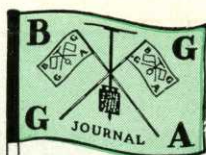


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GREENKEEPER

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No. 244 New Series

JULY 1965

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Gas is flowed to exacting measure,
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If I could but drive with equal skill.*

—DAMON KNIGHT

JULY

CONTENTS

Page	3	TEE SHOTS
	4	WHY TURFGRASS RESPONDS TO PROPER USE OF LIME AND SULFER COMPOUNDS
	6	MIDLAND SECTION v. PRESIDENT'S TEAM
	13	OBITUARY
	14	HON. SECRETARY'S NOTES
	15	SECTION NEWS
	19	S.G.G.A. NEWS AND SITUATIONS VACANT
	20	SPECIAL OCCASIONS AND MRS. GREENKEEPER

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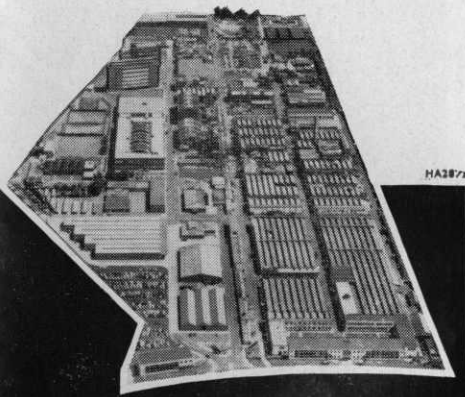
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TEE SHOTS



by the Editor

Experiment

The Taunton and Pickeridge Golf Club is carrying out trials with Econal and Regulox this year with a view to reducing the special problems of upkeep which affect their course. Limestone quarrying in the past has left a legacy of small steep ridges and hollows which would be little trouble by the sea but which grow lush inland and require much hand labour. There is also an area of brushwood in the angle of the dog-leg 17th which is a playing feature of the hole but grows vigorously and has to be thinned out each year.

Econal is a 2-4D; 2, 4, 5, 5T oil-borne emulsion which will destroy brushwood roots in a matter of months.

Regulox is a maleic-hydrazide based growth retarder. It is expected that this material will prevent the development of ragged, untidy growth.

* * *

Extension

The Warwick Corporation has added a miniature "hazard" golf course to the putting green and short 9-hole course in St Nicholas Park. But this one is made of concrete and brick and was designed by the Architect's Department. It cost £500.

* * *

Concession

Bulwell Forest Golf Club have gained permission from the Nottingham Corporation to play on Sundays, after 75 years. But permission is only for a ten-months' trial period and play must stop at tea-time. The problem is the public, not Sunday observance. Local inhabitants wander freely over the commonland at week-ends and the Corporation fears for their safety.

* * *

Ace

Tom Mason has celebrated his recent retirement by holing in one at the 192-yard 13th at Hendon during the club's match against Mill Hill. Tom has been within inches of an ace several times, but has not previously seen his tee-shot disappear into the hole.

WHY TURFGRASS RESPONDS TO PROPER USE OF LIME AND SULFUR COMPOUNDS

By Dr ELIOT C. ROBERTS
Turfgrass Specialist,
Iowa State University,
Ames, Iowa

*With grateful acknowledgements to
"The Golf Course Reporter"*

What does pH really mean?

WE know a soil may be either acid, neutral or alkaline, and that the degree of acidity or alkalinity is expressed as pH. Technically pH is defined as the reciprocal of the hydrogen ion concentration of the soil solution. pH is always expressed as a numerical exponent (a logarithm) to the base 10.

In the instance of 10^6 , the 6 is the numerical exponent or logarithm (pH) and 10 is the base. These pH numbers form a scale which extends from 0 to 14 and the numbers are so arranged that at the point where the concentration of hydrogen ions equals the concentration of hydroxide ions a condition of neutrality exists. At this point the solution is neither acid nor alkaline. One liter (1 gallon = 3.78 liters) of any neutral solution will contain a concentration of hydrogen ions equal to 10^{-7} or 0.0000001 gram (1 pound = 454 grams) of hydrogen ions per liter. The reciprocal of this is $1/0.0000001$ or 10,000,000 or 10^7 and the logarithm of this is 7.0. An acid solution with a pH of 6.0 will contain 10^{-6} or 0.000001 gram of hydrogen ions per liter. The reciprocal of this is $1/0.000001$ or 1,000,000 or 10^6 and the logarithm is 6.0. An alkaline solution with a pH of 8.0 will contain 10^{-8} or 0.00000001 gram of hydrogen ions per liter. The reciprocal of this is $1/0.00000001$ or 100,000,000 or 10^8 and the logarithm is 8.0. It can be seen that an acid solution contains a higher concentration of hydrogen ions than an alkaline solution (0.000001 gram is greater than 0.00000001 gram).

In comparison with common units of weight these amounts are extremely small. It also may be noted that the pH as a whole number is the same as the number of zeros in the reciprocal

of the hydrogen ion concentration or it is the same as the exponent in that expression of the hydrogen ion concentration. It is evident that the hydrogen ion concentration at each pH unit is 10 times greater than the next higher unit or 10 times smaller than the next lower unit. For example, as pH levels increase from 1 to 2 to 3 to 4 the hydrogen ion concentration decreases 10 times from 1 to 2, 10 times more from 2 to 3, and 10 times more from 3 to 4 or the hydrogen ion concentration decreases 100 times from 1 to 3 or 1,000 times from 1 to 4. This indicates that a small change in pH actually represents a rather large change in hydrogen ion concentration (See Table 1). In addition, as hydrogen ion concentration increases, hydroxide ion concentration decreases.

How do Soils become Acid?

Factors which influence soil acidity may be classified in three groups:

1. Soil Properties
2. Biological influences.
3. Climatic influences.

Soil Properties

Soils composed of minerals high in calcium and magnesium resist tendencies to become acid. The same acid forming processes go on in these soils that take place in other soils. However, these calcium soils have a built-in supply of lime which is effective in neutralising acidity as it forms. In general, processes of weathering, decomposition of organic matter, exchange of bases on colloidal soil systems, cropping, accumulation of fertilizer residues and leaching influence soil pH. These processes result in the formation of acid silicates, mineral acids, acid salts and organic acids which tend to increase soil acidity.

Biological influences

Plant roots release hydrogen in their respiratory processes. Since respiration is an essential feature of all living matter, the release of hydrogen in the soil is particularly large where organic matter levels are high and the soil is active biologically (contains a large number of microorganisms). Calcium, magnesium potassium, and sodium; all

plus charged ions, are absorbed by plant roots and by microorganisms and thus removed from the soil while hydrogen ions are left behind to increase soil acidity.

Climatic influences

The plus charged ions; calcium, magnesium, potassium, and sodium are subject to leaching from soils where rainfall or irrigation practices result in

increases further the concentration of these elements. Under such conditions, soils gradually increase in alkalinity.

