Mr. George Herrington, twice National Chairman of the BGGA and much respected for his lifelong skills as a greenkeeper died peacefully on September 11th at Woodsetts aged eighty-one.

Since his retirement as Head Greenkeeper at Lindrick in 1974, George has maintained his active life doing the job that started him on the road to greenkeeping - gardening. He was in almost as much demand in the Worksop area as a gardener as he was as a greenkeeper.

Horticulture was his first job on leaving school where he won all the gardening prizes and only left because greenkeepers at the Sheffield & District Golf Clubs, as Lindrick was known at that time, were given Saturday afternoons off, whereas gardeners were not. As George wanted to join the local football team he became a greenkeeper.

Lindrick was where he commenced and ended a long and distinguished career. After eleven years at Rotherham G.C. as Head greenkeeper he returned to Lindrick in 1945 to take charge.

Under his guidance Lindrick was regarded as one of the finest inland golf courses in the country, staging the Ryder Cup in 1957, the last time it was won by the home side until the triumph at the Belfry. Lindrick also staged the Curtis Cup, the Dunlop Masters and a host of other prestigious events whilst George Herrington maintained the course. He also helped Ransomes design the now world famous Auto Certes machine.

Always a staunch supporter of the BGGA he was one of six founder members of the Sheffield Section, where he held the position of Chairman for many years and was elected National Chairman in 1958 and 1968. Only a month ago he attended the past Chairman’s Dinner during the Hayling Island Tournament and was one of the first to respond to the invitation.

In his heyday he played off a handicap of six, became captain of the Woodsetts Artisans, later to be renamed the Lindrick Artisans, though at Rotherham the members made him play off three.

George Herrington was a fine man with admirable principles. A regular supporter of his local church he was church warden for over thirty years. He will be greatly missed by his many friends in golf and greenkeeping, but all who knew him, know he had a full and active life, doing well a job he thoroughly enjoyed. What more can a man ask for in life?

He leaves a widow, three sons and eight grand-daughters.

The Executive Committee extend their sympathy to his family.

---

farmura
The Liquid Organic Fertiliser

Congratulate the Ryder Cup Team and the Greenkeeping Staff on their success at the Belfry

We are pleased that was successfully used as part of the management programme on the much acclaimed fairways

farmura green

Farmura Ltd, Stone Hill, Egerton, Ashford, Kent
Tel: Egerton (023376) 241
SECRETARY’S ANNUAL REPORT

Administration:
Once again we have reached the end of another year, and as in the past we have to say farewell to our Chairman of 1984/5. We thank Jim for carrying out his duties with great enthusiasm, he is a credit to the BGGA and his own North East Section, and has worked hard on our behalf. Although he does not have any transport of his own, he has attended meetings from one end of the country to the other, and when I hear some members ask what do we get for our money, I only wish they would take a more active part as all our past chairmen and Executive members do, and for a change ask what can I put into the Association.

I would like to add my personal thanks to Jim for his enthusiastic support during the year.

To follow Jimmy, we have Mr. E. R. James of the South Coast Section, a past chairman of the Association, equally as versatile and energetic as Jimmy, and I am sure will carry out his duties with great zest. We wish him well in his year of Office.

During the past year one of our Members (Mr. T. Jones) of the Welsh Section, was awarded the first prize of a trip to the USA, sponsored once again by Marshall Concessionaires, and as in the past previous two years 5 members won places to play against the Secretaries, and Club Stewards Associations, again sponsored by Kubota Tractors.

Our computer continued to be used by section secretaries to assist in their mailing. It is also in constant use for the monthly magazine, and has been used by various trades people for mailing purposes, which of course is a form of income, albeit further work for the Hon. Sec.

The greenkeeper training scheme is still making progress, and meetings are regularly attended by Mr. A. Gamble, and the Hon. Secretary.

Our membership continues to grow and we finished the year (April 1985) with 1,379 and it would seem that this upward trend is continuing.

Once again thanks are due to all Section Committees and members for their continued support of the BGGA. This I am sure is still the Greatest Greenkeeper Association in the land.

Minutes of the 68th ANNUAL GENERAL MEETING held at the Hayling Golf Club, Hampshire on Monday, 12th August 1985, at approx. 3.00 p.m.

APOLOGIES:
Apologies for absence were received from Mr. P. Alliss (President), Mr. P. McCarron, and Mr. G. Malcolm.

