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As smooth as you did
On your kitchen linoleum.

CLIFF MACKAY.

JUNE

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**TEE SHOTS**

by the Editor

**MOST** golfers have now forgotten the winter. When they see dead patches on greens, they ask why the snow was not cleared. The critics have been boosted by the absurd dates on which makers of popular beverages are advised to hold their tournaments. The expanding programme starts too early and ends too late. Each new addition has to be fixed to avoid clashing with the Pernambuco Open or the Brewmaster Foursomes. Never a thought as to whether the course is likely to be in reasonable condition. Travel has also widened promoters' horizons so that they think the climate on British golf courses is like California all the year round. Provided the prize money is big enough, the grass is bound to grow.

* * *

This spring has shown that it is never safe to fix big events in April or even May in this country. Nor should a Committee expect a greenkeeper to ignore what is best for his course and do only what the gaily clad gladiators demand as of right. His whole routine is turned inside out for three or four days' play. The members are there all the year. At a time when he should devote himself to the gentle arts of healing winter ravages, he is exposed to the dangers of shock treatments and the critical eye of strangers. Some Press Correspondents are understanding: others have to find a "story" when a player with locker room blues works them off on the greens.

* * *

There are three solutions. The tournament programme could be re-packed into the box it once comfortably occupied. Television and the growing public would still produce results. We could wait patiently until the need to increase prize money to six figures to attract any big names outside December and January causes all manufacturers of lager and aperitifs to take the pledge. Or all golfers with strong views on greenkeeping could be invited to prepare a clay course for an Open Championship in February. That should learn them.
GOLF IS BIG BUSINESS

Ron Wills takes a look at the background to Britain's fastest growing outdoor recreation.

This article first appeared in 'Golf News' 17th May, 1963 and we are grateful to the Editor for permission to reprint it here. Golf News would always be glad to have news items from our readers.

GOLF, if you'll excuse the cliché, is booming. Weekly, almost daily, more and more of you unsuspecting humans, attracted by its apparent simplicity, are completely captivated by the sport.

Before you can say "eyes down," you're completely under its spell . . . hooked . . . an addict.

Suddenly, that infuriating little white ball has taken on a most sinister air. Sneeringly, it mocks you in your puny endeavours to hit it hard and fiercely.

You become a helpless, blubbering mass as it shoots off at a 45-degree tangent. You curse. You swear in a vividly articulate manner.

But you're still playing, aren't you . . ?

And seeing there are so many more masochists like you around, I was curious—being that sort of person—about the financial side of the boom.

Then my Editor came across, and read avidly, an article on the business side of golf. I knew that my curiosity was on the brink of being satisfied. By way of a good deal of hard work, of course!

The article appeared in the Three Banks Review, which is published by three Scottish banks (The Royal Bank of Scotland, Glyn Mills and Co. and William Deacon's Bank Limited).

There was a warning glint in my Editor's eye as he finished reading. He thrust the Review at me "Read that!" he said, with customary economy of words, "and then dig out a lot more facts and do a piece for the paper."

Well, the first part was simple enough. I read the article . . . and was more surprised by some of the facts it imparted.

For a start, did you know that golf is now a £20 million-a-year industry? Or that the annual turn-over in golf equipment approaches £10 million?
The article went on:

"All present indications are that the amount will continue to rise; overall spending on golf has trebled in the last ten years, and the game's part in the social life of the country is growing apace.

"A steadily increasing number of young people are being introduced to the game by the Golf Foundation, whose instructional courses now cover more than 650 schools. Old and false prejudices about golf being unsuitable for the young have been overcome; its qualities as a test of character, of self-control and good manners, and its benefits as a pastime, a relaxation, a challenge and an exercise, that can last a lifetime, are now widely recognised.

"Furthermore, the spread of wealth since the war has brought golf within the compass of thousands to whom previously it was only a name. Membership of a club, as of a country club in the United States, is a status symbol, and has become almost as desirable to the parvenues possession of a Jaguar."

The golf boom established, I went in search of more facts, more revealing figures.

Which explains how I came to spend the best part of thirty minutes one hot afternoon trudging up and down Oxford Street. I was looking for number 145. However, the shops and offices there seem strangely reluctant to reveal their numbers. And my sympathies went out to a novice postman.

Number 145 is the headquarters of the Federation of British Manufacturers of Sports and Games Ltd. Though you'd never guess it from the outside. There's no nameplate announcing their presence. And you reach the office by clambering up three narrow flights of stairs.

