



LONG LASTING
because...
IT'S ORGANIC

**MAKE SURE YOUR TURF
DOESN'T GET HUNGRY
. . . . BETWEEN MEALS**

Do the grasses of your golf turf enjoy a feast of food following the application of fertilizer . . . and go hungry between meals?

Not if you apply NACO . . . for through the processes of Nature, the plant food elements of this all organic golf course fertilizer are gradually yet continuously released to the grasses.

Because NACO is complete, there is no lack of a principal element of plant food to retard the growth of a disease-resisting turf and a velvety wear-resisting stand of grass.

Another advantage for NACO . . . excessive watering and heavy rains do not leach it from the soil.

Sold by Golf Supply and Seed Houses and Manufactured exclusively by

NITRATE AGENCIES COMPANY
104 PEARL STREET - - NEW YORK CITY

*Bring back
your greens
with the*
**COLUMBIA
PERFORATOR**



NOW, more than ever, proper feeding is necessary to bring your greens back to a healthy condition.

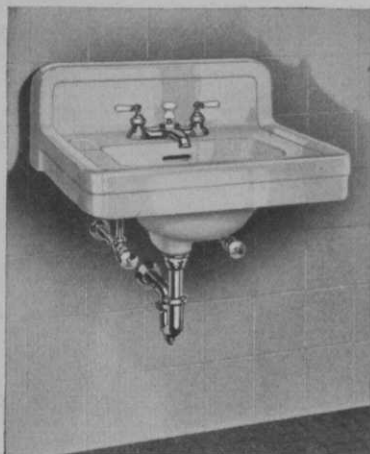
The Columbia Green Perforator will permit easy penetration and absorption of the three vital elements — Air, Water and Plant Food.

Exclusive design enables knives to enter and leave turf practically vertically, thus affording deeper cuts without marring the surface.

Sole Distributors

**PHILADELPHIA
TORO COMPANY**

1528 Belfield Avenue
PHILADELPHIA, PA.



The Crane Norwich lavatory, C754 E2, for the washroom of your club, is only one of the complete Crane line for locker rooms, showers, drinking fountains, sprinkler systems, and kitchens.

Economy...

now and ten years from now

- To all golf club builders and managers who ask whether Crane plumbing is worth its cost, there is one answer: "Economy makes it so."

At the time of purchase it is easy to establish that Crane materials cost no more than any others of anywhere near comparable quality. At the time of installation it is apparent that Crane fixtures, valves and fittings cost less to install because they are more precisely engineered. After installation Crane materials cost less to maintain, for their service is continuously efficient. And most important of all, this efficiency lasts as long as the fixtures do themselves.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE.,
CHICAGO

NEW YORK OFFICES: 23 W. 44TH STREET

Branches and Sales Offices in One Hundred and Ninety Cities

Economy, speed and Better compost...

"... saving us the labor of four men, or about \$800 a year."

"... cuts the cost of preparing compost in half, at least."

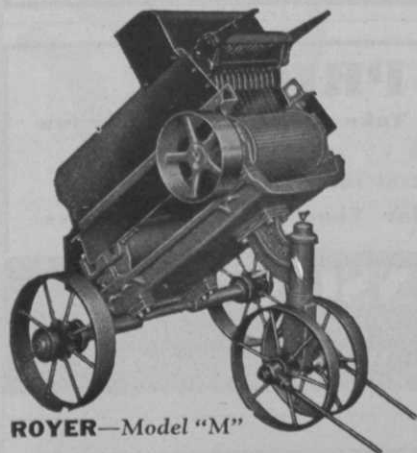
"... our Royer's sixth year of service and I can see there are several more years service in the machine."

"... the Royer has not only done everything claimed for it but has really exceeded my expectations."

"... all soil conditions, wet, stony or rough; excellent for a hurry-up job."

...is making 1931 a record year for

ROYER COMPOST MACHINES



ROYER—Model "M"

Compost

quicker—better—cheaper—
easier—from lumps or sod
—and loads it.

ROYERS are made in four models. Write for booklet illustrating and describing model best suited to your requirements.

Royers are making compost with cost-cutting, labor-saving speed and efficiency at hundreds of the country's foremost golf courses.

Put a Royer on the job this fall—it'll help you "to beat the budget."