CHAIRMAN:
The Chairman opened the Meeting, at which there were approx. 86 members present. He requested that members stand and observe a minutes silence in tribute to those who had passed away during the year.

MINUTES OF THE LAST A.G.M.
The Chairman asked that as the Minutes of the last A.G.M. had been circularised to all members in the magazine they be taken as read, on the Proposition of Mr. R. Williams and Seconded by Mr. S. Wood they were accepted.

FINANCIAL REPORT:
I am pleased to report that once again we have a surplus for the year. We are in the happy position of receiving over £1,500 from the Building Society in interest and the Co-sponsorship and Machinery display at the annual tournament added considerably to the funds.

As shown on the balance sheet you will see that the main expenditure of the Association was for the Magazine, the STRI Journal and postage of these two items.

On the Proposition of Mr. E. R. James and Seconded by Mr. R. Gates, the balance sheet was Adopted.

EXECUTIVE COMMITTEE REPORT:
Nomination for Vice Chairman. It was proposed by the Cleveland Section that Mr. G. Malcolm be nominated as Vice Chairman for the ensuing year.

Tournament Committee. Elected for 1985 were, Messrs. E. R. James, A. T. Kite, C. Geddes, The Chairman, and the Hon. Sec.

The Tournament would be played from the white Tees.

ANNUAL TOURNAMENT:
The 67th Annual Tournament was held at the Northumberland Golf Club, Newcastle with approx. 72 members taking part. Once again a very enjoyable occasion. Many thanks to all participants and those who donated to the prize table and gave their time to assist.

S.T.R.I.
Again our thanks are due to the Team at the S.T.R.I. for their continued assistance.

ELECTION OF OFFICERS:
Election of Officers were accepted as follows:-
President: P. Alliss
Chairman: E. R. James
V. Chairman: G. Malcolm
Sec./Treas: W. Heeles
Solicitors: M. Holmes
Auditors: L. Phillips

NOMINATIONS:
It was proposed by the South Coast Section that Mr. J. Hamilton Stutt be accepted by the Association as a Vice-President. The Proposition was carried.

Questions were raised from the floor concerning the proposals to the BGGA from the PGA. After a lengthy discussion the matter was left for the Executive Committee to consider further at their next meeting.
HEAD OFFICE
General & Benevolent Fund

BALANCE SHEET as at 30th APRIL, 1985

<table>
<thead>
<tr>
<th></th>
<th>1985</th>
<th>1984</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIXED ASSETS</strong></td>
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<tr>
<td>Office Equipment at cost</td>
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<td>Additions during year, at cost</td>
<td>95</td>
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<tr>
<td><strong>Less: Depreciation</strong></td>
<td>1,175</td>
<td>1,343</td>
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<td>235</td>
<td>263</td>
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<tr>
<td><strong>CURRENT ASSETS</strong></td>
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<tr>
<td>Stock of Ties, Badges, etc.</td>
<td>603</td>
<td>613</td>
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<tr>
<td>Balance at Britannia B. Soc.</td>
<td>22,796</td>
<td>18,282</td>
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<td>Balance at Bank</td>
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<td>Benevolent Fund</td>
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<td>664</td>
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<tr>
<td>Sundry Debtors</td>
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<tr>
<td><strong>Less: CURRENT LIABILITIES</strong></td>
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<tr>
<td>Sundry Creditors</td>
<td>899</td>
<td>138</td>
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<td>Provisions for Taxation</td>
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<td>Monies Received in Advance</td>
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<td><strong>NET CURRENT ASSETS</strong></td>
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<td>20,052</td>
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<td><strong>TOTAL NET ASSETS</strong></td>
<td>23,811</td>
<td>19,299</td>
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</table>

**REPRESENTING:**
Balance as at 1st May, 1984 20,379
Add: Profit for Year 1,179

**SECTIONS**
General & Benevolent Fund

BALANCE SHEET as at 30th APRIL, 1985

<table>
<thead>
<tr>
<th></th>
<th>1985</th>
<th>1984</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIXED ASSETS</strong></td>
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<tr>
<td>Office Furniture, etc.</td>
<td>240</td>
<td>135</td>
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<tr>
<td>Additions During Year</td>
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<td>105</td>
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<tr>
<td><strong>Less: Depreciation</strong></td>
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<td>240</td>
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<td><strong>CURRENT ASSETS</strong></td>
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<tr>
<td>Sundry Debtors</td>
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<tr>
<td>Stocks of Ties &amp; Badges</td>
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<td>130</td>
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<td>Balances at Bank, Cash Benevolent Fund</td>
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<td>8,065</td>
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<td><strong>Less: CURRENT LIABILITIES</strong></td>
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<td>Sundry Creditors</td>
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<td><strong>NET CURRENT ASSETS</strong></td>
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<td><strong>TOTAL NET ASSETS</strong></td>
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</table>