How Soil Acidity and Alkalinity Affect Turfgrass Growth

Turfgrass species and strains differ in their tolerance of acid soil conditions. In general, of the cool season grasses, the bentgrasses are most tolerant, the bluegrasses least tolerant and the red

Table 1. — The pH Scale

pH Reading	Hydrogen Ion Concentration*		Hydroxide Ion Concentration*	
0 Acid	10^{-0}	1.0	10^{-14}	0.00000000000001
1	10^{-1}	0.1	10^{-13}	0.0000000000001
2	10^{-2}	0.01	10^{-12}	0.000000000001
3	10^{-3}	0.001	10^{-11}	0.00000000001
4	10^{-4}	0.0001	10^{-10}	0.0000000001
5	10^{-5}	0.00001	10^{-9}	0.000000001
6	10^{-6}	0.000001	10^{-8}	0.00000001
7 (Neutral)	10^{-7}	0.0000001	10^{-7}	0.0000001
8	10^{-8}	0.00000001	10^{-6}	0.000001
9	10^{-9}	0.000000001	10^{-5}	0.00001
10	10^{-10}	0.0000000001	10^{-4}	0.0001
11	10^{-11}	0.00000000001	10^{-3}	0.001
12	10^{-12}	0.000000000001	10^{-2}	0.01
13	10^{-13}	0.0000000000001	10^{-1}	0.1
14 Alkaline	10^{-14}	0.00000000000001	10^0	1.0

*Moles per liter (1 mole of hydrogen = 1 gram per liter; 1 mole of hydroxide = 17 grams per liter).

excesses in soil moisture at various periods throughout the year. In such instances these ions are washed out of the topsoil into the subsoil where they are drained away and lost. Hydrogen ions accumulate in these situations and soils tend to increase gradually in acidity. Where rainfall is in excess of 20 inches a year and where calcium and magnesium contents of the soil are low, soil acidity is likely to be a major problem. Putting greens and tees which are watered regularly are particularly susceptible to development of acid conditions.

In areas where the total yearly rainfall is light and where large amounts of precipitation seldom occur these basic elements (calcium, magnesium, potassium, and sodium) do not leach away but accumulate in both the topsoil and the subsoil. Often in these locations irrigation water is relatively high in basic ions and the use of such water

fescues are intermediate. The optimum pH for all these grasses, however, lies between 6.0 and 7.5. Applications of ground limestone to correct acid soil conditions are recommended any time the pH drops below 5.8.

It is important to note the effects of soil acidity and alkalinity on turfgrass production. Plant response often provides the first indication of poor growth conditions in the soil. The following observations have been associated with acid soils.

First, Plant Vigor. Turf grown on acid soil is often more free of weeds, particularly clover than turf grown under neutral or slightly alkaline conditions. Where soils are acid, bentgrasses are often darker green in color and turf is more dense. Not all weeds do better at higher soil pH levels. For example, sheep sorrel and field horse-

Continued: Page 10

MIDLAND SECTION v. S. PRESIDENT'S TEAM

HANDSWORTH GOLF CLUB

22nd JUNE 1965

President's Team		Midland Greenkeepers	
1. A. Pullar & J. F. Cooke	— 0	G. Woodward & E. H. Benbow	5 & 4 1
2. J. L. Whitworth & R. Hiatt	5 & 4 1	W. Barton & D. Brazier	— 0
3. Ian Wheater & R. Kirkby	3 & 2 1	W. Marnock & V. Smith	— 0
4. P. Skerrett & Rod Davies	3 & 2 1	W. Handy & H. Shepperd	— 0
5. T. R. Hodgetts & E. Moggs Wright	1 up 1	R. Pugh & T. Jones	— 0
6. W. N. Dudley Evans & A. H. Clayton	1 up 1	A. Hastelow & H. Drewitt	— 0
7. C. J. Withers & J. P. Richards	1 up 1	R. Smith & A. Boraston	— 0
8. C. C. More & W. Leslie Jones	1 up 1	A. Stephens & R. Baxter	— 0
9. R. J. W. Baldwin & C. Golf	3 & 1 1	G. Smith & A. Underwood	— 0
10. T. A. Phillips & P. F. Millward	3 & 2 1	E. Walford & J. Rawbone	— 0
11. L. W. Wheeler & G. N. Adams	3 & 1 1	R. W. Bailey & J. Twigger	— 0
12. Dr V. E. Milne & N. H. Russell	7 & 5 1	C. Kettle & D. Haynes	— 0
13. R. Parker	— 0	E. Ballinger	1 up 1
	11		2

A stormy morning gave way to sunshine for the President's match at Handsworth on 22nd June and the course had been polished to the ultimate degree by E. Benbow and his team.

The President fielded ten Warwickshire County players and one from Worcestershire in his team. So the

result, 11 against 2 for the Greenkeepers, was not discreditable, especially when four of the matches had only one hole difference in the result.

Seventy-four people sat down to the excellent supper afterwards in the club house. Our Chairman, the Midlands Hon. Secretary, and the Handsworth

Captain amongst them. Mr Bretherton spoke first, gave the result, and gave the apologies including that from Mr Harley Roberts who had torn a muscle playing cricket on the previous Saturday, Mr Charles Stowe and Sir Ernest Canning. He thanked the golf club staff for the splendid meal which had been provided and then called on Mr Millward, the Captain, who welcomed greenkeepers especially, apologised for the result and hoped that the rest of the evening would be as agreeable as the game he had so much enjoyed.

Our Chairman spoke next to express his thanks and was followed by George Hart who thanked our President for his hospitality on behalf of the Midland Section. They all enjoyed this annual match and the opportunity of playing against the cream of Midland Golfers. He paid a very special tribute to Mr Bretherton for all the work which he did on behalf of greenkeeping and greenkeepers. The result might well be due to the fact that the greenkeepers team had a lot of grass to cut before playing the match.

Mr Leslie Foster then moved a vote of thanks to Mr Bretherton on behalf of all those present, not only for his generosity but also for the manner in which he gave it. He congratulated the Warwickshire Union team for qualifying for the County Finals at Burnham and hoped that the President of both greenkeepers and County Union would see a victory for the four members of the team who had also played tonight.

The Captain of the team replied and the Captain of the Club finally proposed a toast to Mr Bretherton which was enthusiastically received.

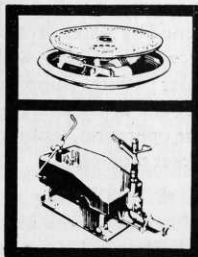
Results are shown on previous page.



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'Tricoflex' Reinforced Plastic Hose

For conveying water, Tricoflex is three ways superior to rubber hose. Tricoflex withstands the kind of rough handling that soon destroys a rubber hose; it weathers better – it is particularly resistant to long exposure to the sun – and its light weight and suppleness make it easier to coil and carry. Tricoflex hose is constructed of 3 layers: black P.V.C. inner tube, with mirror finish for optimum water flow, knitted jacket of 'Tergal' polyester fibre and an opaque vivid yellow outer cover of polythene. Tricoflex has been proved in rugged tests on building sites – will last you years!



Moss Control

Berk Moss Control compounds are based on mercury – this is present in an insoluble and harmless form. Mercury not only kills moss but prevents subsequent growth – it can control moss for up to three years. Three compounds are available: the choice depends on the individual requirements and the time of the year.

M.T.S. (Mercurised Turf Sand)

This is applied at 4 oz. per square yard from early spring to late summer. It kills moss immediately, reduces weed population and, because it contains a quick-acting nitrogen fertilizer, stimulates grass growth.

Moss Killer

This is applied at 4 oz. per square yard at any time of the year but especially prior to normal autumn treatments. Moss Killer does not contain a grass stimulant but gives rapid control over moss.