SOLD THRU LEADING GOLF
EQUIPMENT DEALERS

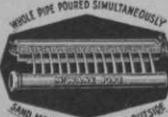
**ROYER
FOUNDRY & MACHINE CO.**

158 Pringle Street (Kingston Station)
WILKES-BARRE, PA.



At Nashville, joins the long list of clubs using McWane CAST IRON Pipe. Cast iron insures against rust, McWANE cast iron against high cost of fittings and installation, too. Address:

**McWANE
CAST IRON
PIPE CO.
BIRMINGHAM
ALABAMA**



**PACIFIC
STATES
CAST IRON
PIPE CO.
PROVO, UTAH**

208 S. LaSalle St., CHICAGO
40 Exchange Place, New York

B. R. LEACH
RIVERTON, N. J.

**Consulting Turf
Specialist**

*(Originator of the lead
arsenate treatment of turf)*

for
GOLF COURSES
and
PRIVATE ESTATES

Study, diagnosis and conditioning recommendations. Special attention given to grub, earthworm and weed control.

Write for details of time available and terms.

GRASS SEED PRICES

Now the lowest they have ever been. Take advantage of this low market and do that reseeding job.

Write, Wire or Phone Us Collect for Quotations.

MILORGANITE Is the Best Fertilizer for Those Burned Fairways.

J. OLIVER JOHNSON, Inc.

World's Largest Golf Course Equipment House

MORGAN-HURON-SUPERIOR STS. (Phones: Monroe 6580-1-2-3) CHICAGO

© Reg. J. O. J., Inc., 1928.

The Standard in Golf Ball Washers

Leading golf clubs and courses throughout the world have attested to the superior features of LEWIS WASHERS by selecting them for their own use. They know that nearly all players prefer them.

Write today for illustrated folder and price list.

G. B. LEWIS COMPANY
Dept. G D 931 Watertown, Wis.

LEWIS
GOLF BALL WASHER

Will clean three hundred balls per hour
"Best after six-year test"



**IMPROVES
SOIL**

Hyper-Humus
for
**LAWNS
AND GARDENS**

Most economical and efficient for putting greens either in top dressing mixtures or incorporated into soil. Write us for literature and practical suggestions.

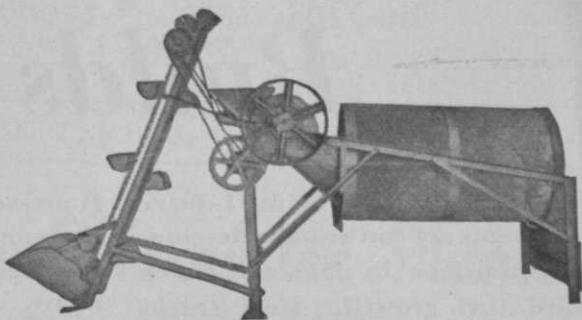
HYPER-HUMUS COMPANY
51 Park Place
Newton, New Jersey

TORO EQUIPMENT

Equipment of Known Value

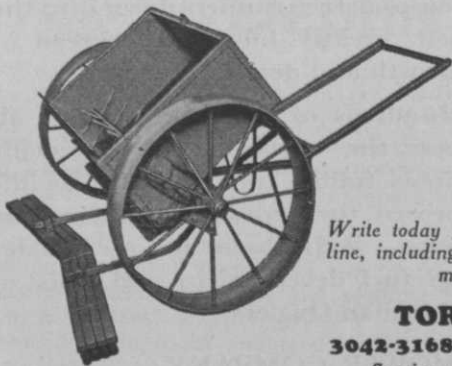
TORO Compost Machine

The only machine on the market that grinds and screens in one operation. Over five hundred of them are giving daily service with an average annual upkeep expense of less than \$4.00 per machine per year. Capacity—all that five men can shovel into it.



TORO Top Dresser

Improved this year by the addition of revolving agitator and flexible brush together with a larger hopper that can be tilted to any angle, insuring uniform flow. A thoroughly proven piece of labor saving equipment which is invaluable on any well organized golf club.



Write today for the TORO catalog showing complete TORO line, including tractors, fairway mowers, dump wagons, greens-mowers, and all labor saving equipment.

TORO MANUFACTURING CO.

3042-3168 Snelling Ave. Minneapolis, Minnesota

Service stations in all the larger distribution centers.



A Saturday afternoon scene on many of the better operated clubs throughout the country. Toro golf machine equipped with belt pulley operating Toro compost machine with a Toro Junior tractor hauling the screened top dressing.

LOWEST UPKEEP EXPENSE

How Roseman Roller Mowing Builds up turf

TEMPERATURE and moisture changes are continually developing conditions in fairways which retard turf growth. Heat cracks open up . . . drying the soil too much. Air spaces form under the spongy turf, separating the roots from the rich, nourishing subsoil below.