**REPRESENTING:**
Balance at 1st May, 1984 8,410
Add: Surplus for Year 1,601
MIDLANDS

Hon. Sec: S. Wood, 153 Dickinson Drive, Beeston, Nottingham. West Midlands: WS2 9DR
Telephone: (0922) 640291

On Wednesday, 21st August our Section played against our old friends the Secretaries at Blackwell G.C. with the Greenekeepers defending the Cup we won last year; but it was not to be this year; with the Sec's running out winners by 4 matches to two, never mind - We can't win them all.

The Christmas Tournament & Dinner over 18 holes is at Olton G.C. on Dec. 2nd; this is a Bring & Win Competition, so bring a prize to the value of £5 or over.

Entries please with £5 and S.A.E. to A. Phipps-Jones, no later than 11th November; entries after this date WILL NOT BE ACCEPTED.

The Rigby Taylor Foursomes Tournament is near completion with A. Phipps-Jones and T. Ryder in the Final against the winners of S. Wood & T. Jesson v. I. Toon & B. Moland. E. T. Breakwell will be holding their Bi-Annual Open Day on 19/20 Feb. 86 to which all greenkeepers of the Midland Section will receive invitations.

Further details regarding lectures and visits will be available soon.

CLEVELAND

Hon. Sec: Roger Shaw, 37 West End, Sedgefield, Stockton-on-Tees TS21 2BM

On August 22nd the Greenekeepers Team visited Mount Oswald Golf Club for our Annual Match.

We were made very welcome by Mr. David Todd, the Captain and Club Members. We managed to go one better this year by halving the match.

Thanks to Sid Reeve and Staff for a fine course, Manager Gordon Clark and Clubhouse Staff.

On August 27th the team visited Darlington Golf Club. Mr. Terry Werge, Captain of the Club produced a strong team who became the victors by 4 games to 2 games.

The course was in great shape thanks to Ian Harrison and Staff. The new Steward and Stewardess made a fine meal to round off a pleasant evening.

Congratulations to Mr. Danny Godfrey who has been a valuable member of our Section for taking up a new position as Grounds Manager at Cranleigh School in Surrey.

He helped to start an evening course for Greenekeepers which started in September and leads to a very good certificate.

All That's Best Danny

From the Cleveland Greenekeepers.

Forthcoming Events: OCTOBER 29th
Catterick 12.00
(Highspeed Trophy)

WELSH

Hon. Sec: Phillip Swain, 6 Locke Street, Newport, Gwent NPT 5HL

On Wednesday 4th September we held our Autumn Meeting at Clyne G.C. near Swansea, but unfortunately the turnout was poor.

Apologies were received from Ted Thompson, who was on holiday and David Williams, pressure of work.

The weather could also have been kinder but the course was in much better condition. The greens being the best played on all year.

Our thanks to the members and committee of Clyne G.C. for the courtesy of the course and the club facilities.

Our thanks also to Henry and the boys for preparing the course in such good condition and to the stewardess for her culinary offerings.

RESULTS:
1st DENNIS JONES 74 President's Shield
2nd HENRY FRY 74 Stuart Crystal Vase donated by Ken Chatwin
3rd PHILIP SWAIN 76 Crystal Glass Vases donated by Clyne G.C.
4th JOHN HOPKINS 76 Bottle of Sherry donated by Clyne G.C.
5th JOHN WALSH 76 Bottle of Wine donated by Pyle & Kentig G.C.

The Rose Bowl and the Tray for the gross and net aggregates were won by John Hopkins. He also won a set of glasses donated by Walter Jones and Wine donated by Clyne G.C.

The next date to remember is the Christmas Competition which will be at Pyle and Kentig G.C. on the 12th December, starting at 11.30 a.m. with a Christmas Dinner at 6.30 p.m., please make every effort to attend and make this event successful.

N.B. Can we all make a bit more effort in entering for our competitions. The clubs are good enough to give us the courtesy of the club facilities and the course, the least we can do is to make a determined effort to attend.