On the first floor I was told: "I think they're upstairs."

On the second floor, my query was greeted with: "I think they're upstairs."

On the third floor, they were quite sure that it was indeed the headquarters of the Federation of British Manufacturers of Sports and Games Ltd.

And once there, the pace fairly buzzed with efficiency. The Federation's secretary, Mr. A. H. Spink—known in the trade as "Sandy"—had all the facts and figures neatly tabulated, easily understandable and he backed them with logical, feasible explanations.

He translated the golf boom first into cold, hard facts which told a remarkable story.

In five years, the sales of golf balls rocketed from 406,000 dozens (1957) to 530,000 dozens in 1961.

During the same period, the sale of golf clubs leapt from 308,000 to 437,000. Last year the figure reached 464,000.

In 1959, the value of imported golf clubs was negligible. In 1960, imports were worth £64,000—paid mostly for American clubs.

In the next twelve months, the Australians, the Canadians and even the Japanese jumped on the band-wagon and pumped golf clubs into Britain as fast as they could manufacture them.

Going Right Up

They—and the Americans—sent the figure hurtling up to £153,000 in 1961. And last year it was an incredible £215,000.

"Of course," said Mr. Spink, "to that figure you have to add import duty and purchase tax and, with the retail margin of profit at fifty per cent. I reckon £450,000 worth of foreign clubs were sold in this country last year."

And without doubt, all these figures will climb even higher in 1963.

The Americans quick, as always, to exploit a new market, recently opened a factory on the West coast of Scotland to manufacture golf clubs in this country —thus, presumably, saving on transportation costs. This type of activity is likely to grow as the boom gathers speed.

Only the fact that the Royal and Ancient has vetoed the use of the larger American ball has prevented the Americans building a factory for their manufacture, too.

The Federation's figures for balls incidentally, refer to the four principal
manufacturers — Dunlop, Spalding, Slazengers and Penfold. These four account for between 90 and 95 per cent of all sales.

Clubs, of course, are in a different category. Many smaller companies — particularly in Scotland — still manufacture them by hand. Their business is steady, if small, compared to the larger companies. As a result the influx of foreign clubs does not endanger their livelihood.

Unlike the Federation, individual companies — such as Dunlops — are loathe to reveal figures of any description. Even a percentage increase, or decrease, of sales is not something they care to pass on to the Press, the world at large, or their competitors in general. In fact, they are jealously guarded.

As one representative put it: “We don’t want to let our rivals know what sort of business we’re doing, do we?”

But one thing is certain. Any firm or company connected with the manufacture of golfing equipment is not going short of a crust.

AND THIS IS HOW THE MONEY GOES

Sales of golf balls
1957 .......................... 406,000 dozens
1958 .......................... 417,000
1959 .......................... 481,000
1960 .......................... 500,000
1961 .......................... 530,000
1962 .......................... 507,000

Sales of golf clubs
1957 .......................... 308,000
1958 .......................... 314,000
1959 .......................... 339,000
1960 .......................... 367,000
1961 .......................... 437,000
1962 .......................... 464,000

Imported clubs
1959 .......................... Negligible
1960 .......................... £64,000
1961 .......................... £153,000
1962 .......................... £215,000

Subscriptions are overdue

Did you help your Section Secretary and Treasurer by paying up promptly?

An opportunity for greenkeepers to give their views before a new product is marketed. Send your opinions to the Editor now and he will pass them on.

The Editor,
The British Golf Greenkeeper.
Dear Sir,

We have been asked to produce a product combining the soil-conditioning properties of Algimure with the NPK value required for top quality turf.

Whilst this is possible from a technical point of view, we should be most grateful if you could advise us — possibly through your readers? — if the price of such a product, which it is estimated would be approximately 125/- cwt., would be acceptable to those people who are interested in creating and maintaining high-quality turf.

We thank you in anticipation of your valued opinion and advice.

Yours faithfully,
OXFORD HORTICULTURAL LABORATORIES, LTD.
RETIREMENT OF STANLEY SOUTAR OF RANSOMES

Mr. Stanley Soutar of Ransomes has retired after a career spanning over forty years. He is well-known throughout the lawn mower trade and we gladly print this tribute from one of Ransomes lawn mower Distributors.