Moss Eradicant

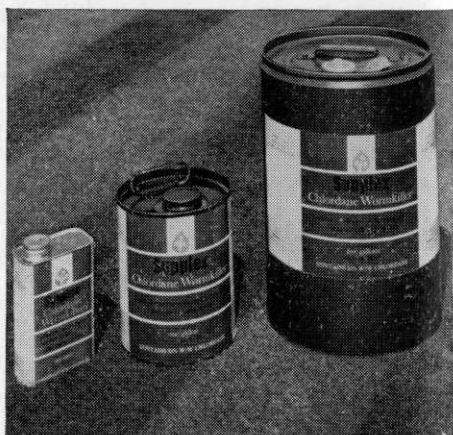
A special formulation to control the following crop of moss while killing the immediate crop gradually – so there is no disfigurement from dead moss.

Hints on Moss Control

1. Moss will always invade and colonise neglected turf.
2. Do not rely on raking alone to remove moss. This spreads moss spores and fragments which can re-infest the site. Always use a moss killer in conjunction with raking.
3. Correct turf management should always be practised. After using a moss killer, the factors responsible for the appearance of moss should be removed.
4. Some common causes for the appearance of moss are:
 *Poor drainage and aeration
 *Bare patches *Over-rolling and compaction *Acid and undernourished soils *Persistent close mowing.

groundsmen & greenkeepers

Wormkiller



Berk 25% Chlordane Wormkiller

Suplex Chlordane kills worms *underground* and kills leatherjackets, ants and chafer grubs. It is cheap and easy to apply – calling for very little watering and minimum labour. Best applied in warm, showery weather during autumn or spring when worms are most active and near the surface

Berk 20% Chloride Wormkiller (Granular)

Applied at 80 lb. per acre, this form of Chlordane is particularly useful where grass is kept long or the sward is thick.

Fertilizers

'Thrive'

A balanced organic fertilizer with the essential trace elements, in pellet form. Ideal for ornamental borders. Applied as base dressing at 4 oz. per square yard and as top dressing at 2 oz. per square yard.

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Berk Turf Fungicide

This fungicide contains the equivalent of 2½% Mercury and gives excellent control of Fusarium Patch (F. Nivale) and Dollar Spot (Sclerotinia Homeocarpa) in Turf. It should be applied in late Summer and Spring for the control of Fusarium, or when symptoms appear in the case of Dollar Spot. Apply as a powder or dispersed in water. *Spray.* 1 oz. in 2 gallons of water applied through a watering can or sprayer is sufficient for 40 sq. yds. of Turf.

Dry Method. 1 oz. can be mixed with 14 lb. of Sand or finely divided soil and applied to 40 sq. yds. of Turf. It is important not to exceed the recommended rates or damage may result. To assist in obtaining complete control, healthy grass growth should be encouraged.

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(B.G.G./3)

from page 5

tail grow best on acid soils; also bent-grasses and fine leafed fescues grown under non-irrigated conditions perform best under acid soil environments.

Second, Injuries. Turf grown on acid soil has been found more susceptible to winter kill, more prone to injury from applications of chemicals such as arsenic and less reliable under adverse climatic conditions. These growth responses are believed to be primarily due to a weakened condition within the plant when grown on acid soils.

Third, Thatch. Turf is more likely to develop thatch and to become root bound on acid soils. Soil micro-organisms are affected by the pH of their environment. Decomposition of organic matter, ammonification, nitrification and nitrogen fixation are carried out more effectively where soils are properly limed. For example, the activity of nitrifying organisms declines with pH much below 5.5. It is known that earthworms and bacteria are less active under acid conditions while fungi are more active. Since bacteria activity is reduced in acid soils and these micro-organisms are effective in the breakdown of organic residues, thatch accumulates where soils are acid. In addition, the normal decomposition of thatch results in the production of organic acids which as they accumulate may further suppress the rate of organic matter breakdown. Applications of two to five lb. of fine ground limestone or of hydrated lime per 1,000 square feet are of value in correcting soil acidity so that these processes may continue.

Fourth, Disease. Acid soils have been correlated with increased incidence of dollar spot, brown patch and snow mould diseases. It is likely that increased fungal activity under acid soil conditions is responsible for these observations.

Fifth, Drought. Drought tolerance of turf is less where soils are acid. This may be related to decreases in depth and distribution of root systems in acid soils.

It has been concluded that soils may readily become too acid for the best growth of fine turf and that in the long

run maintenance of soil pH levels between 6.0 and 7.5 is most desirable.

Why Soil Acidity and Alkalinity Affect Turfgrass Growth

Acid soils may be detrimental to plant growth directly by presenting hydrogen ion concentrations which are too high. Since the pH of cell sap in roots of plants varies from 4 to 6 it is not believed that this effect is of great importance. It is more likely that aluminium and manganese toxicity or calcium and magnesium deficiency are responsible for most acid effects on plant growth. Aluminum hydroxides may form in the conductive tissues thus clogging them to the detriment of plant function. Calcium is recognised as essential for the production of strong vigorous roots, for cell wall construction, to promote translocation of carbohydrates and mineral elements, to control absorption rates of minerals by roots and to bring about balances in the chemical acidity within cell fluids. Magnesium functions in similar processes and in addition is an essential component of the chlorophyll molecule. The use of lime to correct deficiencies of calcium and magnesium may be important on some soils. It should be remembered that the over use of lime may aggravate deficiencies of other elements such as boron.

In addition, soil acidity affects availability of essential nutrients and is related to the development of physical soil conditions which may be detrimental to plant growth.

Soil Variability. It is often noted that soil acidity varies considerably from location to location on turfgrass areas of various sizes. This results in a spotty or patched growth response which is characteristic of pH related causes of poor turf production. In this regard it has been found that from 550 to 1,000 lb. of limestone per acre may be removed annually in drainage water. Pockets which are excessively well drained may be large in area or restricted in size and become more acid than surrounding locations.

Seasonal Effects. Variations in pH are likely to occur with time of year.

In general soils are more acid in mid-summer than in early spring or late fall. As much as 0.5 pH unit difference may be observed in mid-summer when organic matter decomposition rates are high and soil moisture levels may be lower. Also fertilizer action at that time of year often assists in lowering pH levels.

Excess Moisture. The notation that wet areas and the presence of moss always indicate acid soil conditions is false although moss and wet spots are often associated with acid soils.

Acidity and Alkalinity Effects on Soil Structure

Soil is composed of a mineral fraction of sand, silt, and clay. Under acid soil conditions the silt and clay particles tend to exist as individual units. Under more alkaline soil conditions where calcium and magnesium are more plentiful the clay and silt particles group together to form granules. These granules provide improved soil structure which results in more favourable balances of air and water in the soil. It has been observed that where soils are acid and have poor structure, water penetration is very slow. Under these conditions the growth of fine turf becomes increasingly difficult.

The precise value of favourable conditions for improved soil structure under a turf which is subjected to active play is uncertain. Use of a turfgrass stand makes it virtually impossible to maintain good soil structures, for resulting compaction is a constant threat to granulation and aggregation processes. It is recognised; however, that aeration, wetting and drying, freezing and thawing of soil are less likely to have beneficial effects on soil structure under acid conditions than where lime has been used properly.

The Effect of Fertilizers on Soil pH

Such nitrogen sources as ammonium sulfate, ammonium nitrate, diammonium phosphate and Ammo-Phos are commonly used as fertilizers for turf. These materials have an effect on soil pH. In the soil the ammonia of these compounds oxidizes to nitric acid. Also, where the ammonium compound is

accompanied by a sulfate there is a certain amount of sulfuric acid formed. Sulfuric and nitric acids are strong mineral acids which have a cumulative effect in exhausting the lime content of a soil. These acids react with the lime to form gypsum (calcium nitrate). Both of these materials may be leached from the soil and lost to plants.

