

holes, was a close fought battle with Mike eventually winning 2&1.

Finally, can I thank everyone for their support during the last 12 months and wish everyone a Happy Christmas and prosperous New Year.

DEAN CLEAVER

#### SHEFFIELD

Firstly I would like to wish David Milbourne all the best in his new position as head greenkeeper at the new Waterton Park GC near Wakefield which is due to open next year, and to Pat Heaney who has taken up the position at Cavendish GC. We hope you enjoy your new challenge.

Our November lecture was given by Rufford and our thanks go to Peter Jefford of Rufford for an interesting and informative afternoon which was enjoyed by all. This lecture was also the section's AGM which was well supported. I hope we can keep up the numbers for the remainder of the winter. The section AGM was quite an eventful one this year.

The committee is: President – AK Arnold; Chairman – N Maltby; Vice chairman/treasurer – D Milbourne; Secretary – R Ullerthorpe; Comp secretary – I Collett; other members – R Graham, J Lax, S Hird and E Monie.

Barry Heaney has had to stand down from the committee this year to undertake the great honour of being chairman of BIGGA in '95. We wish Barry a very successful year and offer any help he might need.

Also at the AGM it was passed that any members wishing to play in section golf competitions next year must attend at least two winter lectures or give reasonable cause for not attending to secretary R Ullerthorpe. Please also remember to wear a jacket, collar and tie at all times while we are guests at Rotherham GC.

For October's lecture I must thank Graham Walker and Gem for the talk. Unfortunately I was unable to attend as I was on holiday but I understand it was an interesting afternoon.

Stan Quinn, chairman of green at Rotherham GC, would like to express how impressed he was by the high standard of applicants for the head greenkeepers job at Thrybergh and wishes to thank everyone who applied and to congratulate BIGGA.

Our February lecture on Thursday the 2nd will be given by Neil Thomas and BIGGA's new education officer Ken Richardson, so please let's have a full house and support our chairman Barry Heaney.

A Happy New Year to you all.

IAN COLLETT



## Education update

BY KEN RICHARDSON



# Developing success of management courses for 1995

#### Supervisory and Management Courses

The 1994 series of Supervisory and Management courses is now complete. From the feedback that we have received from delegates, we feel that we have got the format of the courses about right.

Andrew Barber said: "Even though the subjects were new to me, I enjoyed the course. The speaker, Brin Bendon, was excellent. The way he approached the subject seemed to bring the best out of the delegates. His skill and manner were much appreciated."

Hamish Stephen said: "I can honestly say I have learnt a lot from the course."

Stuart Dent told us: "I thought the subjects were well thought out."

Peter Gee concluded: "Brin gave a very good course with some very good handouts. I think it is a very good idea to bring in high profile greenkeepers into the last session. David McIndoe gave a well presented and informative session. The day on computers was also very useful."

To hear greenkeepers discussing 'Belbins Team Role Inventory' and to watch and join in role playing exercises was also an educational experience for me. With some slight modifications, we will be running another series of 4 weeks courses next October.

Delegates to this year's courses have expressed a strong interest in attending management courses at a regional level, to reinforce the knowledge gained at Aldwark, and we are looking at setting these up for February/March '96. Additionally, we will be offering regional Health and Safety courses during the first two weeks of October 1995 (see BIGGA in Focus for details) and we are looking at holding a level 4 management course.

The 4th module of next year's course – Managing Information – already has seven delegates registered. If you wish to attend next year or send a member of your staff make a note in your diary for 1995 that the Aldwark Manor courses will start on October 23 or, better still, contact me and reserve a place.

#### National Education Conference

Details of some of the speakers at the National Education Conference and BTME seminars are given on pages 13–19 of this issue. The programme has been designed to be topical and, hopefully, slightly controversial. Places are selling fast so make sure that you send in your application TODAY, to make sure of your place.

#### National/Scottish Vocational Qualifications

The GTC are continuing to have discussions with the Industry Lead Body, the Council for National Vocational Qualifications, the Scottish Council for Vocational Education and other related industries to refine the content and standards for greenkeeper qualifications. N/SVQs give recognition that a candidate can 'do the job' at work and that he/she knows the reason for doing the job (underpinning knowledge). To make the system work, there needs to be a network of assessment centres and a pool of trained assessors. Currently, both can mainly be found in colleges but, gradually, more greenkeepers are being trained as assessors and the GTC have asked a number of golf courses to become assessment centres. N/SVQs will not go away, but to make them work needs your involvement and support. If you wish to become a work based assessor or require more information, either contact me or David Golding at the GTC.

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# Braid in Scotland

**Chris Boiling visits two James Braid designed courses to see what jobs the greenkeeping staff can look forward to this winter**

**G**olfers in the Edinburgh area are spoilt for choice. I certainly was last month when I was looking for an escape from Scots-Turf.

There are so many fine old courses within minutes of the bypass, many around 100 years old and many designed by the

great James Braid. Which one to choose? In the end I decided to visit Broomieknowe and Craigmillar Park, one a parkland course, the other a heathland course that's slowly being turned into parkland. Both are kept by enthusiastic young teams.

Since the weather was cold and wet I left my clubs in the car boot and took out my notebook instead – and went and had a cup of tea with the young head greenkeepers. My aim was simple, to find out what, if anything, they

were planning to do this winter.

## **Broomieknowe**

Broomieknowe is a relatively new course in the area. It is only 88 years old.

The head greenkeeper, Hamish Brough, 36, has been doing a lot of construction work. But he's not complaining: "It's the part I like best because it's the most interesting and challenging."

