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THE BRITISH GOLF

# GREENKEEPER

HON. EDITOR: F. W. HAWTREE



FOUNDED 1912

PUBLISHED MONTHLY FOR THE BENEFIT OF GREENKEEPERS, GREENKEEPING AND THE GAME OF GOLF BY THE BRITISH GOLF GREENKEEPERS' ASSOCIATION

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The Association is affiliated to the English and Welsh Golf Unions.

No. 315 New Series

AUGUST 1971

## AUGUST

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EDITORIAL AND ADVERTISEMENT OFFICES: Addington Court Golf Club, Featherbed Lane, Addington, Croydon, Surrey. Telephone: 01-657 0281. SUBSCRIPTION RATE: £1.25 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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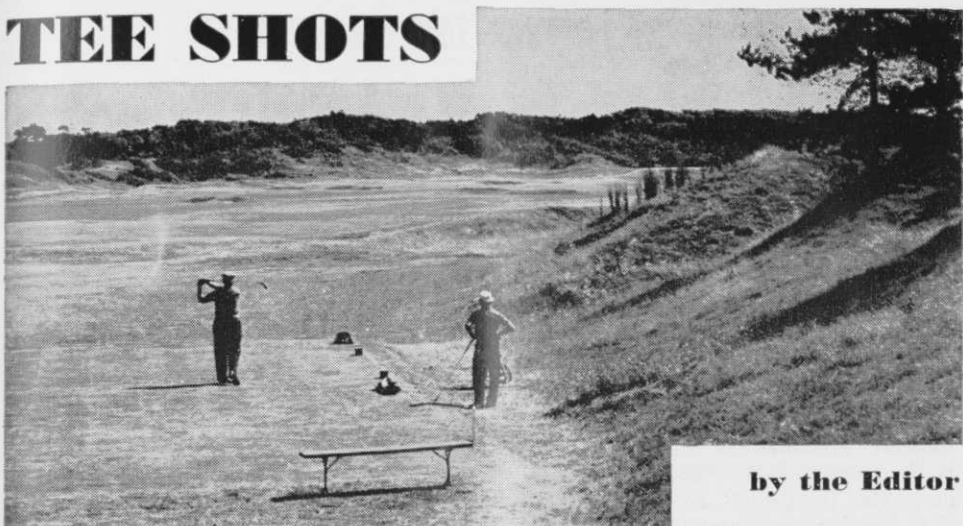
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# TEE SHOTS



**by the Editor**

Duddingston Golf Club in Edinburgh is looking around for ways to raise £31,000; the price needed to buy their course which they have leased for the past 75 years. . . . .

Jock Millar, the Burnham and Berrow head greenkeeper, won the Somerset County Championship at Burnham in May by one stroke from Michael Ham. Millar came to the last hole needing a four to win. He was 25 yards from the pin in two but the approach putt and the final three-footer gave him the championship. The week later, Millar and Ham together tied for first place in the Bristol Scratch Foursomes Championship at Shirehampton Park. The Burnham green-keeping pair won after four extra holes in the play-off. . . . .

Portsmouth's Great Salterns Golf Course will lose seven holes to industrial development next January, but an £8,000 scheme to provide 18 holes again within the next three years has already been approved. . . . .

The local residents' association is up in arms about Dartford Rural Council's plans for an additional nine-hole course in Lullingstone Park. Copies of their protest letter were sent to two M.P.s, three district councils, the Department of the Environment, the Countryside Commission, the Nature Conservancy, the Council for the Preservation of Rural England, the Footpaths Preservation Society, the Committee for the Preservation of Rural Kent, Orpington Field Club and the Kent Trust for Nature Conservation. A fairly wide coverage. . . . .

An American-European company, Hamblyn-Collett (Europe), is looking into the possibility of building a new course overlooking the Severn Gorge in the new town of Telford in Shropshire. . . . .

Ireland's first public course is now taking shape 15 miles from Dublin city centre. Eddie Hackett is the designer and the length will be about 6,540 yards. A member of Cill Dara Golf Club, Richard Mather, owns the land and plans to do most of the work himself as he is a highly mechanised farmer.