About 100 lb. of ammonium sulfate will develop sufficient acid to neutralize 150 lb. of calcium carbonate (ground limestone). About 100 lb. of ammonium nitrate would require 125 lb. of ground limestone and about 100 lb. of diammonium phosphate would require 185 lb. of ground limestone to neutralize the acid effect.

Urea also has a slight acid reaction in soils.

Cyanamid, sodium nitrate and calcium nitrate are alkaline reacting and will tend to increase soil pH levels over a period of time.

Organic fertilizers have little effect on the pH of most soils. Superphosphate may eventually make soils slightly less acid. Muriate and sulfate of potash tend to make soils slightly more acid at first and then later reverse this trend and make them less acid. The overall effect of superphosphate and potash on soil pH is limited.

The Effect of Soil pH on Nutrient Availability

Nitrogen

Nitrate nitrogen does not change much in availability over the normal pH range for plant growth. Organic forms of nitrogen, however, must be converted to simpler inorganic forms before they can be absorbed by plants. This process is carried out by microorganisms in the soil and consequently is affected by the pH of the soil environment. It would be expected that nitrate formation from such fertilizers as processed tankage, activated sewerage sludge and ureaform or from soil organic residues would be reduced at pH levels below 5.5. From 5.5 to about 8.0 microbiological activity is favourable for breakdown of organic matter and nitrogen availability is about the same throughout this pH range. Above pH 8.0 an over-supply of lime, may reduce

Table 2.
Suggested Lime Application to Adjust Soils to Various pH Levels¹
Based on Use of Limestone, Broadcast and Worked into Soil to Plow
Depth. Tons per acre.

pH of soil as tested*	Soil Group 1	Soil Group 2	Soil Group 3	Soil Group 4
	Sandy Soils Low OM**	Sandy Soils Med. OM** Loamy Soils Low OM**	Sandy Soils High OM** Loamy Soils Med. OM** Clay Soils Low OM**	Loamy Soils High OM** Clay Soils Med. OM**
		Desired pH 6.6		
6.0	0.4	0.7	1.0	1.3
5.8	0.6	1.1	1.4	1.9
5.6	0.8	1.3	1.8	2.5
5.4	1.0	1.6	2.2	3.1
5.2	1.2	1.9	2.6	3.7
5.0	1.4	2.1	2.9	4.2
4.6	1.6	2.3	3.2	4.6
4.8	1.8	2.5	3.5	5.0
		Desired pH 6.0		
5.6	0.3	0.6	0.9	1.2
5.4	0.5	0.9	1.3	1.8
5.2	0.7	1.2	1.7	2.4
5.0	0.9	1.5	2.1	3.0
4.6	1.1	1.8	2.5	3.6
4.8	1.3	2.1	2.8	4.1
4.4	1.5	2.2	3.1	4.5
4.2	1.7	2.4	3.4	4.9
		Desired pH 5.4		
5.0	0.2	0.5	0.8	1.1
4.8	0.4	0.8	1.2	1.7
4.6	0.6	1.1	1.6	2.3
4.4	0.8	1.4	2.0	2.9
4.2	1.0	1.7	2.4	3.5
4.0	1.2	1.9	2.7	4.0
3.8	1.4	2.1	3.0	4.4

*Based on pH in early spring or late fall. For summer tests, add
 0.5 pH for Soil Group 1 — to pH as tested before using table.

0.4 pH for Soil Group 2

0.3 pH for Soil Group 3

0.2 pH for Soil Group 4

**OM — Organic matter content.

¹The Fertiliser Review, May-June 1937.

the rate of organic matter decomposition and cause nitrogen to become less available for plant growth. Under conditions in the cool humid regions of the country excessive amounts of lime are seldom found.

As far as most plants are concerned, nitrates are more readily absorbed under extremely acid conditions than is ammonia nitrogen. Under acid conditions the abundance of plus charged hydrogen ions causes the root mem-

branes to be predominantly electro-positive and thus the electronegative nitrate is attracted to the root surface and absorbed. Under these conditions plants often fail to respond to applications of ammonium nitrogen. Under extremely alkaline conditions ammonia nitrogen is absorbed more readily than nitrate. In this case an abundance of negative charged hydroxyl ions causes the root membranes to be predominantly electronegative and thus the electropositive ammonium ions are attracted to the root surface and absorbed.

THE GOLF COURSE REPORTER—April 1965

To be continued

OBITUARY

Mr C. A. TYDEMAN

We have learnt with deep regret of the death of Mr C. A. Tydeman, a former Hon. Treasurer of the Association and a stalwart member of the Southern Section.

He started his career on the Fulwell Golf Course, moving later to The Old Acton Golf Club where he was under Head Greenkeeper, G. Fennell.

The Acton Club moved to Sudbury in 1920 and a year later "Tidy" was promoted to the senior post on the

ground staff. He was Head Greenkeeper until he retired, affirming that he could not have wished for better treatment. Much of this must have been due to the man himself, for his retirement was marked by both a pension and the freedom of the club.

He was a member of the Association for so many years that he included service on the Southern Section Committee, was twice Chairman of that Section, as well as Hon. Treasurer of the Association. He will be sorely missed.

Mr G. A. JONES

G. A. Jones, Head Greenkeeper of Little Aston Golf Club, died on 26th May at the early age of 66. His loss has deeply affected the members of the Midland Section and the members of his club who held him in the highest esteem. He was a man who made of greenkeeping both his life's work and his pleasure. His personal qualities won him wide respect—his skills an equal admiration.

He was born in Four Oaks not far from Little Aston in 1899 and at the age of 14 started work as an assistant gardener. When 18, he joined the Worcestershire Regiment and saw service with the Army of Occupation in Germany. In 1919 when demobilised, he joined the ground staff at the club where he stayed for the rest of his life. He became Head Greenkeeper in 1959 on the death of his brother Ernest.

He prepared his course for two Dunlop "Masters", a Schweppes Tournament and the last "Martini". He was cutting new holes right up to the Friday night before the last day's play, four days before his death.

"Bert" Jones' brother Cecil still works on the course with 47 years' service to the club. The Association will join in sending him every sympathy and to his niece with whom Bert, a bachelor all his life, made his home. Mr J. F. Cooke, writes "I say as Chairman of the Green Committee that Bert was a perfectionist and one who was easy to work with. He will be sadly missed by all at Little Aston."

Alan Boraston who joined the staff in 1953 has been appointed Head Greenkeeper to carry on the great greenkeeping tradition at this club.



HON. SECRETARY'S NOTES

WHITLEY BAY

NOTICE IS HEREBY GIVEN that the Forty-eighth Annual General Meeting of the British Golf Greenkeepers' Association will be held at the Whitley Bay Golf Club, Whitley Bay, on Monday, 9th August 1965, at 2.30 p.m.

Notice of Resolutions must be sent in writing to the Honorary Secretary **Twenty-one days** before the date of the Meeting. Under Rule 29, Proxies may be voted at all General Meetings. A Form of Proxy may be obtained from the Honorary Secretary and returned not later than the **first** post on Wednesday, 4th August.

The Annual Tournament

The Forty-eighth Annual Golf Tournament will be held at the Whitley Bay Golf Club, Whitley Bay, on Monday, Tuesday and Wednesday, 9th, 10th, and 11th August 1965. Entry Forms were enclosed with the June issue of the Journal.

Programme

Monday, 9th August

Morning. 18 Holes Stableford.

Afternoon. Annual General Meeting.
2.30 p.m.

Tuesday, 10th August

36 Holes Medal.

News of the World Cup. (Scratch.)

Senior Division (Plus to 11).