SOUTH COAST

Hon. Sec: J. R. Dennis, Hampshire College of Agriculture, Sparsholt, Winchester, Hampshire SO21 2NF.

On Wednesday, 21st August our Section played against our old friends the Secretaries at Blackwell G.C. with the Greenekeepers defending the Cup we won last year; but it was not to be this year; with the Sec's running out winners by 4 matches to two, never mind - We can't win them all.

The Christmas Tournament & Dinner over 18 holes is at Olton G.C. on Dec. 2nd; this is a Bring & Win Competition, so bring a prize to the value of £4 or over.

Entries please with £8 and S.A.E. to A. Phipps-Jones, no later than 11th November; entries after this date WILL NOT BE ACCEPTED.

The Rigby Taylor Foursomes Tournament is near completion with A. Phipps-Jones and T. Ryder in the Final against the winners of S. Wood & T. Jesson v. I. Toon & B. Moland. E. T. Breakwell will be holding their Bi-Annual Open Day on 19/20 Feb. 86 to which all greenkeepers of the Midland Section will receive invitations.

Further details regarding lectures and visits will be available soon.

CATTLE EY

Hon. Sec: L. Wakerell, 26 Loxley Road, Berkhamsted, Herts. HP4 3PS

The Christmas Four-Ball will be held over 18 holes at South Bedfordshire Golf Club on Wednesday, 11th December at 9.45 a.m.

Members may bring along a guest as their partner, and all entries, together with Handicaps and £22.00 per couple should be sent to Ken Bunting by 25th November.

Christmas Dinner will be served at 5.30 p.m. and as last year each competitor is asked to bring a small prize, gift wrapped please.

Congratulations to Paul Fitzjohn and Roland Hughes on their fine achievements in winning at the Annual at Hayling Island and to the Mid Anglia Team for winning the Jubilee Cup for the second year running.

Workington Golf Club
ASSISTANT HEAD GREENKEEPER

Applications are invited from suitably qualified persons with experience in all aspects of golf course management including the operation and maintenance of modern machinery.

The course is of parkland type, 18 holes, in the Lake District

Salary by negotiation

Applications in writing giving full details of age and experience to:

The Secretary,
WORKINGTON GOLF CLUB,
Branthwaite Road, Workington Cumbria

14 © GOLF GREENKEEPING October 1985
At our October meeting we will be paying tribute to Cyril Fowler who is retiring as head greenkeeper from St. Austell.

Cyril a Lancashire lad, who travelled many parts of the world courtesy of H.M. forces during the war, including the Middle East, South Africa, Iceland, all over Britain and Northern Ireland finally taking service with the R.A.F. as an instrument fitter and settled in Cornwall.

Cyril, having married a Cornish girl and working as a farmer fell in love with solenoid had somehow caught fire and being directly under the petrol tank this was not a very happy situation. Turning off the ignition and with the solenoid now going like an incandescent light bulb began to take over as head greenkeeper and gave up farming.

His biggest project at St. Austell was extending the course, which both in their sixties and had both been taken ill. Cyril duly arrived at the club with the Cornish people and their way of life, now regards himself if not of Cornish origin certainly a ‘Man of Cornwall’.

Always being a keen sportsman, and actively engaged rugby, hockey, soccer, cricket, rifle and twelve bore shooting he eventually took up golf at Ex wick, Exeter EX4 2DF. At 63.00 p.m. the committee had only one eighteen holes on the course to take over as head greenkeeper and gave up farming.

In 1970 the captain of the club asked Cyril if he could cut the greens as there was no one else to do them, because the two staff employed were both in their sixties and had both been taken ill. Cyril duly arrived at the club at 6.30 a.m. the following day, having milked his cows first of course! He found the club only had one eighteen inch centres tool so took him until 6.00 a.m. that evening to finish all eighteen greens. Gradually he seemed to be helping out more and more and was doing less on his farm. Eventually in 1976 his wife had a baby and Cyril took over as head greenkeeper and gave up farming.

During his time at St. Austell Cyril well remembers one Saturday morning when he reversed the triple greens mower out of the shed, only to discover the petrol tank caught fire and being directly under the petrol tank this was not a very happy situation. Turning off the ignition and with the solenoid now going like an incandescent light bulb began to take over as head greenkeeper and gave up farming.