They've been busy building because a bypass robbed them of half the 5th green (so they had to

build a new one further forward) and half the sixth fairway (so they had to turn a par 5 into a par 3 to allow golfers to play 18 holes while the course was rejigged).

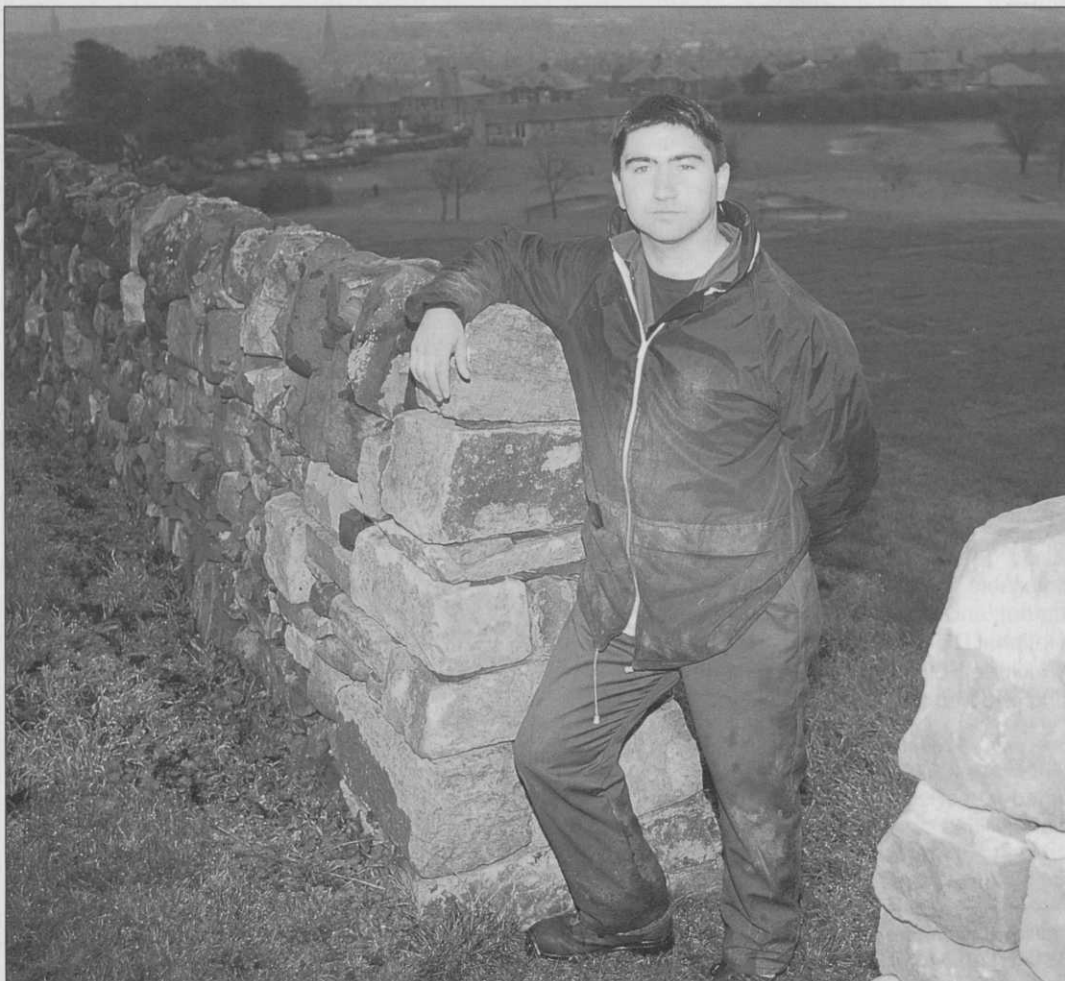
The club bought an arable field adjacent to the course and Stewarts, working to a Hawtree design, built four new greens, four sets of tees, one full fairway and two half fairways

Once phase 1 had been completed, the greenkeeping staff put in a tender for phase 2, to develop the existing bottom field holes and marry them with the new greens and tees. This started two years ago and involved removing hedges, bunkers and greens, and building new tees and greens – while keeping 18 holes open for members.

The new course opened in May. When I stopped by they were just completing the final part of phase 2 – planting 380 trees to help define the new fairways. 2,000 whips were also to be planted between the larger trees and 1,000 beech whips where to be put in the beech hedging where it had been damaged by rabbits.

With only a few weeks to complete the task, Hamish and his team of four (three of whom are qualified) were very busy. But they were doing it properly, stressed Hamish, the head greenkeeper there for the past six years. All the holes had been dug down to a good depth and the subsoil broken up. Mushroom compost, which had been ordered in the summer and left to rot, was put in the holes along with some tree and shrub fertiliser "to make sure they've got a good start".

Trying to meet their end of November deadline, the Broomieknowe staff could only





**Pictures: bottom left, Stephen Sinclair by Craigmillar Park's main feature – the wall that runs through the middle of the course.**

**This page: Hamish Brough by the 4th green at Broomieknowe. The old barn in the background is where he keeps his fertiliser and ChemSafe.**

do the basics on the course. There were a lot of leaves lying around and annoying the golfers but this, I was told, had nothing to do with the tree work. Their five-year-old Amazone Groundkeeper was being repaired.