Junior Division (12 to 24).

The Artisan Medal.

The Jubilee Cup. (Team Prize off Handicap.)

The Coming of Age Cup.

Wednesday, 11th August

Morning. 18 Holes Medal.

Afternoon. Prize Distribution at 3 p.m.

Handicaps

Section Secretaries will be asked to verify the Handicaps of all competitors from their records before the Tournament. All Handicaps and revisions must be based on the National Golf Unions handicapping system.

A Meeting of the Executive Committee will be held at the Whitley Bay Golf Club, Whitley Bay, on Sunday, 8th August 1965, at approximately 5 p.m.

May I remind holders of Trophies from last year's Tournament who are not taking part this year, to ensure that these are returned to the Whitley Bay Golf Club, Whitley Bay, before Saturday, 7th August.

Annual Draw

May I remind members that all counterfoils and moneys should be returned to their Section Secretary and *not* to me.

The following propositions have been received from the North West Section for consideration at the Annual General Meeting.

1. That, in the interest of this Association, its unity and professional status, we seek affiliation to a recognised trade union organisation (i.e., The Transport and General Workers).
2. That the sponsors of P.G.A. and other national tournaments be approached to support our prize lists, any support given to be shared equally between Headquarters National Tournament and the Sections.
3. That the title of Golf Course Superintendent be designated to the man in charge of the course (i.e. as at present Head Greenkeeper).

C. H. DIX.

News



from the Sections

SHEFFIELD

By J. J. Dearlove

Hon. Secretary:
63 Langsett Avenue
Sheffield, 6

Chairman:
G. HERRINGTON
(Lindrick)

Hallowes G.C. Meeting

OUR FIRST GOLFING EVENT TOOK place at the Hallowes Golf Club on Tuesday, the 1st June. This event is organised by the Sheffield Union of Golf Clubs for its greenkeepers and arranged so that each greenkeeper is partnered by an officer or a member of a golf club.

More than 50 people teed off on the warmest day for some time in these parts.

The course was in marvellous condition and a great credit to Jack Baxby and his very young staff. This was the general opinion and suitable congratulations were extended.

The outright winner by a large margin was Des Thomson, the ex-Sheffield United goalkeeper, with a score of 5 up on Bogey.

Des is a newcomer to the greenkeeping ranks and not yet a member of our Association. He hopes to put this in order in the very near future.

There were 4 players on a score of 2 up and they shared the remainder of the prize money—B. Crookes, H. Tanfield, A. Spencer and J. Waddoups.

Appropriate thanks were voiced after an excellent meal, but I think a special thank you is warranted for the hard work of Mr Wilkinson, the S.U.G.C. secretary, and to Mr Eborall, a union executive, for his timely help, also to the many golf club officials for their most welcome support.

Annual Match

The Annual Tournament of this section will be held at the Hallamshire G.C. on

Tuesday, the 27th July. The tournament is of two rounds stroke play and will commence at about 9.30 a.m.

Any member wishing to play in this event and not having a handicap should let me have three cards of recent rounds played.

NORTHERN

By J. Parker

Chairman:
S. BAILES

Hon. Secretary:
8 Goit Stock Terr., Harden
Bingley, Yorks.

Headquarters Sweep

MEMBERS ARE REMINDED THAT all counterfoils and moneys for the Association's Sweep should be returned to me not later than Monday, 26th July.

Visit to S.T.R.I.

Thirty-five members of the section visited the Sports Turf Research Institute at Bingley on the afternoon of Wednesday, 2nd June. After a look round the Permanent Implement Exhibition the party was split into two groups and conducted round the experimental grounds by Mr W. Barile and Mr H. Lidgate. Members were able to see the whole range of work in progress including many new grass variety and fertiliser trials. The new "hovercraft" type of mower created a great deal of interest. A vote of thanks was proposed by Mr S. Bailes (Chairman) to which Mr J. Escritt, Director of the Station, replied.

Annual General Meeting

This was held following tea after the visit to the S.T.R.I., in the Mansion at St Ives, Bingley, on Wednesday, 2nd June. Twenty-seven members attended, a slight improvement on previous years. In presenting his report the Hon. Secretary and Treasurer was able to show once again that the section was on a reasonably sound footing. The following were elected as officials for the coming year:—Mr W. Mountain (President), Mr D. Roberts (Chairman), Mr A. Robertshaw (Vice-Chairman), Committee: Messrs S. Bailes, J. Scott, G. Mawson, G. Mason, A. Routledge, G. Garnett and G. Bennison. Hon. Secretary and Treasurer and Section Representative on Executive Committee: J. Parker.

Several matters were discussed and were left with the committee to deal with.

Mr L. Sharp

After fifty years of greenkeeping Mr L. Sharp retired at the end of May. Lawrence (as he is so well known by) was Head Greenkeeper to Woodhall Hills Golf Club and formerly of West Bowling. A most popular member and staunch supporter of the section he was elected enthusiastically an Hon. Vice-President of the section at the Annual General Meeting. I'm sure all members will join me in wishing him a long and happy retirement.

Tournament Prize Fund

I have pleasure in acknowledging donations from Messrs Pressure Jet Markers and Sisis Ltd., to our Tournament Prize Fund.

NORTH-WEST

By H. M. Walsh

Chairman:

D. PATE

(Royal Birkdale G.C.)

Hon. Secretary:

78 Hadfield Street,

Oldham, Lancs.

New Appointment

IT IS WITH REGRET I HAVE TO inform members of the Section that V. Crabtree has had to give up the position of Hon. Secretary, owing to his taking up an appointment as greenkeeper-pro at Dereham Golf Club, Norfolk. On your behalf I would like to wish him every success in his new club and at the same time hope for myself a measure of success as your Hon. Secretary.

Subscriptions

I would like to remind members that subscriptions are now due and should be forwarded to the Hon. Treasurer as soon as possible.

Annual Draw

All counterfoils, moneys and unsold tickets for draw to be returned to me not later than 26th July.

Open

If any member wishing to go to the Open Championship at Royal Birkdale contacts Mr Dix, B.G.G.A. Hon. Secretary, at Headquarters he will try to obtain the necessary tickets for them.

SOUTHERN

By W. Mason

Hon. Secretary:

Chairman:

W. E. MOORE

(Romford)

18 Albert Road, Hendon, N.W.4.

Tel.: SUNnyhill 0245

AT OUR ANNUAL GENERAL MEETING on the 9th June the chair was taken by our Vice-President, D. M. Craig, in the absence of our President, Mr Wallis Arthur. Before the Minutes of the last meeting were read, Mr Craig asked that we should stand in silence for one minute as a mark of respect for two of our Section members who have passed away. They were H. C. Neale of Pinner Hill Golf Club and T. Chamberlain of Highgate Golf Club.

The Minutes were then read by the Secretary, proposed by C. A. Moore, seconded by D. Kirkpatrick and passed. All present had a copy of the balance sheet which was proposed by E. Folkes, seconded by S. Morton, and passed. G. Rennie proposed and W. E. Moore seconded that Mr Wallis Arthur be re-elected for President. This was carried. A new Vice-President was proposed by W. E. Moore, seconded by G. K. Glass and carried. His name is C. A. Diebel of "Waverley", Heath Close, Gidea



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Park, Romford. All other Vice-Presidents were re-elected en bloc. The re-election as Chairman of W. E. Moore was proposed by G. K. Glass seconded by F. Dulake and carried. Mr Glass was re-elected Vice-Chairman on the proposal of G. Kirkpatrick, seconded by G. Rennie. Mr Dulake proposed and C. A. Moore seconded that W. Mason be re-elected Secretary and Treasurer, which was carried. F. Ford was re-elected Assistant Secretary, proposed by H. C. Dixon and seconded by J. Kirkpatrick. The member of the Executive Committee, E. Folkes, was re-elected on the proposal of Mr Noakes, seconded by Mr Dulake. There being no other nominations for the Committee, they were re-elected en bloc.