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# AUTOMATIC IRRIGATION: Where Do We Stand?

by ROBERT M. WILLIAMS\*

Superintendent, Bob O'Link Golf Club, Highland Park, Illinois

NICK GEANNOPULOS

Managing Editor

**The plus and minus aspects of automatic systems as they have been developed to date are presented**

Golfers' demands for top-quality turf on golf courses have never been more emphatic than they are today. One of the major maintenance operations affected by this trend is turfgrass irrigation, as manual procedures give way to sophisticated automatic systems.

Modern technology and extensive experience are producing automatic systems today that are extremely reliable, involve minimum maintenance, and can be tailored to meet superintendents' exacting needs for individual courses.

Surely, an irrigation system that is properly engineered, installed and managed can be one of a club's greatest assets. Thus, a great deal of preplanning should be given to proposed watering systems commensurate with the amount of money invested. When you install something as critically important as an underground irrigation system, you get only one chance to do it right.

A smooth-operating and efficient automatic irrigation system must be properly designed and installed so that it is more than just plumbing. It should be regarded as a precision tool for turf management that can provide true quality control for golf course superintendents.

Through the superintendent's efficient work plan for daily watering, absorption will be maximum and run-off minimum. Damage from overwatering, puddling and run-off is appreciably reduced by *multishortcycling* with appropriate delay intervals adjusted to soil infiltration rates. The varying ranges of moisture requirements from low-lying, damp fair-

ways to high, dry areas is best met by automatic irrigation's precise timing of each individual sprinkler head. *Contemporary design provides this necessary factor of full control of each individual head.*

## Many Benefits

Another significant advantage of an automatic system is that it eliminates total dependence on night watermen. This is a job that nobody wants as it is usually a cold, wet and lonely one. However, it has always been one of the most critical jobs in the entire turfgrass management programme.

In the final analysis, probably the most notable benefit of automated irrigation is the constancy of service it offers: always on duty; capable of performing exactly to a superintendent's time plan; ready on command seven days a week with no time out for coffee breaks, vacations or illness.

What is happening in the golf industry today? What factors are influencing the irrigation scene? Actually there are a number of dominating factors. An analysis of some of the most prominent of these follows.

**Manufacturers.** In the past, most irrigation equipment was designed for large-scale agricultural uses. The fine-turf golf course market generally has been neglected, even though it has currently shown a considerable potential for growth. Until recently, very little research work was attempted to advance irrigation "hardware".

In taking advantage of the lack of adequate irrigation at most courses, some manufacturers have offered "free" engineering services to the unwary club or superintendent. Their blueprints were designed, of course, around specific equipment and could not be used f

competitive bidding on competitive components. Due to the many variations inherent within a single course, as well as from one course to another, these services proved to be impractical, often incomplete and did not give the superintendent complete control over his irrigation practices.

Within the last five years, several responsible manufacturers have invested in research and development programmes to upgrade sprinkler heads, valves, controllers, pumping plants and pipe. An additional boost for the industry is the improved communication between manufacturers and superintendents, which has helped to pinpoint the needs of the superintendents more accurately.

**Installing Contractors.** Among contractors, as with manufacturers, there are a few who are guilty of offering similar "free" plans to clubs, exploiting the allure of the "package deal" to eliminate competition. The contractor's plans, too, are far from being ideally customised. Their contract proposals are usually nebulous, being more favourable for the contractor than for the club. Also, such contractors frequently attempt to bypass the superintendent entirely by dealing directly with club officials. Some contractors are also distributors of various lines of equipment. Their plans obviously will be designed around the use of their equipment.

Fortunately, as communications improve, golf clubs and superintendents are becoming better informed and more alert to such pitfalls. Also, many of these unscrupulous operators are falling along the wayside since bone fide contractors will guarantee their work for at least three years.

On the more positive side, there are many talented and reliable contractors who have developed remarkably improved techniques for fast but economical installation, all in the best interests of the golfer, the superintendent and fine playing turf.

**Architects/Engineers.** These are the specialists who bring experience and professional know-how to the job. More than any other group, the architects and engineers are encouraging the involve-

ment of superintendents in irrigation planning projects. Every set of plans should rightfully begin with basic requirements stated by the local superintendent. Usually, he is the most well-informed person as to how much, where, and when water is needed on his golf course.

Architects and engineers offer the most skilled assistance in seeing that a club gets its money's worth. They act as an intermediary between the club, superintendent, manufacturer and contractor. As a balance wheel, they act with maximum efficiency in interpreting the superintendent's needs into a system design that fits all of the many local conditions.