AN APPRECIATION BY A RANSOMES LAWN MOWER DISTRIBUTOR WHO KNOWS HIM WELL

After over 40 years with Ransomes Sims & Jefferies Limited, Stanley Soutar retired on 30th April, 1963. I would like to pay tribute to the man who has probably amassed more knowledge of lawn mowing machinery than any other person in the trade today.

During his long and successful career with Ransomes, Mr. Soutar held both administrative and managerial posts. Born in Arbroath, he served an engineering apprenticeship in Glasgow and gained general experience with several engineering firms on Clydeside before moving to Ipswich soon after the First World War.

Most of us will remember Stanley Soutar for his hard work and foresight in implementing and launching in 1954/5 the Ransomes Authorised Repair Agents' Scheme, a scheme, which has been so successful in ensuring the essential after-sales service of Ransomes grass cutting equipment.

With the increase in the use of lawn mowing machinery, the A.R.A. scheme has proved its effectiveness to the full. The conditions that Agents must have certain machinery, factory trained personnel and a large stock of spare parts has meant better service to the customer and user. This service has been the envy of many of Ransomes competitors and the greatest compliment to this idea has been paid by those who have tried to copy it. They are at a disadvantage unless they have a man of Stanley Soutar's ability to organise their efforts.

Finally, Stanley Soutar, the Technical Sales Representative (to give him the title he has held since 1956), has added another feather to his cap! He has set the pattern of service lectures for the personnel of Parks Departments who actually operate Ransomes mowers. The tips on maintenance and care of the machinery they use, simple explanations of manufacturing processes and just friendly help all contribute to the better running of machines, men and municipalities.

I feel sure that my readers will join me in wishing Stanley Soutar good health and a long and happy retirement.

---

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—irrigate with...

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For irrigating large areas of turf*, B.O.I.L. POP-UP Sprinkler Systems ensure maximum efficiency, minimum cost and complete reliability.

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The B.O.I.L. fully automatic POP-UP Sprinkler System is one of the biggest steps forward in irrigation ever made.

Please write for full details or, better still, ask the B.O.I.L. man — a fully trained irrigation engineer — to call and tell you all about it.

*Such as playing fields, sports grounds, golf courses, parks, lawns, tennis courts, etc.

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SPECIALIST DISTRIBUTORS AND AUTHORISED REPAIR AGENTS FOR RANSOMES LAWN MOWERS
DROUGHT

By John H. Madison, Junr.

Department of Landscape Horticulture, University of California, Davis.

As U.S. long range forecasters promise us dry weather in June, we reprint one of their experts’ advice on how to deal with it, with grateful acknowledgments to The Golf Course Reporter (First appeared in ‘The Greenkeeper’, July 1960)

During drought, water may be absent or limited. It may be limited in the amount available or by the expense.

Some general principles apply to management actions during water stress.
1. The plant which withstands stress with the least damage is the plant “hardened off” by gradual exposure to stress conditions.
2. The practices should be followed which make most efficient use of the water available.

Irrigation.

Don’t waste water.

(A) Evaporation loss is least during the night, in still air, and when water is applied as a single deep irrigation rather than as several light irrigations.

(B) Loss by runoff may require special effort, i.e.:
1. using smaller nozzle to apply water more slowly.
2. a short pre-sprinkle to wet up the thatch layer so water can sink in better.
3. several off-on cycles of the sprinklers. Water held by the “turf and thatch sponge” sinks in, then the “sponge” is rewet.

(C) References to the tables (1 and 2) will enable you to calculate your water loss. If you are applying considerably more than needed, there is probably percolation waste or run through.

Deep vs. Light Irrigation.

Light Irrigations (frequent).

Advantages:
1. Necessary to keep shallow rooted turf alive.
2. May make more total growth.

Disadvantages:
1. Promotes salt accumulation—salt toxicity — physiological drought.
2. Encourages shallow rooting.

Deep Irrigations (infrequent).

Advantages:
1. If plant is deep rooted, water stress is increased gradually to “harden off” the turf.
2. Salt accumulation is immunised.

Disadvantages:
1. Sprinkler must stand a long time in one spot.
2. Works only with deep roots and deep soil, and on heavier textured soils.

Fertilisation.

1. Nitrogen makes softer plants—less drought resistant.
2. Adequate K promotes hardening of plants.
3. Fertilisers increase soluble salts
4. A starved turf has poor survival.
5. After water stress has begun, it is too late to fertilise.