The meeting decided that the Spring Tournament should be 27 holes, 18 in the morning and 9 in the afternoon. It was also decided that in future all meetings held previous to lectures would commence earlier, so that the lecture could start at the time announced in the Journal.

W. E. Moore told the meeting that the Section had been invited by the North Middlesex Golf Club to hold their dinner there and suggested that those who would like a round of golf before would be welcome to do so.

A hearty vote of thanks was given to Mr Craig and the meeting closed.

There are still quite a few members who have not sent in their subscriptions despite my appeal in the May Journal.

We welcome to the Section two new members: A. Curtis, 27 Kings Way, Lyme

Regis, Dorset and R. Adam, "Delyn", Sandown Road, Danbury Common, Chelmsford, Essex.

MIDLAND

By F. Cashmore

Chairman:
G. HART
(Gay Hill)

Hon. Secretary:
76 Four Oaks Common Road
Sutton Coldfield, Warwickshire

WHEN I RETURNED FROM HOLIDAY the first letter I opened was from Mr Cooke, Chairman of Greens at Little Aston, to inform me that Bert Jones, the Head Greenkeeper, had passed away on 26th May. It was a shock to me personally as we were school pals and until two years ago he was my next door neighbour. We were also the same age to the day. I regretted very much that I was away on holiday and unable to pay my last respects and at the same time represent the Association. I have written to his niece with whom he lived, expressing our deepest sympathy. The Little Aston Golf Club was fully represented, both by Ladies and Men, which shows the respect and appreciation in which Bert was held. His experience will be sadly missed.

WELSH

By S. A. Tucker

Chairman:
M. GEDDES
(Royal Porthcawl)

Hon. Secretary:
36 Clase Road
Morriston
Swansea, Glam.

Summer Meeting

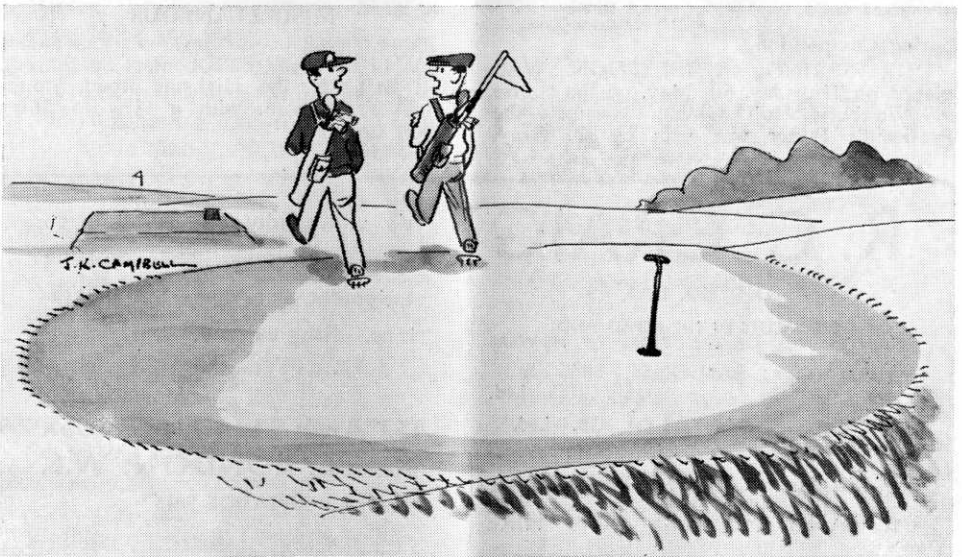
OUR ANNUAL SUMMER MEETING was held on 1st June at Southerdown Golf Club by kind permission of the Captain and Committee. Many thanks to them for their kindness in more ways than one and to the inside and outside staff for the pleasant day

in lovely weather. We were without our Chairman Mr M. Geddes who unfortunately had to go to hospital for observation. We all wish him well and a speedy recovery, we had our usual 18 holes of golf before the Annual General Meeting, the course being in very good shape and the lovely weather made things very pleasant to all. Our attendance was about 75 per cent and there were some very good golf scores returned. In the absence of our Chairman and President, Mr Southgate, one of our V.P.'s of Ransomes, Sims and Jefferies took the chair and we owe him many thanks for his help to the section.

The following were the prize winners:— Mr John Duncan Cup with Ransomes Tankard was won by B. Oliver on last nine holes with a net 71; 1st Prize, John O'Gorman Cup and Canteen Cutlery, Senior division scratch to 18 handicap, was won by A. Price with 71 net; 2nd (Windcheater) D. Jones, 71 net; 3rd (Two pairs of socks) D. Lord, 76 net; 2nd, division 19 to 24 handicap: 1st (Birdie Cup and Ronson lighter given by Messrs Pattison) A. Sharples, 72 net; 2nd (Clock) T. Finch, 73 net; 3rd (Silver Pencil given by May & Baker) H. Fry, Snr.; Highest gross score (Ash Tray) D. Kenealy.

Annual General Meeting

As mentioned, Mr Southgate took the chair for us in the absence of our President and Mr Geddes our Chairman. We had a very successful meeting, Mr Ivor G. Nicholls was re-elected our President and we all thank him for his help and guidance in the past year. Our Chairman and Treasurer Mr Geddes was also re-elected and yours truly S. A. Tucker as Secretary. I would like to thank all the Trades People and Clubs for their help in making our meetings so success-



ful, my Chairman and Committee for the great interest they always show and last but not least all the members for their co-operation in correspondence etc. It makes our work so much easier with everyone doing his bit (many hands make light work).

After the Annual General Meeting had closed our Vice-Chairman, Mr D. G. Lord, and I were called into the Secretaries Meeting to discuss a wages scale for all the Head Greenkeepers and their staff. It was a most pleasant talk and Mr Lord and myself think that a lot will be done about it, to the benefit of all concerned.

Annual Draw

By the time you read these notes I hope you will have sold all the tickets I sent you. Please make the effort as it is a great advantage to the association and section. All unsold tickets, counterfoils and money should be returned to me not later than 3rd August, so that I can have a little time in getting them off to Headquarters in time for the draw. Please send earlier if possible. I have a few books left if required.

Annual General Meeting — P.S.

All members stood for a minute's silence for absent friends, Mr John O'Gorman, Mr E. G. Sharrett, also one of our V.P.s, Mr D. H. Rees, I am pleased to say that Mr Rees' son E. L. Rees has kindly consented to carry on his father's name. We were all sorry to hear about our good member Mr T. E. Lloyd's loss in the passing of his wife, we wish him all the best of luck for the future.

NORTH-EAST

Chairman:
J. SIMPSON
(Ponteland G.C.)

By D. Earsman
Hon. Secretary:
Arcot Hall Cottage
Dudley
Newcastle-on-Tyne, 3

Spring Competition

OUR SPRING COMPETITION WAS played on Thursday, 6th May, on the course of Whitburn Golf Club. Results—the President's Putter was won by D. Gray,

Newcastle United Golf Club—66; 2nd, D. Hogg—70; 3rd, R. Derham—73. Congratulations to D. Gray who also broke the record of the course.

