characteristics of some land will always result in wetter conditions than would be desirable but it is often surprising just what can be done with relatively little financial outlay in relation to the results obtained.

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RIVERSIDE 5415

# Golf Course Maintenance Equipment

By Lee Record, Agronomist

**T**O meet the demands of present-day golf course maintenance, the most modern and up-to-date equipment is needed. Maintenance equipment alone will not be the answer at every course; administration, programming, adequate budgets, manpower, responsibility and a host of other elements will be necessary.

The following suggested list may not be adequate at many golf courses, depending upon the degree of maintenance. This list should, however, be adequate for the majority of 18-hole courses.

## *Greens And Tees*

- 6 to 8 putting green mowers
- 2 power aerators
- 1 vertical mower
- 1 power drag mat
- 1 power topdresser
- 1 power thatcher
- 1 power spiker
- 1 power sprayer (fungicides)
- 1 proportioner
- 2 rotary fertilizer spreaders
- 2 triplex mowers

## *Fairways And Roughs*

- 2 to 7 gang hydraulic tractors and mowers
- 1 fairway aerator
- 1 fairway thatcher
- 1 fairway sweeper
- 1 power sprayer (herbicides)
- 1 rotary fertilizer spreader
- 1 5-gang mower (roughs)
- 1 3-gang roller

## *General Equipment*

- 1 or 2 dump body golf tractors
- 2 general construction PTO tractors
- 1 jeep, pickup truck, etc.
- 1 dump truck (5 ton min.)
- 1 snow plow

- 1 front end loader and backhoe
- 1 power sod cutter
- 1 power saw
- 1 power stump cutter
- 1 power soil shredder
- 1 powered hand sweeper
- 2 powered leaf blowers
- 1 water ballast roller
- 6 rotary trimmer mowers
- 3 hand trimmer mowers
- 2 general purpose power reel mowers
- 2 or 3 gas powered runabouts

## *Miscellaneous Hand Equipment*

(This list will go from A to Z.) axes, burners, crow bar, duster, cup cutter, wheelbarrow, ladder, sod edgers, sod lifters, shovels, rakes, funnels, spade, picks, forks, jacks, pruners, tree saws, traps (animal), pumps, gas cans, scales, pullers, hose, bamboo poles, soil testers, soil probe.

## *Tools For Repair Of:*

All power equipment (trucks, tractors, mowers, etc.), plumbing, drains, electrical equipment, sewers, roadways, cement and concrete, water systems, painting and wood working repairs, etc.

## *Shop Equipment*

Lapping machine, air compressor, steam cleaner, table saw, bench grinders, bed knife grinder, reel knife grinder, pipe threader, paint sprayer, welder, drill press, vises, arbor press, work benches.

## *Irrigation Equipment*

Pumping station and number of heads will be determined by the superintendent at each individual course.



This suggested list has only touched a few of the many odds and ends and pieces of equipment needed. If we may have omitted the one piece of equipment which you feel is necessary, by all means add it to the list.

A maintenance building should meet the following requirements:

1. Superintendent's office (desk, file cabinets, adding machine, etc.)
2. Toilet facilities (showers, lockers, etc.)
3. Adequate heating and ventilation
4. Paint spraying room
5. Herbicide-fungicide, etc., storage room
6. Fertilizer storage area
7. Adequate storage area for all equipment.
8. Adequate maintenance area.

Also in conjunction with the main maintenance building, an additional storage building is essential for the storing and mixing of topdressing material. Topdressing should be kept in a dry area so that it will be available at any time of the season. A two-year supply should be stored at all times.

If we have the necessary equipment and maintenance building, how many men will be required to keep the equipment rolling for the necessary turf maintenance? We suggest the following personnel be considered for the average 18-hole golf course in the North-east.

- 1 Superintendent (year round employment)
- 1 Assistant Superintendent or Foreman (year round employment)
- 1 Mechanic (year round employment)
- 2 Laborers (year round employment)
- 3 Laborers to be hired at the beginning of the outside maintenance program to be carried through until fall maintenance is completed.
- 3 Laborers to be hired as summer help

11 men total.

Regardless of the maintenance building and modern equipment the work load cannot be carried out unless an adequate work force is available; a work force that can be depended on, day in and day out; men with responsibility to themselves, to the golf course they are working for and to the equipment they are handling.

*(Reprinted with grateful acknowledgments to USGA GREEN SECTION RECORD).*

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