Architects' and engineers' services normally include the preparation of all plans, drawings, specifications, bonds, insurance guarantees, proposals and contracts. They usually include general supervision and guidance as the installation progresses. Occasionally they act as arbitrators when there is a dispute over compliance with specifications. They are the authorities who represent a club's interests and serve to backstop and check all the involved parties. The fees paid to architects and engineers are the most worthwhile and prudent investment a club makes to guarantee a successful irrigation system.

**Club Officials.** Generally speaking, club officials refrain from personal involvement in club affairs other than making decisions of policy and direction. This is as it should be because it leaves the mechanics of the respective departments to the golf professionals, club managers and superintendents who are trained to cope with them.

With a new irrigation system, however, club officials are vitally concerned with obtaining the best potential insurance or guarantee possible against any type of failure for which they would ultimately be held responsible. Additionally, club officials are thoroughly interested in the system's total expense and the degree of interruption to play during installation. Experience dictates that club officials who place their confidence in the superintendent's recommendations stand the best chance for a



*continued from page 5*

successful new system. Conversely, in situations where club officials bypass the superintendents, he is left so alienated or uninformed that he loses interest in the entire project that is to be left for him to manage.

Usually the good business sense and knowledge of financial matters possessed by club officials provide the vital support and guidance needed for a successful venture in installing a new automated irrigation system.

A further word of caution to club officials: beware of the club member who offers to furnish materials or services needed in an irrigation project. Occasionally, a club can benefit in this manner, but more often, objectivity is lost and personalities are likely to get involved.

**Superintendents.** The challenge offered to superintendents is to become well informed about every phase of automatic irrigation. When it is time for a new system at his course, he will be prepared to accept and handle his rightful responsibility.

It is a fact, though, that superintendents need better management tools. They also need the opportunity to make executive decisions and express opinions. In this way, they can cement relationships with their committees, boards of directors and, inevitably, their entire memberships.

In more meaningful terms, the superintendent's involvement can mean:

- Growth in status;

- Recognition of his executive and technical ability;
- Boost in remuneration; and
- Self-satisfaction from a job well done.

### Summary

Automated irrigation has emerged as a sound and efficient new management tool for better golf turf.

Golf clubs should avail themselves of the finest independent and professional engineering services possible.

Golf clubs should reject so-called "free" engineering services.

Manufacturers are constantly improving their research and development efforts in refinement of all components.

Contractors have made significant progress in the improvement of their installation techniques.

System guarantees now cover service up to three years.

While superintendents generally have been rather slow in accepting automation concepts, their views are rapidly changing with the continuing success of new installation techniques.

*With grateful acknowledgement to the "Golf Superintendent".*

\*Co-author Williams was motivated to collaborate with Geannopoulos on an automatic irrigation article because of his strong feelings about the need to alert golf clubs, superintendents and the irrigation industry of important facts on this vital subject. As a golf course superintendent who has researched, planned, developed, installed and successfully operated one of the most contemporary classic irrigation systems in the country, his thoughts on this topic are particularly significant.