A local lad Peter Oldham is seeking head green keeper education, courses, Y.T.S., and will answer your queries and grumbles: Bring along your chairman and secretary, FOR YOUR DIARY:

A local lad Peter Oldham is seeking head green keeper education, courses, Y.T.S., and also answer your queries and grumbles: Bring along your chairman and secretary.

CONGRATULATIONS
Mike Goodhind (Cavendish Golf Club), has recently been signed up a stunt man for Burt Reynolds in his new film ‘Hooper Rolls a Land Rover’. Coming soon to a cinema near you, (Sorry Mike!)
A BREAKTHROUGH IN IRRIGATION AT THE BERKSHIRE

One of Britain's finest heathland courses, the Berkshire, has invested a staggering £113,000 in a completely new watering system covering all 36 greens and part of the fairways.

The irrigation scheme installed by Golf Landscapes Ltd. using the most up-to-date equipment available on any golf course in Northern Europe was supplied by Toro.

An Open Day for the golfing press and all those involved in supplying services and equipment was held in August and Golf Greenkeeping visited the Berkshire to hear the technical details.

According to the club Secretary, Major Peter Clark, the club realised they needed a far more sophisticated irrigation system after the dry hot summers of 1983 and 1984 exposed the shortcomings of trying to maintain a championship course without adequate water.

The head greenkeeper, Bob Morton, had moved down from the Midlands to take charge a few years ago and he was experiencing thatch on the greens like coconut matting in places, and erosion of the greenside banks where the existing water could not reach. He was not able to slit and aerate because during those two scorching summers the staff were spending most of their time watering manually and even then they could not put sufficient water in the places they needed it in the quantities required at the right time.

The club faced the facts and agreed they needed the best system available and set up a sub-committee of three to explore all the options.

After thorough surveys, particularly on the availability of water supplies the proposals were put out to tender and the contract given to Golf Landscapes with Howard Swan in charge of the project, after assurances had been received that the character of the course would not be changed, only improved.

SILVER JUBILEE CELEBRATIONS AT SUPATURF

1985 marks the Silver Jubilee of a company that just can't stop growing in more ways than one! Supaturf has proved itself a market leader in the supply and distribution of grass seed, fertilisers, chemicals and allied products and equipment for the turf, sports and amenity industries.

This year also marks the 20th anniversary of the union between Supaturf and the George A Palmer Group and its continual growth under the wing of Managing Director David Palmer. He is delighted to be able to combine his own love of all sports with business—some of the finest tennis courts, golf courses, cricket pitches and bowling greens in the country owe their excellence to the work of groundstaff, greenkeepers and Supaturf all working together.

The past 25 years have seen Supaturf grow from a small family business selling other company's products to a large, nationwide concern based in Peterborough. Its five distribution depots now market many of their own brands, offer a first class advisory and laboratory service, and constantly introduce new top quality products from other world leaders.

Supaturf have been appointed a distributor of a range of slow-release nitrogen fertilisers, COMPO FLORANID, from BASF which work by releasing a measured dose of organic nitrogen evenly and slowly over a long period—up to 16 weeks or even longer! The release is triggered by warmth and moisture allowing grass to receive its feed requirements at the right rate at the right time. The result is a good, healthy root system and an even rate of sward growth, thus reducing mowing frequency and producing a better looking, healthier and more resilient turf.

Floranid is ideal for turf areas such as football pitches, golf courses and general amenity areas and, as it needs fewer applications than most other fertilisers, saves on time, labour and money.

RIGHT SAYS FRED

Fred Cox is second to none in his knowledge of all grass sports surfaces, so who better to consult with all your growing and turfcare problems? Based near Rugby, he has the full backing of Supaturf's well equipped laboratories to help him help you, so don't delay, phone Fred Cox on 0733 68384.
Among the guests at the Berkshire to view the £100,000 irrigation system was Henry Cotton, who told those at his luncheon table he was spending a few months in England to attend the Open Championship, the Seniors Tournament and the Oval Test among his many engagements.

Henry recounted the tale of his encounters with an interviewer from one of the radio station when at St. Georges, who thrust a microphone under his nose and demanded an interview. ‘What’s the fee’, asked Henry. ‘There is no fee’, was the reply. ‘No fee - no interview’, said our most famous golfer. ‘But think of the publicity’, replied the intrepid interviewer. ‘But I don’t need any publicity’, retorted Henry.

With that the man with the tape recorder left, but returned shortly with £25.00 in grubby notes, which were gratefully accepted.

‘Now Mr. Cotton, when you had your record breaking round at Sandwich in 1934, how do you think the rough compared to how it is today’.