Once the trees had been planted, the next job was to plant some Astroturf. Hamish had bought 400 sq yd of it and planned to put strips of the former five-a-side pitches down to make paths near the 1st and 5th tees. "We went down to Portobello to lift 100 sq yards of artificial turf. They were selling it for £1.50 sq yd but they were keen to get rid of it so we ended up getting 400 sq yd for the price of 100 sq yd," explains Hamish, who started as an apprentice at Gullane in 1979 and has also worked as head greenkeeper at Mortonhall near Edinburgh and at a course in Australia for a year.

Other winter work involves releveling or taking tiers out of several tees. They will use a turf-cutter and rotorvator on the back of a tractor for this before seeding them. "The tools that we have now make jobs like releveling a tee very simple. We can relevel a 500 sq yd tee in a week," he said matter-of-factly.

This is all in addition to the normal winter aeration work on fairways and greens.

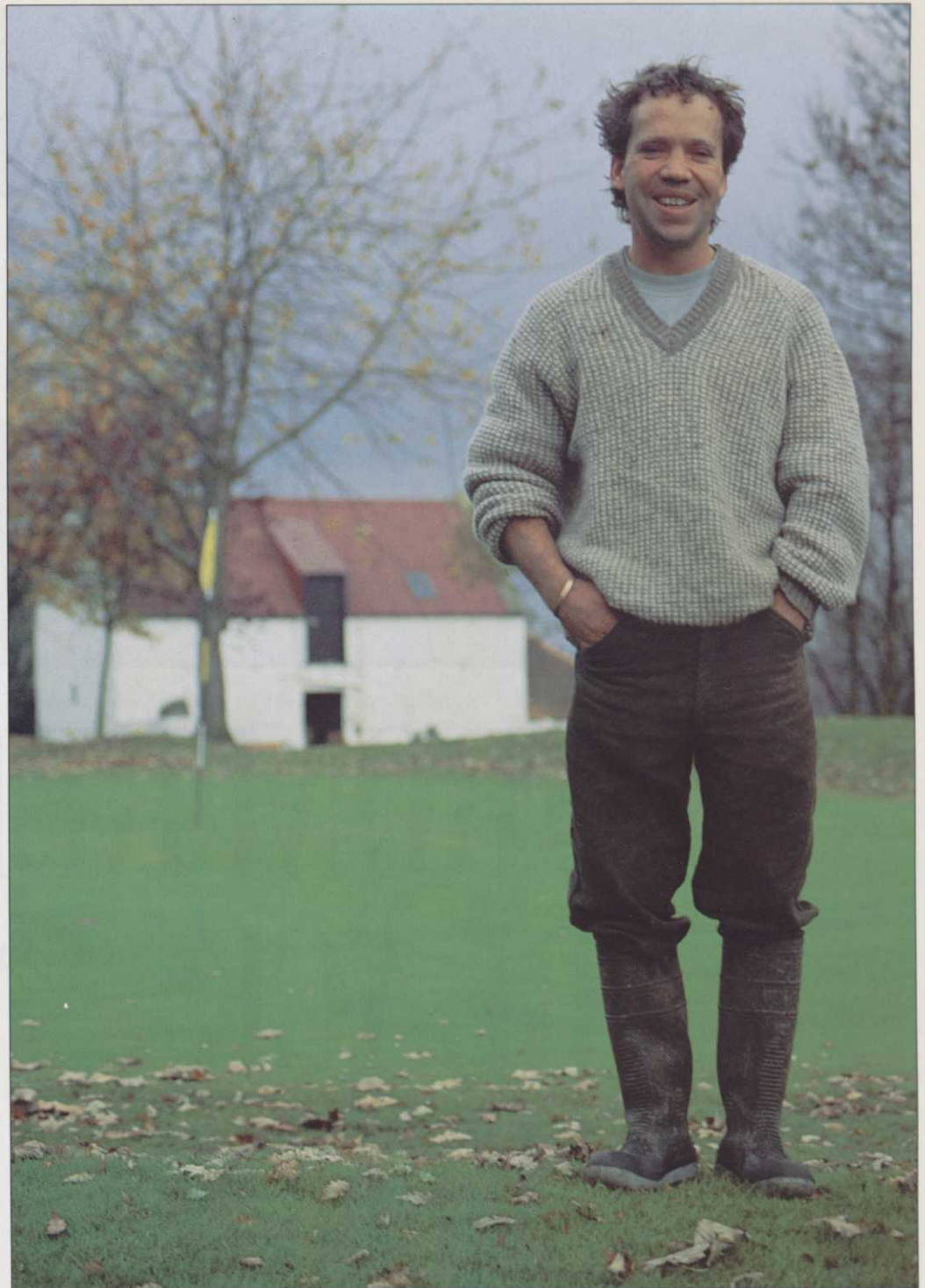
"If there's time after all this we'll build a tee on the 15th."

But what, I asked, will you do if it's really wet?

"Bash on."

#### **Craigmillar Park**

Craigmillar Park, which is only a couple of miles from the city centre, is one of several clubs in the area preparing for its centenary. This means head greenkeeper Stephen Sinclair and is three-man



team will have a relatively quiet winter.

They will mainly be tidying up and doing aeration work.

Stephen, 24, a former Toro/PGA European Tour Student Greenkeeper of the Year finalist, has been at the course since he left school in '86 and was made head greenkeeper last year. He would like to remodel a large bunker on a par 3 because it hides the green and encourages golfers to hit big into nearby property. But the club don't want any major changes before next year's centenary celebrations.

Instead the biggest job they've got to do is returning four tees. "They're really uneven," says Stephen. They also plan to pea-gravel some pathways and to

improve the clubhouse area. "We've got to try to make it more pleasing to the eye," he says.