(Continued on page 10)
Pest Control.
Many pest control chemicals (weed—disease—insect) are somewhat injurious to turf. Unnecessary applications during stress may reduce survival.

Mowing.
1. Sharp mowers reduce damage.
2. Grass under stress makes less growth—needs less frequent mowing.
3. Higher cuts may help conserve water. (The more heat energy lost by convection, the less lost by evaporation.)

Competition.
Root pruning reserves water for turf rather than trees.

Aerification.
Infiltration promoted.
If grass is already under stress, it causes injury.

To complete the picture, we shall be reprinting "Water and Turf Diseases" by Holman M. Griffin next month. Sample saying: "Watering is too often a routine rather than an effort to supply the needs of grass. By watering on schedule rather than according to need we invite trouble from many sources"
from the Sections

NORTHERN

By J. Parker

Chairman:
G. W. MASON
(Halifax West End)

Hon. Secretary:
8 Golf Stock Ter., Harden,
Bingley, Yorks.

Spring Tournament

UNDER IDEAL GOLFING CONDITIONS the Annual Spring Tournament of the Section was played over the course of the Woodsome Hall Golf Club, Huddersfield, on Tuesday, 7th May (by kind permission of the Committee).

This is the first time the Section has visited this course and the 30 members taking part in the competition were agreeably surprised by the lovely setting and lay-out of the course—a stiff test of golf and, as the scores returned show, good figures were hard to come by.

Results

Scratch Prize: R. Barnes (Hazel Grove) 152. First Division: 1st, L. Sharp (Woodhall Hills) 148; 2nd, D. Roberts (West Bowling) 150; 3rd, M. Henderson (Ganton) 153. Second Division: 1st, D. Storey (West Bowling) 134; 2nd, P. Williams (Northcliffe) 130; 3rd, C. Shinwell (Howley Hall) 152. Veteran’s Prize: S. Smith (Alwoodley) and D. Scott (Scarborough North Cliff) tied 73. Vice-President’s Prize: A. Brophy (Moor Allerton) 149; Professional, P. Geddes (Clitheroe) 133.

The prizes were presented by the past Captain of the Woodsome Hall Golf Club, Mr. L. Chambers, who was introduced by our President, Mr. W. Mountain. The speaker said how pleased he was to welcome members of the Association to the course and spoke highly of the work done by their own greenkeeper, Mr. T. Brook. He realised under what trying circumstances greenkeepers had sometimes to work. In a vote of thanks, Mr. G. Mason, Chairman, thanked the officials of the Club present for the most generous way they had entertained members with coffee and biscuits and presented a voucher for the prize fund.

He also thanked Mr. C. Hughes, professional, for the kind loan of caddy cars and the stewardess, Mrs. Williams, for the splendid meals and service. Finally, congratulations went to Tom Brooks and his two staff for the splendid condition of the course under what has been a most trying spring. The vote of thanks was seconded by Mr. J. Scott and heartily endorsed by members.

We were pleased to have with us Mr. R. B. Dawson, Director of S.T.R.L., accompanied by Frank Smith. Other old stalwarts present were Tommy Hallah and Syd Jolly and members of the trade.

Our thanks are due to the following who so kindly contributed to our Prize Fund:—


Mr. G. Geddes

Members will be pleased to hear that Mr. George Geddes, Vice-Chairman of the Association, and Head Greenkeeper to Moor Allerton Golf Club for the past 32 years, has been made an Honorary Life Member of the Club in appreciation of his service to the Club.

New Members

We welcome to the Section the following new members:—

Mr. J. H. Fitzgerald, 260 Sissons Road, Leeds 10 (Cobble Hall Golf Club).

Mr. G. Hollingsworth, 20 Stainbeck Street, Meanwood, Leeds 7, (Moor-Allerton Golf Club).

Mr. E. Garlick, 8 Dean’s Wood Drive, Leeds 17 (Moor-Allerton Golf Club).

Mr. A. Christon, 2a Tynwald Hill, Moortown, Leeds 17 (Moor-Allerton Golf Club).

Mr. R. F. Waterson, 21 Lyndon Avenue, Garforth, nr. Leeds (Garsforth Golf Club).

FOR SALE

5 Ransomes Gang Mowers—complete—in good working condition. Also 3 others—broken—useful for spares, £100. Burnley Golf Club, Glen View, Burnley. Burnley 2048.