Our President, Mr L. A. Jones, presented the Putter and congratulated Mr Gray on winning it for the second time.

Other prizes were presented by Mr G. B. Thomson, Captain of the Whitburn Golf Club, who said how pleased he was to welcome members of the Greenkeepers Association, and would be pleased to have us back again.

Our Chairman, Mr J. Simpson, thanked the Committee of Whitburn Golf Club for allowing us the use of the course, and Mr Robb and Mr R. Nicholson for kindly donating prizes. He also thanked the Steward and Stewardess for a very enjoyable meal.

He also congratulated R. Robb, Head Greenkeeper, on the fine condition of the course, this was heartily endorsed by all.

Again our thanks to Mr Beveridge of Ransomes, Sims & Jefferies Ltd., and Mr L. Lowery for attending to the cards.

New Members

We welcome to the section the following new members:—C. Harrison, D. Snowdon and T. W. MacCue, we look forward to them joining in our many activities.

Self-Portrait

My brain says to my body:

"Now, take it easy, son,
Self-confidence is all you need

To make a hole in one.
You're as good as any pro, boy

Just take your time — you'll see,
Come on now: you can do it" —

And my body says: "Who? Me?"

—STEPHEN SCHLITZER.

MISCELLANEOUS

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THE SCOTTISH GOLF GREENKEEPERS ASSOCIATION

Chairman:

D. L. MACDIARMID
Royal Burgess Golfing Society
Barnton, Edinburgh, 4

General Secretary:

R. B. MOFFATT
71 Kelton Street, Glasgow, E.2

S.G.G.A. WEST

Autumn Meeting

THE WEST SECTION OF THE Scottish Greenkeepers will hold their Autumn Meeting at Pollock on Thursday, 7th October.

SITUATIONS VACANT

MILL HILL GOLF CLUB require an Assistant Greenkeeper. Average earnings around £675, plus rent free flat and free light and heat. Apply to Secretary, 100 Barnet Way, London, N.W.7, giving full particulars of past experience.

WORKING GREENKEEPER WITH sound knowledge of course machinery and greenkeeping. Free cottage. Write (not telephone) Secretary, Mannings Heath Golf Club, Horsham, Sussex. Enclose references. State age, experience and wages required.

HEAD GREENKEEPER REQUIRED at Brookmans Park Golf Club. Temporary accommodation in Club House for single man until arrangements can be made. For a married man, the course is on the fringe of a residential area and the Club would consider a scheme to assist in the purchase of a suitable property. First class experience essential in general maintenance of a Golf Course. Apply to The Secretary, Brookmans Park Golf Club, Hatfield, Herts.

ASSISTANT GREENKEEPER REQUIRED. Up to £15 per week, according to experience. Apply Secretary, Hampstead Golf Club, Winnington Road, London, N.2.

S.G.G.A. NORTH & MIDLAND

Annual Tournament

THE NORTH & MIDLAND SECTION Annual Golf Tournament for the George McLean Trophy was held at Craigie Hill, Perth, on 27th May.

A very enjoyable day was had by all in spite of the rain. We were delighted with the courtesy of the Craigie Hill Golf Club whose course was in excellent condition thanks to the efforts of Mr Hallyburton and staff.

The prizewinners were as follows:—

1st I. Simpson — Alyth. 2nd W. Ritchie — Montrose. 3rd J. A. Moffat — St Andrews. 4th J. K. Campbell — St Andrews. 5th D. Whamond — Kirriemuir. 6th D. Brown — Crieff. 7th W. Donnachie — Deeside. New Members: 1st M. Fyffe — Panmure. 2nd W. A. S. Robertson — Alyth. Trade: 1st G. A. Smith. Top Score: T. D. Duncan.

Subscriptions

Some members of the section have not yet paid their subs. I wish to remind them that they are now overdue.

EXPERIENCED FIRST ASSISTANT

Greenkeeper required. House provided. Send details experience, etc., to Secretary, Leicestershire Golf Club, Gartree Road, Leicester.



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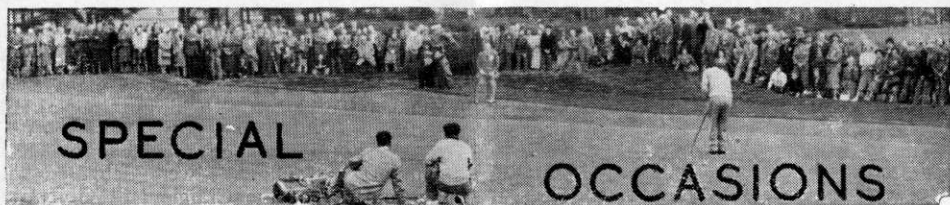
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JULY 27th	Sheffield Section, Annual Tournament, Hallamshire Golf Club. 9.30 a.m.
AUG. 9-10-11th	Annual Tournament, Whitley Bay.
SEPTEMBER 14th	Northern Section, Annual Match v. Sheffield Section, Scarcroft Golf Club.
29th	East Midland Section, Autumn Tournament, Birstall Golf Club.
OCTOBER 7th	S.G.G.A. West Section, Autumn Meeting, Pollock.
29th	Midland Section, Annual Dinner, King's Head Hotel, Bearwood.

Mrs. Greenkeeper's Own Corner

with Ann Mawson

As the soft fruit is still in season, I thought I would keep the recipes to make the most of them.

Cherries are a very attractive fruit that makes many delicious sweets.

Cherry Delight

$\frac{1}{2}$ lb. ripe cherries—2 oz. icing sugar—1 oz. chopped almonds— $\frac{1}{2}$ pint custard—2 tablespoonfuls of cream.

Stone the cherries and divide them among four small fruit dishes. Sprinkle them with the sugar and leave until required. Cover the cherries with the custard. Pile a little whipped cream on each and sprinkle with the chopped almonds. TO SERVE FOUR PEOPLE.

Cherry Cream Jelly

$\frac{1}{2}$ lb. ripe cherries—2 oz. granulated sugar—1 pint packet of cherry jelly—2 tablespoonfuls of water— $\frac{1}{4}$ pint cream.

Stalk and wash the cherries, stew them with 2 oz. granulated sugar and 2 tablespoonfuls water; until they are quite soft. Drain off the syrup, remove the stones, and rub the fruit through a sieve. Dissolve the jelly in

the hot syrup, adding enough boiling water to make $\frac{3}{4}$ pint. Leave until cold, then stir in the cherry pulp. Put in a cold place. Whip the cream and as soon as the jelly begins to set, stir in the cream and lightly mix together. Put the mixture into a wet mould and leave until set. Turn out carefully. It may be decorated with a little whipped cream and just a few glace cherries.

TO SERVE FOUR PEOPLE.

Cherry Cocktail

1 lb. ripe dessert cherries—12 sweet almonds— $\frac{1}{4}$ lb. raspberries—2 oz. icing sugar—a tablespoonful of lemon squash.

Blanch the almonds and stone the cherries. Rub the raspberries through a hair sieve, mix the juice with the 2 oz. icing sugar and lemon squash. Stir it until the sugar has dissolved. Put a piece of almond in each cherry. Arrange the cherries in fruit glasses. Pour some raspberry syrup over and serve as cold as possible.

TO SERVE SIX PEOPLE.

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Parkers are the people to consult whenever any problem in turf management is encountered, for they are **specialists in every department** of ground maintenance and in the operation of all modern equipment. Parkers, too, are indisputably the largest stockists of turf management equipment in the United Kingdom. Call in Parkers whenever a problem arises.