The biggest problem he has to contend with, he believes, is thatch on the greens. "The greens were overfed and overwatered, kept green and lush for the members in the past. We've got them round to our way of thinking now – firm and fast greens. We've done a lot of topdressing since I took over. I try to do it every month during the summer."

They also use an intensive aeration programme, including Verti-draining last year, hollow-coring twice a year, slitting the predominantly *Poa* greens weekly and the tees fortnightly all winter. When I called in on them in November they were still cutting

the greens three times a week with a raised head ("just to keep them rolled"). Tees are cut every couple of weeks and the fairways left. "The growth is unbelievable, we're cutting fairways first week in March."

Later that month he would like to hollow-core the greens but he can't spoil the putting surface.

"The problem is we've got a high-ranking amateur tournament the first week in April – the Craigmillar Park Open with Walker Cup points available."

All this talk of golf made me want to get out and drive some balls into the wind. But there was no time for that, it was time to return to ScotsTurf and let these greenkeepers get on with their work...





**Ransomes' chief executive Peter Wilson (pictured above) explains how the company has gone from red to black since he and new chairman John Clement took over a year ago**

**R**ansomes has been cutting more than grass during the past 12 months. Its workforce has been cut by 12%, several senior management positions have been eliminated, and the American head office and warehouses in America, France and Germany have been closed.

Ransomes, Europe's leading manufacturer of grass cutting machinery, has been ill for several years, culminating in a loss of £8.9m last year. But chairman John Clement, who took over in October '93, says the company is now "out of intensive care".

With the cuts and a rationalisation programme, a new leaner, fitter company has emerged, bringing with it a host of new, competitively priced products. So the future looks healthy for the company that made the world's first lawn mower way back when the French Revolution was making the headlines (1832).

The problems started in '89 when Ransomes paid around £95m for Cushman Ryan. As Europe's no1, the \$140m per

# FROM RED TO BLACK TO GOLD

annum US market was an obvious area for expansion. Also by getting in there, it would open the door to other markets such as South East Asia where American architects rule, specifying machines they're familiar with at home. Buying the Cushman and Ryan brands, leaders in their sectors of the market, instantly made Ransomes a major player in the US market.

"So they did the right thing, in my opinion," says group chief executive Peter Wilson, who joined Ransomes a year ago, "But they paid a high price."

The high price wouldn't have been a problem if they'd done something with the brands. But they didn't.

Then the recession hit and Ransomes lost £12.6m in three years.

A boardroom shake-up saw former Unigate and Littlewoods director John Clement take over as chairman and ex-BTR and Northumbrian Water executive Peter Wilson replace Bob Dodsworth as chief executive.

They quickly and dramatically turned things around. In the first six months of this year turnover rose 14% to £102.1 million and profit was up to £11 million.

"We took out the very expensive top layer of management (including the managing director, finance director, US president and vice presidents) and promoted people from within," says 49-year-old Mr Wilson. "The

amazing thing is the success we've had so far this year has all been achieved without recruiting any new people. So it's really like taking the lid off the pot and allowing people to express themselves."

Another amazing thing is that this success has been achieved before many of Ransomes' latest products have made a contribution. Although many of these products – such as the lightweight Fairway 250 and all-electric E-Plex triple greens mower – were in the pipeline, the new team have speeded up product development and new product introductions. "So there are a lot of good new things still to give us a good contribution," Mr Wil-

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son points out, adding: "And we've got a lot more products in the pipeline. This coming year is going to be a very, very good year for us in terms of new products."

One of the new products, due to be launched at the '95 GCSSA show in San Francisco, is a walk-behind mower for the American market. Apparently American superintendents prefer wider machines with horseshoe-shaped handles and more aggressive bedknives.

This machine, like its other products, has been produced by listening to end users, distributors and dealers. Asking them if their needs are changing, if they have any problems or suggestions.

"We try not to develop a product unless people want it. It used to be that our development was engineer or manufacture-driven. Now it is definitely customer driven. So before we start we take a lot of notice of what people want us to put into machines."

Once they have consulted with greenkeepers and dealers about what machines or features they would like to see, Ransomes builds a prototype. This is shown to groups of greenkeepers and their comments are noted. A pre-production batch is then built and demonstrated before the product goes into production.

At Ransomes' factories in England and the USA they use Computer-based Numerically Controlled (CNC) machine tools of different types for accurate and economic machining of components. These CNC tools include memory-learning robots and flexible machining centres, capable of self-diagnosis and unmanned running.

High-tech gear is also used in the development of products,

including Computer Aided Design and computer-controlled test rigs which operate 24 hours a day, seven days a week so that components and machines can be subjected to a lifetime's wear in a matter of months.

"There is no doubt that new technology has speeded up the process of introducing Ransomes products to the market place. It has increased the versatility of design and manufacture and been an immeasurable aid to improving cost-efficiency," according to Chris Macgowan, the commercial division's sales and marketing director.

### 'We're pleased to be involved with BIGGA and support them'

But do these improvements in cost efficiency mean cheaper products, we wondered?

"We offer value for money. Too often we see people looking at two machines and saying 'Ah, this one's a much lower cost'. My answer is 'Yes, but this one (the Ransomes) has got a lot more benefits'," says Mr Wilson.

Which is why their machines can be seen at many of the top courses, including Augusta National and The Belfry.

And the new products are attracting a great deal of interest from clubs which have traditionally bought other brands. The super quiet E-Plex which draws power from eight 6-volt batteries is certainly attracting a lot of

interest from clubs in resort and residential areas and there is a back order of 200 machines in the US. With 40 years experience of electric vehicles at Cushmans to take advantage of, Ransomes is well placed to lead the way with other electric machines.