Mk. III. Overgreen. Complete with slit and hollow tines and rakes. Excellent condition. Reasonable offer accepted. The Leicestershire Golf Club, Kartree Road, Leicester.
WE ARE TO PAY A VISIT TO THE Research Station on Tuesday, 16th July. Members wishing to make the trip, please let me know as soon as possible. Details of times and places of pick-up will be published in the July issue.

New Members

We welcome two new members to the Section:

H. Thompson, 124 Broadway, Davyhulme, Manchester (Davyhulme Park Golf Club).

W. Cryer, 301 Willows Lane, Bolton (Breightmet Golf Club).

Annual Draw

The Annual Draw for 1963 will again be run on the "News of the World" P.G.A. Match Play Championship to be held at Turnberry Golf Club, Ayrshire from 2nd to 7th September, 1963.

Prizes will again be to the value of £100 as last year and tickets will be 6d. each in books of five. These should be in the hands of Section Secretaries during this month.

It is hoped that members will make every effort to maintain the splendid response of last year, but I shall be disappointed if the sale of tickets cannot still be increased. This draw is a very important factor in our financial affairs.

Mr. G. T. Geddes

It is with the greatest pleasure that I have to advise members that our Vice-Chairman, Mr. G. T. Geddes, has been elected an Honorary Member of his Club, at Moor Allerton, in appreciation of his very long, conscientious, and valued services. I am sure all members would like to join me in expressing our very sincere congratulations.

SITUATIONS VACANT

Head Greenkeeper required for Hallamshire Golf Club. Must be fully experienced—rent-free house, etc. Applications, stating age, full details of experience, when able to commence, with copies of testimonials, to Secretary, Hallamshire Golf Club, Ltd., Sandygate, Sheffield 10.

Head Greenkeeper required—East Coast experience desirable, state age, experience and salary to the Secretary, Seacroft Golf Club, Skegness, Lincolnshire.

DENHAM GOLF CLUB require experienced Assistant Greenkeeper, aged 30-45. Free accommodation plus light in new bungalow, but no young children. Good wages exceeding agricultural rate. Apply Secretary.
THE SECTION AUTUMN TOURNAMENT will take place at the Walton Heath Golf Course on Wednesday, 4th September. May I please remind members that when sending along their subscriptions to remember that owing to the increased cost of journal postage, it was decided to add an extra shilling to pay for this. Class "A", 23/6d.; Class "B", 16/-; Class "C", 11/-.

Visit to Messrs. Suttons on Wednesday, 26th June

There are still a few vacant seats on the coach. Will anyone wishing to go, please let me know right away, as we are limited to forty.

NORTH-EAST

THE ANNUAL GENERAL MEETING of the Section was held on the 13th April at the Marquis of Blandford, Newcastle-on-Tyne. 18 members were present. Our President, Mr. L. A. Jones attended and with him was Mr. Bookless, Captain of the Northumberland County Team. Mr. Jones took the chair, welcomed the members and said how very pleased he was with the result of the Section's first year. Mr. Jones then invited Mr. J. Simpson into the chair, who welcomed Mr. Jones and Mr. Bookless.

The Secretary and Treasurer, in presenting his report, was able to show a satisfactory year's working, with 48 fully paid members. The election of officers was as follows: —

President, L. A. Jones; Vice-Presidents, K. B. Hood and A. Harrison; Chairman, J. Simpson; Vice-Chairman, D. A. Earsman; Hon. Secretary and Treasurer, T. Oliver; Committee: T. Nutman, L. Lowery, R. Raine, N. Fraser, T. Kirtley, R. Derham, R. H. Nicholson, H. Somerville, W. K. Harker; Executive Representative, Mr. J. Simpson; Hon. Auditors, Messrs. Martin, Hilton and Blakey.

Several other matters of importance were discussed and it was decided to leave them in the hands of the Committee. Mr. Jones mentioned that there were a number of Clubs in Northumberland and Durham where the Greenkeepers were not yet members and an effort was to be made to contact them and invite them to join.

Mr. Jones also very kindly presented the Section with a prize for a Competition, "The President's Putter", to be played for as the Committee decides. Our Chairman, Mr. J. Simpson, thanked him for his generosity and said it was an honour to the Section coming from the President of the English Golf Union.

This meeting was held earlier than usual owing to my having to attend infirmary for treatment, but I am pleased to say that I am now much better.