Henry thought for a moment and said ‘I really haven’t the faintest idea, I was never in the rough in 1934!’

We were not told how the rest of the interview went.

HOWARD SWAN,
Director of
Golf Landscapes - Reports

The majority of golf courses in our country are of block design for greens irrigation; that is, where four pop-up sprinklers are set around a putting surface and operate all at once, controlled by an electrical solenoid valve at the rear. More advanced systems are two by two, but most are block. This means that when the controller activates a particular solenoid valve on a green all pop-ups water for the same length of time, and if they all have the same side nozzles (as they should) they all put the same amount of water on the putting surface, some distinctly away on the collar. Once each position was determined with some accuracy, some close to the edge of each putting surface, some distinctly away on the collar. Once each position was established head to head with the opposing pop-up, nozzle sizes were determined. Most importantly by this individual assessment, the required arc for each sprinkler was selected. In some cases the Head Greenkeeper wanted to irrigate the surrounds on a certain part of the green, so a full circle or two speed full circle sprinkler was chosen. On the greens, where there was a greenside bunker, a part circle sprinkler (45° - 225°) fully adjustable, was more appropriate.

In this way a custom made sprinkler schedule was compiled for each green on the courses, with a flexibility not previously known in golf course irrigation.

Similar exercises were undertaken for the sprinklers on the tees and approaches, under control in pairs, or threes dependent upon flow constraints, so that each was tailored to its own particular requirements.

A comprehensive design and installation proposal was put before the Club in September ‘84, accepted in October to the value of some £113,000, and materials began to be delivered in December. Early January saw installation begin in earnest, with two teams on mains pipework, put into the ground, by open trenching for the larger sizes, and by moleplough for the smaller ones. In all nearly ten miles of pipe was installed, together with the electrical wiring necessary for the various types of control to greens, tees and approaches.

This extent of pipework and cable installation took some five weeks to complete out of a total period of 14 weeks, but because of the frost, snow and impossible ground conditions encountered last winter, it was not brought to a conclusion until the middle of March, some five weeks behind schedule.

A 45,000 gallon tank, 3.2 metres high and 8.0 metres in diameter was erected on a reinforced concrete base at the control centre in the middle of the golf course. A new pumping station was built by the Club not only to house the packaged pumping set of 3 pumps and pressure gear, but also to act as the nerve centre for the new system where the head greenkeeper would locate a new office where the electronic controller would be installed.

When the snow cleared installation work recommenced on the putting surfaces. Horseshoe pipe mains were moleploughed on the greens and approaches with a smaller pipe for the sprinklers on the tees. Hundreds of pipe connections were made, even more electrical connections, suitably insulated with resin for underground location. Great care was taken by the team to minimise disruption to the mature turf on the courses. Trench lines were seeded in, heather replanted where pipework had gone through the rough. All in all, everything was done to maintain the courses in their prime condition and golf was played without interruption throughout.

The ASL 800 station computerised controller arrived in May and was duly installed, the electricity was connected, the system was powered, pipes flushed, sprinklers set, and by early June a number of successful pilot runs resulted in a commissioning and handing over to the Club.

It had taken five months to put in what was a highly sophisticated and modern automatic system to the 36 greens, tees and approaches. In all, 150, 650 sprinklers went into the greens under single head control, sixty-three, 650 sprinklers on the approaches and practice areas, with one hundred and ten, 640 and super 600 sprinklers on the tees. Additionally, manual coupling points were located on open ways, so that watering could be affected by Toro’s new Micro 44 travelling sprinkler, to provide a massive head of water when necessary.

Once the Berkshire system is established, it is hoped the single head control concept can be seen to be a significant advantage over more conventional block systems, providing flexibility and accuracy in irrigation management, and in consequence better turf maintenance.

It will be the template upon which, future systems are built.

© GOLF GREENKEEPING October 1985 17
Crowds come, Crowds go, We remain!

When the excitement, the cut and thrust between winner and loser is over, when crowds have drifted away, Toro sprinklers remain - watering the sacred turf in their own quiet, efficient way. Toro, helping Greenkeepers prepare for sporting battles yet to come...

Last year, Toro sprinklers watered the turf which staged 'The Open', the Ryder Cup, the Henessey, the U.S. Open, U.S. Masters - five good reasons why your club should consider Toro Golf Course Irrigation. Other major Toro sporting occasions included 'Wimbledon', the F.A. Cup, Royal Ascot and the E.B.A. Championships...