Peter Wilson also believes Ransomes is setting the industry standard with its Fairway 300, Groom Master bunker raker, Ryan aeration equipment and Cushman Turf Truckster.

"One of the criticisms of Ransomes in the past was we didn't have a full range of golf equipment. Now we do. I think now we have the newest and the most innovative, most up-to-date range of golf equipment of any company in the world," says the 22-handicap Hexham GC member.

In the UK they claim to have 35-40% of the golf market. In the US they have just 1%. "But with the new machines I think we can take a very large percentage of that market," comments Mr Wilson.

This new-found optimism sees Ransomes moving back from a silver key member of the Greenkeeper Education and Development Fund to a Golden Key member, alongside business rivals Hayters, Jacobsen and Lely UK Ltd.

"We're pleased to be involved with BIGGA and support them. We are THE British company and we think it's right that we should have as strong a position as we can. The stronger the financial position of the company the more we are able to do."

As long as they don't run ads like they used to when they launched the world's first lawn mower. The copy for that machine stated: "This machine is so easy to manage that persons unpractised in the art of mowing may cut the grass... with ease"; "...more than double the work may be done with the same manual labour that is requisite with the scythe."

## Support grows for Golden/Silver Key Circles

BIGGA's Education and Development Fund goes from strength to strength. New members for 1995 already include Amenity Technology and Rhône Poulenc as Golden Key members and the Association's insurance brokers, Fenchurch, as a Silver Key member. Additionally Ransomes have announced that they will be upgrading their membership from Silver to Golden Key status (see opposite).

Commented executive director, Neil Thomas: "This is great news and significant in the fact that the fund is now beginning to have a major impact as knowledge of it spreads and greenkeepers are beginning to receive practical benefits to assist in their education and training.



"Our plans for 1995/96 include developing a local training initiative with two day residential courses planned for our regions. These will only be possible through the ongoing growth of the Education and Development Fund. The fund is now three years old and with the pending announcement of additional company members for 1995, it is clearly of major significance for the future training of greenkeepers. With continuing industry support from our Golden and Silver key members, greenkeepers can look forward with optimism to the development of training opportunities which would not have been possible without the establishment of the fund".

The fund currently has 11 members. In the past this money has been used for videos, such as 'Raising the Standard in Spray Application' and 'Keeper of the Green' (in conjunction with the GTC), and for the 'On Course Field Guide for Major Diseases and Pests of Fine Turf'.

## We would like to see just the one show

Ransomes would like to see one show for the turfcare industry. But while BIGGA and the IoG continue with their shows Peter Wilson says Ransomes will continue to support them, and he made it clear Ransomes do not intend exhibiting at the new show proposed by P&O Events.

"Ransomes would like to see one show for the industry, one show we can support in a big way rather than having to support a number of shows to a lesser extent. But while these various shows are in existence we need to spread our resources to be in them." He stressed, however, this does not include the new show.





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# Question time for FERTILISERS

by Dr David Lawson, soil chemist, STRI, Bingley

**T**hrough education, word of mouth and personal experience (good and bad), greenkeepers are becoming more discerning in their use of fertilisers. All greenkeepers know that you can't simply apply any old fertiliser product at any time of the year and expect to obtain a top quality turf surface. However, there are a number of questions which are still frequently asked by greenkeepers and a selection of these are summarised below, along with some questions which perhaps greenkeepers *should* be asking about fertiliser products.

## **How much fertiliser is needed on the golf green?**

There is an immensely wide range in the requirement for nitrogen fertiliser on golf green turf. On older courses with green rootzones constructed from the indigenous loam soil, the fertiliser demand is relatively low. In some cases 8 g/m<sup>2</sup> of nitrogen (N) applied each year is adequate. This would be provided from a 8:0:0 fertiliser applied at 50 g/m<sup>2</sup> twice during the growing season. In most soil-based greens however, the nitrogen requirement is about twice that shown above so that the 8:0:0 product would be applied on four occasions during the growing season.

On recently constructed greens where the physical properties of the soil have been improved by the addition of sand the requirement for fertiliser N is substantially increased and will range from 20-30 g/m<sup>2</sup> of N each year. The actual amount applied will depend on the amount of soil present and the length of growing season.

As to whether other nutrients such as phosphate, potassium, magnesium or trace elements need to be applied depends on soil tests. However, as a general rule most soil rootzones have no need for any fertiliser nutrient other than nitrogen and it is only on sand-dominated rootzones that there need be any concern about other nutrients especially with regard to magnesium and trace elements.

If soil tests do indeed show a

nutrient such as phosphate to be insufficient for fine turf growth then the amounts required in fertiliser to rectify the situation are small. For instance phosphate deficiency can be prevented by the application of 2 g/m<sup>2</sup> phosphate (as P205) in a single dressing. This would be adequate for at least one year.

## **Should fairways be fertilised?**

In the majority of cases there is no need for regular applications of fertiliser to fairways. No greenkeeper wants to be mowing the fairways every couple of days. Regular applications of fertiliser will also lead to a change in the botanical composition of the fairway turf. Along with an increase in annual meadow-grass content, agricultural grasses such as perennial ryegrass will start to dominate the sward. Moreover lush growth will reduce the "run on" normally obtained from drives.

However, there may be cases in spring where growth does appear to be particularly weak and cover becomes thin. In such situations a one off fertiliser application will be of benefit. On tee walk off areas and green approaches where there is heavy wear it is advisable to apply a single spring nitrogen dressing each year.