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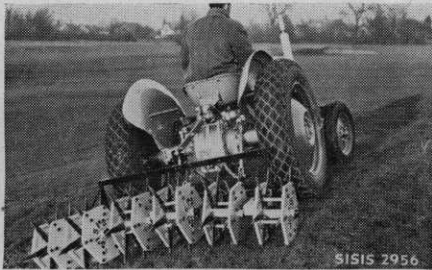
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GOLF COURSE EQUIPMENT for FAIRWAYS

Tractor Mounted Equipment



◀ GENERAL PURPOSE AERATOR

Fitted with double ended reversible slitting and pointed tines—4 inch penetration. 6' 0" wide. Model LA6

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HEAVY DUTY AERATOR ▶

With interchangeable slitting and pointed tines—6" to 9" penetration. For regular aeration, particularly on heavy soils. Aids surface drainage. 6' 0" wide. Model HA6.

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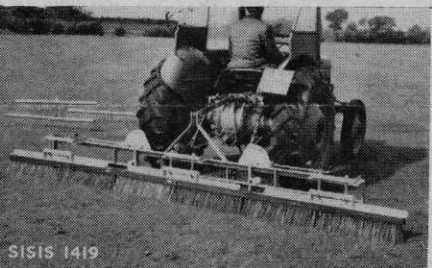
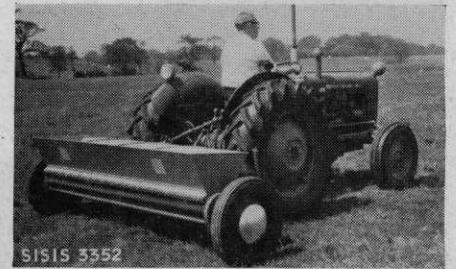
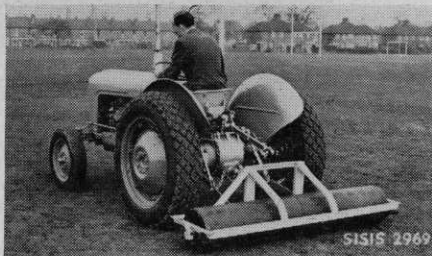
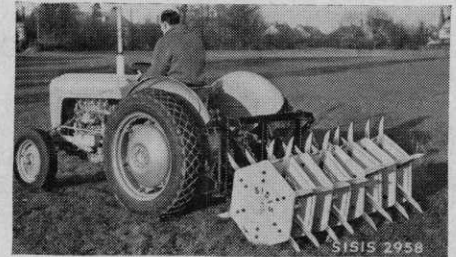
Easily handled. Complete with scraper. 9 cwt. × 6' 0" Model LR6

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TRUSPRED ▶

Many purpose spreader for seed, granular and powder fertiliser and dressings. Gives even and accurate carpet spread. 60" 72" and 90" Models TSD.

BROCHURE TSD/6090



◀ RAKE AND BRUSH

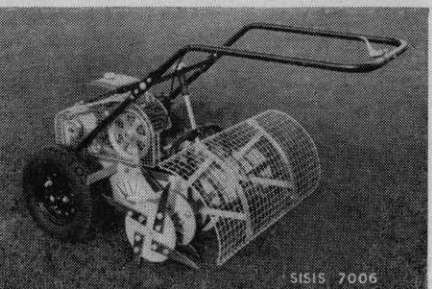
Foldable for gateways. Interchangeable Rake and Brush heads. For scarifying Fairways and brushing in of dressings. 12' 0" wide. Model LSB12

BROCHURE LLF

TILTH AND RAKE AND BRUSH ▶

7' 0" adjustable Rake for tilthing and scarifying with interchangeable 8' 0" Brush. Model LTB/7/8.

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◀ PEDESTRIAN CONTROLLED AERATOR

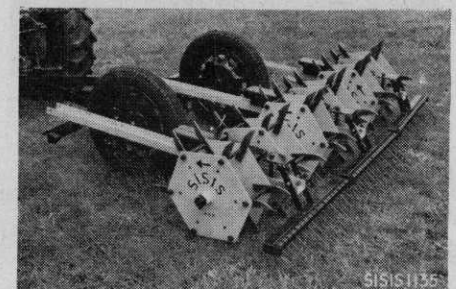
The Auto-Outfield Spiker for aerating Fairways and Approaches and renovating Greens and Tees. Drives on its spikes. Ideal for use in winter. Flat bladed pointed 5 inch tines. Effective width 3' 0"

Model AOS/366.
BROCHURE AOS

TOWED COMBINE ▶

For tractor or vehicle towing. General Purpose Aerator with reversible tines 4 inch penetration. Also Rakes and Brushes. 6' 0" Model CL6. 4' 0" Model CL4

BROCHURE CL

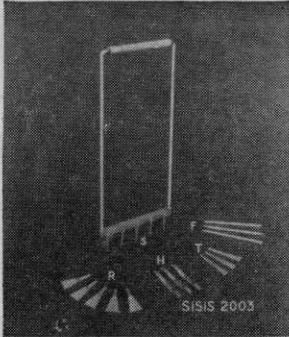


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GOLF COURSE EQUIPMENT for GREENS and TEES



◀ AERDRAIN FORK AUTO-TURFMAN ▶

The basic tool for turf aeration. Choice of four different interchangeable tines — Hollow Coring, Slitting, Round Solid, Root Action.

A powered fine turf aerator with a choice of three different sets of interchangeable tines—Hollow Coring, Taper Slitting, Round Pointed, giving up to a 4 inch deep vertical penetration with no surface disturbance. Ideal for aerating Greens and Tees.

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TRUSPRED 24" / 36" ▶

A many purpose spreader for powder or granular fertiliser, grass seed, dressing, etc. Accurate carpet spreading, fully adjustable.

BROCHURE TSD/2436.



◀ SUPER COULTAS 36" ▶

A refined hand spreader for seed, fertiliser and powder dressings. Rotary brush aids distribution. Sows down to 1/2 oz. per sq. yard. Power pack available.

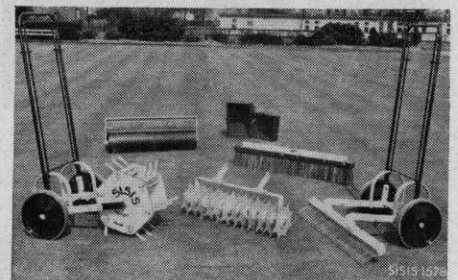
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TURFMAN OUTFIT ▶

A universal hand frame to which can be fitted Aerators with interchangeable Tines, Rakes, Brushes and Spiker Slitter. Can be power operated by a number of two-wheeled tractors.

BROCHURE TM



▲ TRULUTE

Dressing and levelling tool. Reversible grid working in top dressing and levelling. Preparing seedbed.

BROCHURE TL

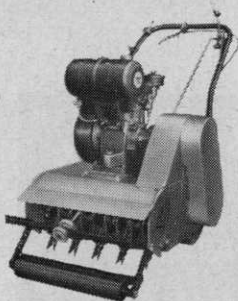


◀ ROTORAKE 14" ▶

A vertical rotary turf fibre cutter for Greens, Tees and Approaches.

Removes excess fibre and thatch, reduces nap, cuts horizontal grasses.

BROCHURE RR



◀ AUTO-ROTORAKE 18" ▶

A heavy duty vertical rotary turf fibre cutter for use on Greens, Tees and Approaches.

Fitted with power traverse drive. 420 or 220 c.c. engines available.

BROCHURE RR

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