I would also like to record our grateful thanks to our Hon. Auditors, Messrs. Martin, Hilton and Blakey.

OUTING TO S.T.R.I.

We had a very pleasant and interesting day at the Sports Turf Research Institute, Bingley, on Tuesday, 23rd April. Our party of 40 was met by Mr. Wood, the Secretary, who made us very welcome. After lunch we were shown around the plots and nothing was too much trouble for the officials, whose names, unfortunately, I did not get. It was a pleasure to meet Frank Smith, Mr. Parker and Mr. Bartle. We had two good meals from Mr. and Mrs. Kelly, it was a grand, sunny day and we all enjoyed it.

New Members

We welcome to our section three new members: —

Mr. P. Malia, Ryehill Cottage, Brass Castle Lane, Middlesbrough (Middlesbrough Golf Club).

Mr. J. Davison, 30 Grayson Road, Middlestone Moor, Co. Durham (Bishop Auckland Golf Club).

Mr. D. Storey, 6 Low Hall Terrace, Bishop Auckland, Co. Durham (Bishop Auckland Golf Club).

SHEFFIELD

OUR ANNUAL GENERAL MEETING was held in the Brunswick Hotel, Sheffield, when our President, Mr. A. Shardlow, took the chair. Events for the season were arranged as follows: —

Greenekeepers v. Sheffield Union of Golf Clubs at Hillsborough on the 5th June.

President Prize, to be played at Hollows Golf Club on the 17th June.

Annual Tournament

We are hoping to pay a visit to the S.T.R.I., Bingley and hope for a good turnout, especially of our younger members. All will be notified when the date is fixed.
By J. G. Bryan

Chairman:
FRANK MERRIMAN
(Edmonstown G.C.)

Tournament

Here are the results of a competition played at Baltray Golf Club on the 13th May:

1st, H. McWha, Helens Bay, 90—18=72;
2nd, H. Pettigrew, Royal Belfast, 87—13=74;
3rd, J. G. Bryan, Edmonstown, 86—12=74;
4th, P. Cullen, Milltown, 81—6=75; 5th, J. Bridges, Malone, 81—5=76; 6th, S. Allen, Warrenpoint, 84—7=77; 7th, R. Wightman, Helens Bay, 87—9=78. Best Gross: D. McDonnell, Grange, 79.

Grateful Thanks

The prizes were contributed by:—Irish Dunlop Company, Golf Ball Developments Ltd., Dairy Engineering Company of Ireland, Dubtex Manufacturers and Mr. Black of Belfast.

Reminder

(This notice first appeared last month.)

THE ANNUAL GOLF OUTING WILL be held on Thursday, 27th June, over the Prestonfield Golf Course, Edinburgh, by courtesy of the Prestonfield Committee. We hope to have a large attendance of old and new members on this date.

WEST SECTION

Hon. Secretary: B. Moir,
11 Helen’s Terrace, Kilmarnock, Ayrshire.

THE WINNERS OF OUR SPRING Meeting held over Erskine Golf Course on 18th April, were as follows:


(We regret that the date of this tournament made it just too late for inclusion in May. —Editor.)
COMING on the market recently have been the new ureaformaldehyde nitrogenous fertilisers, and the chlorinated hydrocarbon insecticides like Chlordane. In the space of this article I will explain chemically what they are and to the best of my researching, what advantages they have for groundsmen.

First the new ureaforms of nitrogen, which are now being advertised very heavily.

Urea is a crystalline compound found in urine. It has the chemical formula CO(NH$_2$)$_2$. This compound can now be produced synthetically. This synthetic urea is combined with formaldehyde (methyl alcohol partially oxidised) to make the ureaforms, or methylene ureas. This type of fertiliser is known as synthetic organic fertiliser, which complicates the old clear cut division of organic and inorganic. Now there appears to be three types which include organic, like hoof and horn; inorganic, like sulphate of ammonia; and synthetic organic, like the new urea formaldehyde.

Synthetic organic fertilisers have been used extensively in North America, but their use in this country, as far as groundsmen are concerned, has been limited. Ureaforms are the net result of a search to combine the power of the inorganics with the less stringent action of the organics. This resulted in a polymerism of formaldehyde with urea, which yielded huge molecules of ureaform that break down very slowly in the soil, and thus the nitrogen content is released very slowly over a longer period of time than would the inorganics retain it. Most of us know of the quick leaching action of inorganics like sulphate of ammonia.