## **What about the tees?**

If constructed from the same rootzone material to the greens, the tees should receive similar

amounts of fertiliser.

## **Does the type of fertiliser used make any difference to turf quality?**

Yes. The type of nitrogen used will have a major effect on many aspects of turf quality. There is no doubt that ammonium sulphate is the best nitrogen source for fine turf and should make up at least part of the fertiliser nitrogen. However, its continual use on sand-dominated rootzones will lead to over acidification and so other less acidifying materials should also be used. Such materials include liquid nitrogen fertilisers, most slow release sources and organic fertilisers such as hoof and horn meal.

Where fertiliser is applied infrequently (eg. fairways and surrounds) the form of nitrogen fertiliser used is not so important.

## **So what is so special about ammonium sulphate?**

It has been known for decades that ammonium sulphate as the main nitrogen source will reduce disease, weeds (including annual meadow-grass) and discourage earthworm activity. No other nitrogen source (apart from ammonium phosphate) has been shown to have the same beneficial effects.

It is certainly worth asking the fertiliser rep what the nitrogen in his product range is derived from.

## **With the hammering courses**

## **take during the winter is there a need nowadays to be applying autumn-winter feeds?**

Certainly golf is now played all year round, often under the most severe growing conditions and the turf must be able to recover. However, turf growing on unameliorated soil receives enough nitrogen from the soil's natural reserves during autumn and winter so that there is no need to be applying any more. On sand dominated rootzones it is often advisable to apply two or three small doses of nitrogen during mild spells. It is advisable to apply no more than 2 g/m<sup>2</sup> of N at this time of year and a useful way of applying such small amounts evenly is through liquid fertilisers. Alternatively a granular product with a low N analysis can be applied.

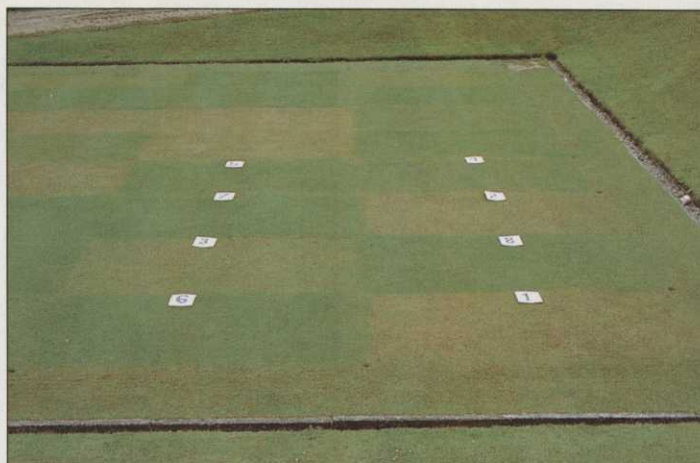
## **What about all these slow release nitrogen fertilisers?**

There is no doubt that many of the products on the market do have a good long term release ability. For this reason they may be useful as a part of an overall fertiliser programme but, used alone, some products may have a detrimental effect on turf quality compared with ammonium sulphate-based products. This has in fact shown to be the case with the IBDU and ureaform types of slow release nitrogen. However, these products can be used successfully (as can the coated



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forms) on less intensively managed areas such as surrounds. They are also extremely useful as nitrogen sources for seed beds and turf beds.

**Is it possible to supply enough nitrogen to turf from liquid**

**fertiliser?**

Yes, it can be done but it depends very much on the individual product and just how much nitrogen it contains. They are more usefully employed as part of a fertiliser programme where most of the nitrogen is supplied

through solids with a high ammonium sulphate component.

**Many fertilisers contain magnesium. Is there really any need for it?**

Most rootzones, including those with a high sand content, contain more than enough magnesium for fine fescue bent turf. Visible symptoms of magnesium deficiency in grasses are rarely, if ever, seen. Unfortunately there has been a scare over the apparently low concentrations of magnesium found in some golf green soils. The soil tests used are primarily based on agricultural situations and are not strictly relevant to golf turf. However, application of magnesium will not cause any harm to the turf.

**In greens with very high levels of soil phosphate what is the best way of producing a decrease in the concentration?**

Many of the older golf courses do have exceedingly high concentrations of soil phosphate in the greens. The reason for trying to reduce the concentration is the relationship between phosphate and annual meadow-grass ingress in the turf. This is not a particularly important factor in the invasion of meadow-grass and there is certainly no need to take panic measures to try and "be rid of"

the phosphate. So long as it does not necessitate a major change in the management programme a few tips may be useful in reducing the level of available phosphate.

Firstly, don't apply phosphate-containing fertiliser.

Secondly, if the soil is not already acidic use an acidifying fertiliser (ie. containing ammonium sulphate). In acid soil conditions a significant proportion of the soil phosphate becomes "locked up" and made unavailable to the turfgrasses.

Thirdly, apply iron. The iron forms insoluble compounds with the phosphate again making it unavailable to the turf.

Lastly, if possible use a top dressing material which is very low in its phosphate content. Remember that as far as annual meadow-grass establishment is concerned the surface of the soil (or thatch) is of most significance. If the concentration of phosphate here is kept to a minimum then seedling establishment can be reduced. This can be achieved over time by the regular application of a low phosphate top dressing material. Indeed after a number of years a rootzone will be established with very little phosphate at the surface, but with adequate reserves at depth for the requirements of the fescues and bents.