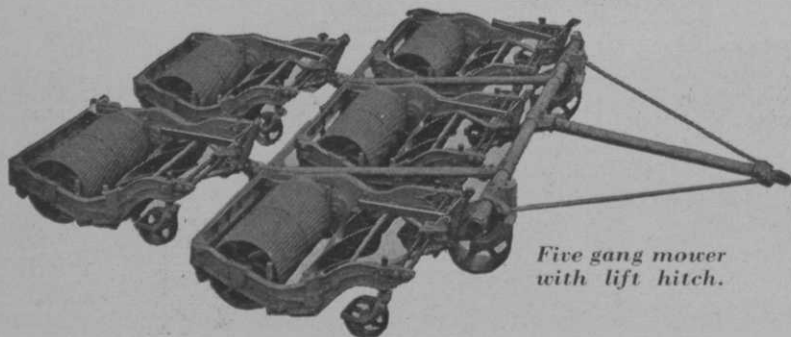
Roseman combined mowing and rolling keeps these faults constantly corrected. It seals heat crevices, thus retaining moisture in the soil.

It presses top turf lightly down onto the subsoil, eliminating air spaces so the roots can secure nourishment. Light rolling also presses loose surface runners down into the soil, greatly increasing spread of growth and density of turf.

Hundreds of Roseman Owners all over the world tell us that combined rolling and mowing has improved turf growth on their fairways. Write today for our booklet on turf development and a list of Roseman Owners.

ROSEMAN TRACTOR MOWER COMPANY
Evanston, Illinois

New York, N. Y.



*Five gang mower
with lift hitch.*

ROSEMAN  **MOWERS**

Golfdom

The Business Journal of Golf
REG. U. S. PATENT OFFICE

VOL. 5

SEPTEMBER, 1931

No. 9

Season's Turf Troubles Plumb Depths of Woe

By HERB GRAFFIS

GRIM PHANTOMS of pestilence visited the golf courses of the United States during the season now approaching its end and left in their wake an appalling destruction. Large and small brown patch, pythium, and cut worms and web worms, together with the burning and scalding to which no part of the affected courses seemed immune, all combined to give the greensmen an agonizing midsummer's nightmare.

Reports from the section east of the Rockies and North of about the 37th parallel indicate that, conservatively, 70 per cent of the golf courses suffered injury to a noticeable degree. The trouble was no respecter of persons or of courses, as courses that hitherto had been internationally famed for condition were mutilated badly by attacks that stubbornly defied positive discovery of their source.

Suddenness and severity of the attacks had the practical and laboratory experts answering S.O.S. calls and arriving at the scene of the disaster to frequently confess as much bewilderment as the local sufferers. The season's experience has served to emphasize the often mysterious character of turf development and in that respect has reminded golfers of the exacting and expansive qualifications that must be met by a competent greenkeeper. It also has made it plain that turf research

is not a matter of over-night results due to the diverse and concealed factors involved.

Business Built on Turf

A reflection of the prompt effect of unfavorable course condition on club and ball sales could be supplied in volumes by the pros and manufacturers. When the seriousness of the situation at the courses began to be felt generally, about June 10 to 15, the playing goods makers noticed a slump in business decidedly more abrupt than the mid-season temporary recession is in years of normal turf conditions. With the emergency measure of the course superintendents restoring an inviting playing condition the pro shop sales promptly quickened. The unusually long duration of the vicious heat wave didn't help sales any.

Some of the close-up students of the trouble attribute a good part of the evil to players' insistence on extreme close cutting of the greens. They cite, in support of their theory, adjoining tees of the same grasses and same maintenance practice that escaped injury. In some cases, however, greens that have been cut to the quick have been immune from trouble. Such disconcerting observations of fine turf areas that adjoin and have been subjected to the same treatment, but have had widely varying experiences in immu-

nity to the current season's destructive influences, show the difficulty of making an accurate diagnosis and of determining the correct restorative and preventive treatment.

Saving Goes Blooey

It has been impressed on the golf course maintenance field that much practical experimental work and study needs to be done, and careful records kept of the performances and governing conditions before the course superintendent can express confidence in the favorable outcome of any battle with nature on his own particular battlefield. Just where the greenkeeper will get the time and the money to devote to his own experimental plot remains unknown. This was to be the year of budgets that would get through the needle's eye with plenty of elbow room left. Labor forces were slashed and in a number of instances GOLFDOM'S investigators believe that the sorry condition of courses was the direct result of the conscientious and shy course superintendent being reluctant to spend at the first definite showing of a serious emergency. Clubs that thought they would clamp down on expenditure for brown patch preventatives rushed to save their greens by having expressed to them shipments of quantities sufficient to give heroic treatments, or paid the toll of tardiness by contributing to the advance in the market price of sod cut to greens length, or by the cost and inconvenience of temporary greens and new sowing on the destroyed greens.