It seems that these new ureaforms—those which are produced for use in turf-culture, will receive favourable attention from groundsmen provided the prices are competitive with the inorganics.
In the United States the latest development in long lasting fertilisers is the coating of the economical inorganic fertilisers with resinous substances that are slow to break down in the soil.

With the advent of Chlordane and its advertising, most groundsmen are curious as to what it is, and what it is capable of achieving as a worm-killer and insecticide. Chemically, Chlordane is one compound in a series of chlorinated hydrocarbon (chlorine: hydrogen: carbon) compounds, that sprung into prominence with the advent of D.D.T., $C_{14}H_9Cl_5$ (14 atoms of carbon: 9 atoms of hydrogen: 5 atoms of chlorine). D.D.T. was invented way back in the 1870's, but was not developed as an insecticide until the second world war.

This was followed by B.H.C. benzenehexachloride ($C_{10}H_6Cl_6$). It will be noticed that B.H.C. has one more chlorine atom than D.D.T.

**Acquired Resistance?**

Chlordane ($C_{10}H_6Cl_6$) was being used as a soil insecticide before 1952, indeed, in North America soil fauna are becoming resistant to it, and have to be eliminated by more potent chlorinated hydrocarbons, or the deadly organophosphorus compounds like Malathion and Parathion.

Aldrin (hexachloro-hexahydridomethano-naphthalene) and Dieldrin (hexachloro - epoxy - octahydro - dime-thano-naphthalene) are similar in their action as an insecticide, but the chemical composition of Dieldrin has oxygen and more hydrogen atoms in its molecular structure. They are both chlorinated hydrocarbons.

Heptachlor is a real killer and is allowed to be used only as a seed dressing where an attack of wheat bulb fly is expected to destroy the wheat when it is sown. Hepta is Greek for seven, and Chlor is short for chlorine, and all I can find out about Heptachlor is that it is a Chlorinated hydrocarbon with seven atoms of chlorine in its molecular structure.

Toxaphene, the last compound to be discussed, has been in commercial use for many years, and is well-known to most people. I think it is best described as chlorinated camphor.

These “new” chlorinated hydrocarbon wormkillers and insecticides kill through ingestion, that means taking it into the stomach, and by fume vapourisation, thus having more versatility than the older stomach poisons, e.g., Lead Arsenate, or the contact poisons, which can be absorbed through the skin, namely, the nicotine compounds.

**Slow-acting.**

The effects of Chlordane are usually slow acting, often taking a week, or, as in one case that I know of, a month before the kill is noticed. Apparently the amount of chlorine builds up in sufficient quantities over a period of time in the bodies of the victims before it eventually kills them.

Now here is a word of warning when handling these insecticides, and is the result of a conversation I had with the Ministry of Agriculture, “Don’t treat them with impunity.” Handle them with great care, especially the concentrates. Read the instructions on the label and follow them, don’t be too clever, because they are poisonous, the insecticides, that is. You are also advised to wear rubber gloves and boots and overall.

**Summary.**

The advantages of this new compound, Chlordane, are:

1. It is a combined worm and insect killer.
2. It is relatively cheaper than Lead Arsenate.
3. Its effects are long lasting, unlike Mowrah Meal.
4. It can be distributed either in liquid form or granular.

If you are thinking of using Chlordane, use your common sense, follow the instructions on the label and you won’t go far wrong.
BUYERS' GUIDE

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ENQUIRY BUREAU.—The Editor desires to point out that he will be pleased to answer enquiries from our readers, and forward to them the name and address of the manufacturer or supplier of any particular proprietary article or product used in the construction, maintenance and upkeep of a golf course. Enquiries are coming in from greenkeepers asking for such information. They may, for example, know the trade name of the article or product they wish to purchase, but may not be conversant with the name and address of the actual manufacturer or supplier. The Enquiry Bureau will gladly supply this information, and thus enable the greenkeeper to contact the manufacturer or supplier direct.

TO MANUFACTURERS.—In order that our information may be kept constantly up to date, manufacturers or suppliers are requested to forward their latest trade lists, catalogues, and any other confidential information regarding their products. By so doing the Bureau will be able to function to the mutual benefit of all concerned.

TRADE REVIEWS.—The Editor will be pleased to arrange to devote space in our editorial columns to a review of our advertisers' products, etc. Will advertisers please forward details for this purpose.
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