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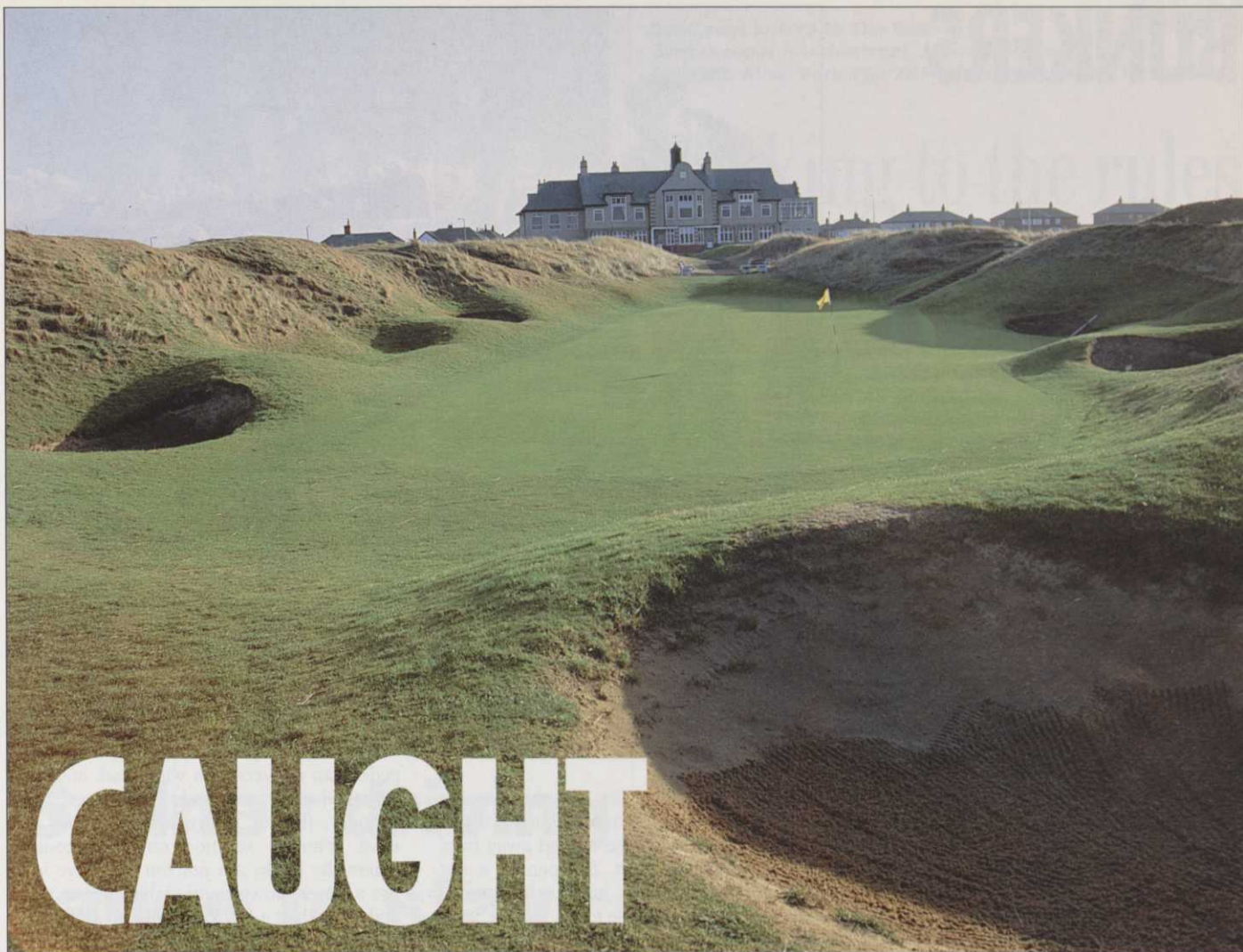
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The 9th green at St Annes Old Links. Below: the 12th green

# CAUGHT IN THE SAND

## Hugh Tilley explores bunker maintenance

Perhaps to the golfer bunkers or sand traps are the holes you love to hate, but for the greenkeeper they are expanses of sand which require attention and maintenance – exactly how much attention depends upon the standard set for the course. Perversely if standards are high then members will use the rake provided, but where the surroundings are scruffy there is little incentive other than to get out.

Some of this maintenance work can be mechanised or at least be aided by power tools such as a brushcutter, nevertheless there is inevitably some handwork which is often easier and quicker, and almost certainly cheaper than with machinery. Maintenance of bunkers arguably starts with (daily?) raking and extends through (weekly?) edge trimming to more radical occasional tasks such as adding or redistributing sand, decompacting or draining.

There is no real substitute for the hand bunker rake and although all the main manu-



facturers sell motor rakes these, manoeuvrable as they are, still leave handwork to be done in the places that the machine cannot reach. Of course on many courses it will be possible, perhaps even desirable, to remodel bunkers so that they allow the motor rake to

be used to maximum effect – and some courses have such large expanses of sand that the job has to be mechanised. If switching is the morning priority rather than raking sand then perhaps a run around with a motor rake as second priority makes best use of time –



# BUNKERS

rather than taking a TMV (i.e. Cushman, Huxtrik or Workman) around as it does allow a quick rake around of much of the sand, unfortunately some motor rakes are slow in comparison to a TMV or ATV. Of course the motorised machine has the advantage when the sand needs moving around or greater penetration is called for.