Clubs that had insufficient water supplies learned the fallacy of holding off on making their water equipment adequate and will pay a premium tuition fee to that dear teacher, experience, as they sign larger checks for repair, labor, seed and fertilizer this fall.

Optimists see in the history of the season's turf troubles a number of bright sides, particularly in the aspects of turf research interest and co-operation, appreciation of the course superintendent's problems, and in the right balance between true thrift and expensive tightness. On this latter subject the Westwood C. C. (Cleveland district) house organ, *The Putter*, has something profound to say in presenting the financial status of that club for the first six months of 1931 as compared with the first six months of 1930. *The Putter* comments on the figures:

"A careful examination of the foregoing table (comparative income and expendi-

ture) will indicate an economy that has been practiced all along the line. Of course it is a question, and the directors know that it is so, whether some of the economies have not been too drastic. The cutting down of maintenance of course expenses can be carried too far. But no doubt later in the year when the financial year is nearer its end, fertilization and seeding or whatever may be needed will be carried forward. Unless maintenance is carried on practically all of the time the condition of the course will get beyond control."

And there you have the case at a lot of clubs. The directors have the commendable ambition of operating economically and for that reason are exposed to the temptation of a temporary reduction of judicious expense that merely means passing the buck to their successors, for it is certain their successors will have to plunge into the members' pockets eventually to bring the plant back into good shape. A golf course or clubhouse can go back ages in just two years of neglect enforced by a penny wise and pound foolish policy.

So strikingly severe have been the turf troubles of this summer that a club fortunate enough to discover curable causes of its distress is not going to hesitate at approving whatever appropriation within its command is required to set things aright. Perhaps, on that account, we shall see a higher and more soundly scientific standard of course maintenance washed into view by the tears that have been shed this year.

L. A. Young Plays Milk-Wagon Stymie Into Hospital

L. A. YOUNG, Detroit capitalist who is financial sponsor of Walter Hagen's successful venture in the golf club manufacturing business, is recovering from injuries suffered when he curled his hastening automobile around a sudden stymie laid by a milk wagon and holed out on a concrete wall.

Mr. Young's friends, viewing the ruins of his automobile, proceeded to shop about for Gates Ajar floral pieces. The action was decidedly premature as Young was bandaged but very much present at the annual meeting of the L. A. Young Co. golf salesmen a few days after his mishap. Pleasant figures on the Hagen line business to date this year are said to have had considerable to do with Mr. Young's amazing recovery.

Brown-Patch, Worms, Scald and Pythium Fight Greensmen

IF IT WILL cheer anyone to get the news, tales of this year's golf course troubles all were about the same. One of the course superintendents tells of his troubles by leading off with the statement, "When I saw how many dandelions we had early this season I knew that we were in for trouble. I've never failed to see a big crop of dandelions that didn't mean grief with the greens and fairways later on, and not alone because of weed eradication. The conditions favorable to luxuriant growth of dandelions seem to be those that call for action if fine turf is to be preserved."

Among the simple remedies that seemed to have rather quick and uniform effect was that of aerating greens by spiked roller application at frequent intervals or by more heroic treatment of aeration. It played hell with putting but a number of greenkeepers credit the treatment with saving their greens from some threatening trouble that was in an advanced stage.

Out of GOLFDOM'S reports on the conditions and treatments at clubs where turf trouble was experienced this year, we select a few that are representative.

Insect pests had their inning this year and Carl O. Watkins, green-chairman of the Mattoon (Ill.) C. C., tells of this sort of distress at his course. Mr. Watkins writes:

Worms Destroy the Grass

"About July 11, during an unusually hot spell, we noticed some dry spots appear at certain places on our greens, which are of Washington Bent grass. These spots were mostly around the edges. The ground seemed to get hard and the water would run off to softer places. We should have spiked these places, but did not. After the dry spots had been in existence a few days we noticed the appearance of a number of small, dark colored worms ranging in size from about the size of the lead in a pencil and $\frac{1}{2}$ " long up to 1" long. We decided that they were cut-worms or wire-worms. We noticed that the grass seemed to grow thinner in an increasing area away from the dry spots and we came to the conclusion that the worms must be

there in larger quantities than we saw and that they were feeding on the grass.

"We gave all of the greens a treatment of arsenate of lead at the rate of two pounds to 50 gallons of water. We gave an extra heavy treatment to the spreading line, which was gradually creeping in to the center of the green and in one case almost destroyed an entire green. Forty-eight hours later we applied a similar application and 12 hours later began to find these worms in large numbers dead or almost dead, on top of the ground and in the greatest numbers along the boundary line between the dead turf and the live turf. When we would water the greens the dead grass would wash off the greens in great quantities. We had similar damage in the fairways.