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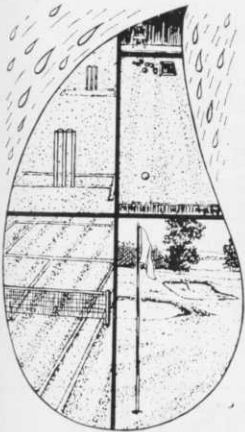
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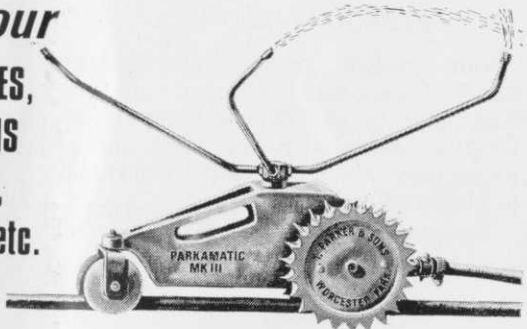
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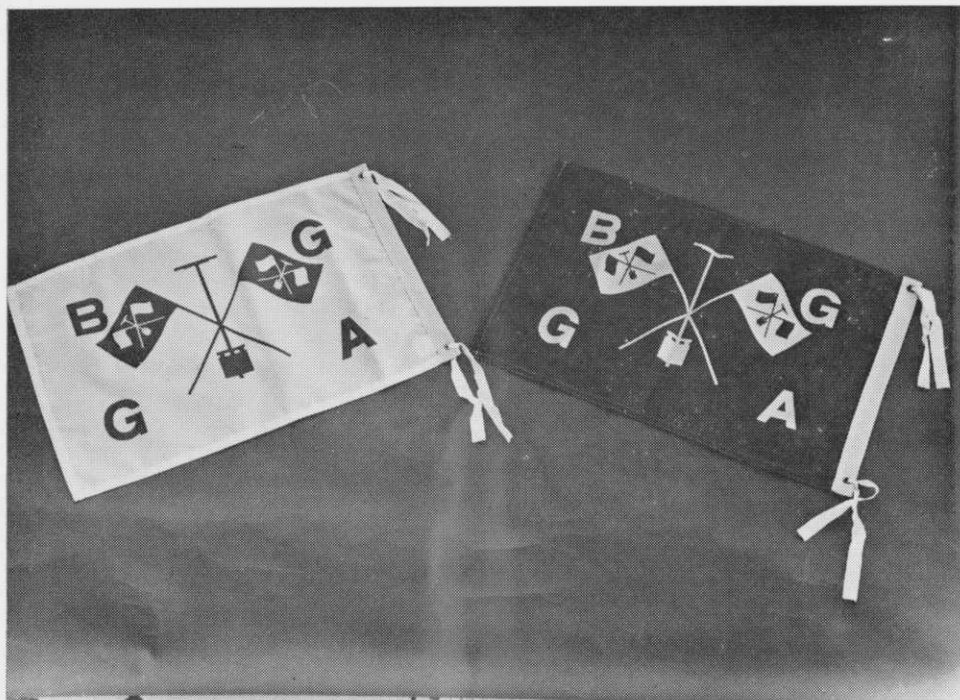
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The beneficial effects of grassland on soil structure have been known for many years. The improvement in structure is brought about by a number of processes:

## 1. Drying the soil

Clay contracts when dried and thus creates cracks in the soil which aid drainage and allow root penetration into the subsoil. As the soil dries, the bonds holding together the discrete particles which make up the crumbs and granules are strengthened.

## 2. Binding together of soil particles

The network of fine roots produced by the grass weave between and through the soil crumbs and promote their stability both by the direct physical effect of keeping the crumbs separated from each other and by the production of gums and mucilages which bind the soil particles together.

## 3. Adding organic matter

Leaves, stems and roots of all crops are sources of organic matter for the soil but grass adds most. The debris and residues from crops and grass can have a direct effect on soil structure before they break down by improving aeration and drainage, but they are more often thought of as sources of humus. Grass is superior to most other crops as a source of organic matter; a productive ley can add about 0.06 per cent organic matter to the top six inches of soil for each year of its life.

## 4. Protecting the soil surface

Tractors and other farm machinery, livestock and the impact of rain all apply pressure to the soil surface. The effect is much reduced when the surface

is protected by leaves and stems. Grass is a particularly useful protective crop as it provides cover throughout the year.

## 5. Reducing soil disturbance

Cultivations can encourage the break down of organic matter and if ill timed can create clods and pans. The absence of cultivations in a ley allows soil structures to remain undisturbed thereby encouraging the development of stable structural units.

It does not follow that all grass will bring about a dramatic improvement in soil structure. A poor, neglected ley may contribute little either as a source of organic matter or crumb stability. Where a grass break is aimed primarily at structure improvement a vigorous, well managed ley should be grown with attention paid to the following points:

- (i) Care should be taken to obtain good establishment by producing a good tilth and breaking any existing pans.
- (ii) Adequate fertilizer should be given and any acidity corrected by liming.
- (iii) Utilisation should be planned to promote maximum root growth.
- (iv) Avoid poaching by stock or excessive use of farm machinery when the soil is wet.
- (v) Any drainage defects should be rectified.

It must be remembered that on soils with inherently weak structure where low organic matter contents create problems much can be done to mitigate the problem during arable cropping; for example, take extra care with cultivations, avoid dilution of organic matter by over-deep ploughing, match crops grown to the soil properties.