For more information, speak to Peter Roberts, personally.

TORO Irrigation Limited
UNIT 7, MILLSTREAM TRADING ESTATE, RINGWOOD, HANTS BH24 3SD
TEL: 04254 6282

ROYAL PORTHCWL GOLF CLUB
Assistant Head Greenkeeper
Required for the Championship Links Course
Must be experienced in all aspects of Turf Management, Modern Machinery and Watering Systems
Attractive Salary

Apply in writing giving age, qualifications and experience to:
The Secretary, ROYAL PORTHCWL GOLF CLUB, PORTHCAWL, MID GLAMORGAN CF36 3UW

THE CRYSTAL COMPETITION

Five more questions in the Rigby Taylor Crystal Competition before the entry form will be published in the November issue.

By then you will have a total of thirty questions to test your knowledge of golf and greenkeeping. You will be asked to cut out the numbered token at the bottom of each month's issue and stick them to the November entry form.

If any readers have missed an issue for any reason, numbered tokens can be obtained from the editor at the address shown on page 3.

We have been told the questions have been too hard. Not for such well informed sons of the sporting soil, surely! Most of the answers can be obtained from the usual golf reference books or publications on turf maintenance.

1. What is the sign used on the container of a Toxic chemical.
2. How many species of earthworm are there in the U.K. Nine... Fifteen... Twenty-five?
3. Which British tree is facing extinction through the activities of a beetle.
4. What year was the BGGA in its original form, started.
5. Which architect is associated with the two tier green?
During recent months, much has been written, and no doubt much discussion has taken place, concerning 'American' golf course maintenance systems, budgets, manning levels and turfgrass quality.

The arguments are familiar and, usually, have been voiced as a condemnation of 'American' techniques and as an indication that they are not relevant to the British climate and economic situation. Rarely are the criticisms supported by explanations of turfgrass maintenance techniques currently in use in various parts of the United states.

How do 'American' turfgrass maintenance systems differ from their 'British' counterparts?

The first consideration in discussing 'American' golf is the vastness of the country. With an area of 3,615,123 square miles, it is approximately twice the size of the whole of Europe and Scandinavia combined, or almost forty times larger than the United Kingdom and Northern Ireland. Obviously, there is bound to be enormous diversity in climates, soils, vegetation cover, and economic constraints.

Here, even with our general climate, we feel the necessity to distinguish between links, parkland, and moorland courses, with further considerations given to North, South, East and West locations. The diversity in climate, topography and vegetation within the United States makes it preposterous to embrace all the different types of golf courses in the general terms 'American'. We should never refer to an 'average' American course or generalise about any aspect of American greenkeeping. Generalisations of this kind are inaccurate and misleading.

If you were to stand with one foot in boiling water and the other in freezing water, would you, in general, be comfortably warm?

There is no 'American' golf green; nor is there an 'American' maintenance method. There are many types of greens and there is a wide diversity in maintenance practices. After all, there are about 13,000 golf courses in the States and each golf course superintendent is an individual.

Simplifying the variety of environments and maintenance systems encountered in the U.S.A., some broad groupings can be distinguished. Turfgrasses can be classified according to their season of most active growth. Species which produce most growth during Spring and the cooler months of Autumn, remaining semi-dormant during the hot summer and cold Winter months, are described as cool-season grasses. All the turfgrass species grown in Britain fall into this category and include such species as the Fescues, Bents, Smooth-stalked Meadowgrass (known as Kentucky Bluegrass in America), Rough-stalked Meadowgrass (known as Rough Bluegrass), Annual Meadowgrass (Annual Bluegrass) and Perennial Ryegrass.

The other broad group of turfgrasses, making their maximum growth during the hot Summer season, are classed as warm-season grasses and are typified by such species as the Bermudagrasses (Cynodon spp.) St. Augustinegrass (Stenotaphrum secundatum), Zoysia-grasses (Zoysia spp.) and Centipedegrass (Emohochia ophiuroides). The optimum temperature for these species is 80-95°F (26-35°C), making very little growth at temperatures below 55°F (12.7°C) and becoming completely dormant with a browning of the foliage at temperatures below 30°F (-1°C).

The United States can be divided into broad zones of adaptation for cool and warm season species. (See FIG. 1). Within these zones, climatic conditions can vary quite considerably according to latitude, elevation and maritime influences. Between the zones, transitional areas display intermediate characteristics of the bordering regions.