"With the killing of the worms the area of dead spots quit increasing. The grass showed little tendency to come back until August 11, when we finished weeding the greens and were favored with a little cool spell during which time we topdressed them and gave them a liquid application of sulphate of ammonia at the rate of $1\frac{1}{2}$ lbs. to the thousand square feet. Since that time the grass has made a rapid recovery. We might mention that in the meantime we had installed a new pump which enables us to put on a great deal more water.

Seed for Emergency

"There are certain portions of the greens that show no tendency to come back. We are seeding these portions with redtop seed, as we were fortunate in having a very heavy strain of bent grass, which will no doubt spread over the dead areas by the middle of next summer. If we can provide a green surface on these dead spots in the meantime we are satisfied that the bent will soon displace the redtop. At the present time our greens show a very good putting surface.

"In my opinion our trouble was caused by the fact that we were not able to apply enough water in the early part of the night to give the greens a thorough soaking and be absorbed before the hot sun came out

on them the next day. It seems to be the history of all insect pests that they thrive in dry years, and as we had quite a number of the worms last year the ground was filled with the eggs which hatched in unusually great numbers as soon as the soil became dry enough to permit them to do so. When the hatching began the feeding started and the grass was the victim.

"I do not maintain that this is the general cause of the increasing loss of turf this year, but in our particular case and in the case of two other neighboring clubs I am thoroughly convinced that the cut worms did the damage, and when we permitted the soil to become dry we aided the hatching of these worms.

An Eastern Experience

James M. Smart, grounds supt. at Dutchess G. & C. C., Poughkeepsie, N. Y., reports on the injury suffered at his course. Mr. Smart tells that the trouble was confined to the greens. There the finer bent grasses died out in spots. The first apparent damage was on July 3, after a brown patch attack on eight greens. The brown patch was especially virulent and several attacks were suffered despite preventive applications. Dutchess has several mixed bent greens which, according to Smart's statement, stood up well. At practically every course where *poa annua* was in greens it went out suddenly and completely.

In repairing the damage Mr. Smart fertilized lightly and seeded to redtop. The recovery of the greens is proceeding satisfactorily. In making a diagnosis of his trouble, the Dutchess superintendent brings up the matter of watering practice. He believes that the alternate watering and scorching of the greens may have had something to do with the recurrent attacks of brown patch. Debate has been keen about watering this season. A number of greenkeepers have switched their watering practice from evening to early morning, and to that attribute some immunity to trouble. Others maintain that this morning watering followed by a blazing day is fatal to good greens. It is evident that further study of watering practice is important among the subjects for turf research and with fairway watering installations increasing rapidly, there is more than ever need for course watering investigations.

Older Courses Hard Hit

Many of the older courses that have long

been envied for their excellent condition this year were hard hit. Because the same maintenance methods and the same experienced men have been at the affected courses for years, the mystery of the recent trouble is deepened.

A typical case of an older course being hit is that at Oak Park C. C. (Chicago district). The morning of June 30 Oak Park's course was in splendid shape. By mid-afternoon of the scorching day the greens lost color and by the next morning many of them were brown. Greens that were lost were those having *poa annua* and *poa trivialis*. The bent stolon spots came through in good shape. Tees, as a whole, stood up well. The only noticeable injury was in the loss of the *poa annua*.

C. M. Melville, grounds supt., is of the opinion that the heavy rain immediately preceding the hot spell was too much for the greens to handle. When the high temperature prevailed for long, Melville states the injury was simply a bad case of scalding. Small brown patch hit Oak Park hard on the high spots on the fairways. In the lower spots of fairways scald was suffered. Generally, though, the watered fairways of Oak Park came through well. Topdressing, seeding and light fertilization have brought the greens back in good condition although the recovery here, as at other courses, has not been the overnight miracle the eager golfers desire.

AMONG THE many fee course business development methods used profitably by Willie Hunter is a handicap card record. Hunter's handicap card rack has about 500 cards. This gives the fee course player a handicap rating for his competitive matches and is a good stunt for making a habit of play at the course.

GREENSMEN should use judgment whether or not to stop work when players approach. If the nature of the work is such that the players may be disturbed, workers should stay quiet until the match has passed on. If there is little chance of interfering with the golfers' shots, they should keep on working to avoid any chance of being thought loafing on the job.

ARE THE roof gutters on the clubhouse clogged so water stands in them after every rain? If so, you are furnishing an ideal spot for mosquitoes to develop.