Trimming round the edge of bunker is probably more of a problem for most greenkeepers and if there is an ideal machine which works for every situation it has yet to be publicised. Most courses seem to prefer to use a brushcutter, well 'prefer' might be the wrong word as it may be truer to say that they have found nothing better or more cost effective and accept its shortcomings. There are a number of powered edgers but most are designed for the grass edges in parks and around flower and shrub borders. Most are made to run around the level top edge of the turf or even on a kerb, and not all bunkers have flat level edges (and none have kerbs!), nor are these edges smooth which can be a problem. Many of these edgers use a flat vertically rotating blade, which on some models can be turned to cut non vertical edges and perhaps this is essential for the less geometrical designs of golf courses. Both two and four stroke engines are to be found powering these implements and if there is any preference perhaps it should be to the four stroke because of the very real danger of inadvertently running two stroke engines on pure petrol. Sand is a classic abrasive thus not only will blades wear rapidly, but if the engine air intake filter is not extremely effective, sand dust generated by working will get in and considerably reduce its life. If the operator feels that he needs a mask then he should ask



**Terry Holmes,**  
head greenkeeper  
at Lee Park Golf  
Club, Merseyside,  
with a Dixon &  
Holliday Hover Hood

in this way may raise questions about safety. These constraints do not apply to knapsack brushcutters as the flexible shaft allows the head to cut high or low without effecting the balance of the machine or operator, thus provide him with greater flexibility to cut where he wants. The same head and blade options are available as for conventional brushcutters, however there are less dealers or distributors supporting these machines, possibly because of their greater cost and they are seen as being a more specialist tool.

Maybe not part of bunker itself but equally pertinent to it are any surrounding grass banks and if these are more than a 10% slope they should be outside the ability of the normal mower. Some areas may be accessible by some of the wider fairway mowers reaching out with a wing, or if there is a lot of steep work it may be possible to justify one of the pedestrian mowers with wide track and individual wheel drives – and of course a suitable cylinder, flail or rotary head. Perhaps the most common solution on most courses where the banks are not too extensive is to use a hover mower, and if the slope is steep and more than a few yards long to attach it to a rope, this is another practice which gives rise to concern over safety, but why no manufacturer has made a remote stop option baffles me – it should be easy. Another option is to use a brushcutter or knapsack brushcutter and although many greenkeepers may find the difficulty of getting a neat even finish excludes this as an option it may be worth experimenting with differing heads and skids. Alternatively one importer of knapsack brushcutters manufacturers his own hover hood to fit his machines and although this does not have the same working width as a normal hover mower it does keep the operator in full control – and it gives an equally fine finish.

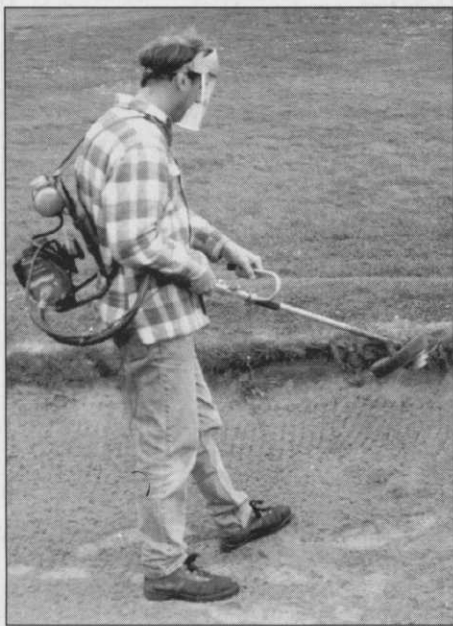
Tees and greens get drained, bunkers seldom do, perhaps because it is anticipated that sand will always drain naturally, however as every greenkeeper on heavy land knows any depression in the ground will collect and retain water unless there is a permeable layer or drains underneath the sand. Bunkers may not be heavily trafficked however breaking up the subsoil may be required to allow water to soak away. Several small deep aerators are available which allow the greenkeeper to shatter the ground from about two foot up, equally it is possible to use earth augers or drills – although this will not be as effective as a shattering blast of compressed air. Other more radical and more permanent possibilities include putting in drains, either with pipes or gravel bands, however the problem is often one of level – water won't run up hill – it has to be pumped, and I have yet to hear of anyone installing a wind pump to drain a bunker, although no doubt such would be a very 'interesting' feature – and a hazard in its own right.

questions about the engine. For this reason a number of clubs use knapsack brushcutters which puts the air intake up and away from most of the flying dirt. Sharpening a flat blade should be simple, just put it in a vice and take a good sharp file to it.

Last year saw an edger introduced with a monofilament line head, and this looks as if it may be a safer and better option. As it is very light, manoeuvring it around the edges should be simple although the wheels are small. Several other edge trimmers use slow rotating or semi-rotating blades arranged to provide a shearing action, and while this provides a machine which does not stir up the dust, the first question must be on the life of blades when used in highly abrasive situations.

The conventional brushcutter has the option to fit a range of heads and blades such as monofilament line or nylon, flat or multi tooth blades, and while certain operators seem to have specific preferences, the main differences seem to be their perception of safety. All need to be used with some protective clothing, to feet and eyes in particular, but ears and shins shouldn't be forgotten. If your normal supplier cannot offer suitable protective clothing and a full range of head/blade options perhaps you should look for one who does offer a complete service for the machine, – some dealers see small power tools as a diversion from their main task of selling mowers or tractors. There are also a few brushcutters which use a scissors action head.

The biggest practical problem with a brushcutter is that it is not designed for cutting in the places and at the angles where greens meet sand. It may not be possible to cut these edges with the machine slung on its harness with the operator's hands on the handles in the normal way, although most machines allow the positions of handles and hook to be adjusted. Using these implements



**Chris King,** first assistant at Shirehampton Golf Club, with a Nikken knapsack brushcutter