Man has long recognised the importance of climate in the development of a regions plant communities. It is a climate that largely decides whether a species will survive in a given region, and it is soil characteristics and topography which determines the degree of adaptation and abundance of the plant species.

Although the cool humid regions of the States are classified as temperate climates with cold Winters and mild Summers, there are enormous differences between the north and the south, east, and west. For example, average mid-winter temperatures in the south of the region are 35 to 40°F (1.6 to 4.5°C), whereas in the Dakotas it is about 5°F (-15°C). Total annual precipitation ranges from 20 inches (500mm) or less in the West to 45 inches (1125mm) or more along the Atlantic coast.

The Pacific Coast area is generally less extreme and more similar to the British climate, displaying turfgrass species and maintenance problems more reminiscent of our own.

Most of the western half of the United States is classified arid or semi-arid and may be divided into two main sections, depending on average temperatures.

The hot, arid and semi-arid region covers an area from Texas to California, forming a narrow belt which extends between a series of mountain ranges in California, Arizona and New Mexico, and the Mexican border. Average summer temperatures are very high, with some areas such as the notorious Death Valley of California and the Arizona desert, experiencing
temperatures in excess of 100°F (37.5°C) in the shade day after day during the midsummer period. However, temperatures can drop sharply at night because of the dry air and clear skies. The growing season can vary from 200 days in the north to 365 in southern California and areas of Arizona. Annual rainfall is generally low with less than 5 inches (125mm) in the subtropical areas to about 20 inches (500mm) in Texas.

The cool, arid and semi-arid zone encompasses the vast mid-interior region of the U.S. and can be subdivided into the Northern Great Plain and the Inter-mountain Region. The vast level expanse of the Great Plains produce the greatest diurnal variations in temperatures in the U.S. An advancing polar air mass can reduce the temperatures by as much as 60°F (15.5°C) in a matter of a few hours. Seasonal variations in temperature can also be extreme. Summer temperatures can be above 100°F (37.5°C) and winter temperatures can be below −30°F (−34°C). The cold winters with extended periods of heavy snow cover can produce a variety of problems. Winter desiccation of groomed turf can be horrendous and rodents such as prairie dogs and mice that burrow below the snow can also destroy large areas.

A problem associated with aridity is the phenomenon of wind erosion and subsequent dust deposits. Dust can be transported across many miles of the vast plains and it is not unknown for a dust layer of 1½ inches (37.5mm) in thickness to have accumulated on a golf course in a matter of a few weeks.

Visitors to the hot zones of America will often comment on the seemingly relentless use of irrigation systems on golf courses. Throughout the day, it would seem, water is being indiscriminately pumped on the greens, tees and fairways. To the uninitiated, accustomed only to the irrigation procedures of our cool temperate climate, this practice may be construed as excessive watering. On the contrary, in such areas water is not only applied to turf to avoid drought damage but also a means of protecting the closely mown grasses from the intense heat.

Periodically, small quantities of water are applied to the turf to cool it and reduce its transpiration rate, rather in the manner that we would seek shade. Heat energy is utilized in evaporation of the applied water, rather than permitting it to over-heat the grass plants. During very hot weather, the operation may be necessary on four or more occasions during the day. Failure to 'syringe' the turf in this way would soon result in death of the grasses.

The practice does not actually irrigate the soil; it merely cools the foliage and avoids heat stress. In fact, excessive wetting of the soil is diligently avoided. If the soil were saturated during the day, available soil oxygen would be depleted and the grass roots would fail to function efficiently. The result would be that the grasses were less capable of absorbing water and they would suffer from drought.

In areas of the States where high temperatures and drought are common, an irrigation system is a vital tool and breakages or other failures cannot be tolerated. Therefore, the system must be regularly checked. Some Clubs designate Mondays as 'maintenance day' and the course is closed to play. ‘Maintenance day’ provides an ideal opportunity to systematically test and check all valves, sprinklers, control stations, etc., of the irrigation system. It is a long and tedious operation and can only be executed when the course is free of golfers. On occasions, the ‘check’ may coincide with rain and consequently, the irrigation system may be operating, even though there is heavy rain. To the uninitiated British visitor, unfamiliar to the golf course superintendent’s programme, this may be misconstrued as excessive irrigation.

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**Figure 1.**

Major zones of turfgrass adaptation in the U.S.A. (Musser, 1962)