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10. The Roller Base allows easy moving on the green.



L. R. NELSON MFG. CO.  
Peoria, Ill.

# Some Work That Solved Course Drainage Problems Permanently

By DALE PERRILL

**D**RAINS can cause a lot of grief—each spring this fact is brought home as the havoc wrought by a winter is viewed in early spring play over any course. Two illustrations show two typical examples noted recently. The drain in the sand trap was installed new last year. The heaving action of the frost thrust the

a better drained course in the Chicago district, and I've played most of the better ones. But, boy, it certainly takes lots of work. We are digging up and replacing drains all the time."

"Aye, there's the rub," said my Scotch friend at the Butterfield Country club to whom I related the boast. I had been telling him of my observations on drains and waterholes where there shouldn't be water. "Once we were always digging and digging, but our last installation is in to stay. We are putting in corrugated iron pipe, and it doesn't crack."

According to one of Chicago's leading



They put two drain-tiles, one inside the other, in this installation; but it didn't handle the strain.

drain up through the sand. The photograph shows what one winter of freezing and thawing has done to the tile itself.

The other view is across a fairway. This drain is being dug out preparatory to a new installation—the third in six years. The installation shown is number two, and it is interesting to note that in an effort to prevent the recurrence of the first failure this time two pipes have been used, one inside the other, to get double strength.

The other day a club member was bragging about the drainage of his course. "I can only remember," he said, "of one time that we had water on our fairways, and that was after a cloudburst about two years ago. No, sir, I don't believe there's



This trap drain lasted only a year. One winter of freezing and thawing wrecked it.

golf architects, the crux of the permanent drainage problem is one of correct installation of the type of drain pipe used. He cites a rigid pipe sand trap drain system designed by him four years ago. This pipe was placed in solid soil at a depth not less than four feet—well below the frost line. To provide for a quick run off

of water from the sand trap, cinders were used for the fill under the sand. All of the drains emptied into a main sewer which, in turn, emptied into a lake. Thus the whole system was protected against pressure from freezing water, and a cover of four feet of earth where the pipe ran under fairways assured safety against breakage due to impact of tractors or trucks.

However, he points out that a drainage system of this kind is not always desirable.



This was a fill where it was hard to get a fairway until adequate drainage was installed.

In fact, this particular system only took care of twenty-four traps out of nearly a hundred on the course. These traps were located near the water hole, otherwise the cost of such a system would have been almost prohibitive.

### Tile Carries a Load

Drainage for the other traps was provided by a surface drain with the water usually out onto an open space in a nearby piece of rough. Such drains often have only enough soil above them to support

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The brushes on the New Lewis Washers are equipped with automatic spring adjustments. As the brushes wear with use the springs bring them closer to the ball. Our Service Dept. will fit other Lewis Washers with springs at a small cost.

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*Showing brush with new self-adjusting spring*

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ESTAB. 1925

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ILL.

turf. They must withstand the full impact of trucks or rollers, and, of even greater importance in the northern districts, destructive frost action. In such instances, this architect recommends use of the corrugated pipe type as it ends completely damage from both frost and impact.

Incorrect estimates on costs probably have a great deal to do with installation of drains, either the wrong type or under conditions where they cannot possibly stand up. For instance, in the case of the fairway drain shown in one photograph, three installations have been made in six years. Comparing the cost of pipe only, this rigid type installation might still show



A brook at an inconvenient place was carried under a fairway into a lagoon.

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I am closing out a large stock of good, medium grade golf shafts. They are thoroughly seasoned, pro finished, thin and straight. The price is only 15c each, irons or drivers. 500 PROS are using this shaft now. I want orders from 500 more this month of JUNE. Order 12, or 25, 50 or 100 NOW; CASH or C. O. D. Shafts will be shipped day order is received.

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Calif.

a saving as compared with the more expensive pipe. Comparative costs on this particular diameter of pipe in the Chicago district are about 15 cents per foot for rigid type as compared with 95 cents per foot for the corrugated type. But the pipe must be installed, a cost that is paid by the club regardless of whether the work is done by a contractor or by hired employers. This cost will run from 60 cents to 75 cents per foot for the first installation. Thus the comparative initial cost would be 75 to 90 cents per foot for rigid pipe and \$1.55 to \$1.70 for corrugated pipe installed.

## Reinstallation Costs More

An important point in figuring the cost of a short-lived drain on a golf course is that the installation made when the course is under construction is by far the lowest

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# BENT GRASS SEED

There are some thirty varieties of Bent grass and one should have some practical knowledge relative to handling them if he is to give worth while advice as to the variety which will give the best results. There is no one variety that is a sure "cure all" in all localities. The kind that produces a "Rolls Royce" turf in California or Washington may prove to be a "second hand fiver" in Missouri, New York, Wisconsin or other states.

I am a farmer. Most of my farms are devoted to the growing of different varieties of the Bent family of grass and some of these varieties make the finest turf of anything in existence. I have had a great deal of experience covering many years in furnishing golf clubs, municipal parks, athletic fields, etc., with fine turf grass seed for their putting greens, fairways and lawns. I always endeavor to furnish those varieties of Bent that do the best in those localities where the seed is to be used.

**WHEN YOU PURCHASE SEED DIRECT FROM THE FARMS WHERE IT GROWS YOU ARE ASSURED OF AN ABSOLUTELY FRESH, VIABLE, ACCLIMATED, WINTER HARDY PRODUCT THAT WILL PRODUCE MORE PERMANENT AND DESIRABLE RESULTS ON YOUR COURSE THAN ANY SEED OF FOREIGN ORIGIN.**

Boost one of your own American industries to the extent of purchasing your seed from the American farmer who grows it.

**A. N. PECKHAM, Kingston, Rhode Island**



## Why LECCO can not be duplicated

IT took years of experimenting to work out the proper combination of fertilizers to produce grass of fine texture and root growth enough to sustain the top. Can you afford to gamble with the uncertain composition of the compost pile?

LECCO makes four blades of grass grow where one grew before.

Compost pile and home mixed fertilizer, the hit-and-miss method of varying results and ever-present Brown-patch menace can never equal LECCO for LECCO is prepared in perfect balance to produce grass of the finest texture.

How can any greenkeeper afford to gamble with expensive turf?

The basic principles of growing grass are increased root growth and production of a fine top growth. LECCO does the work.

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(Name on request.)

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Cleveland Country Club,  
Bert Sheldon, Greenkeeper.

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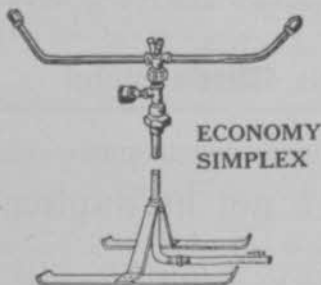
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Under all conditions with moderate water pressure, the Economy Simplex is outstanding as an efficient sprinkler. It is simple in design and construction, yet extremely durable. It is adaptable to any type of watering giving good coverage and even distribution of water. Unexcelled for its purpose.

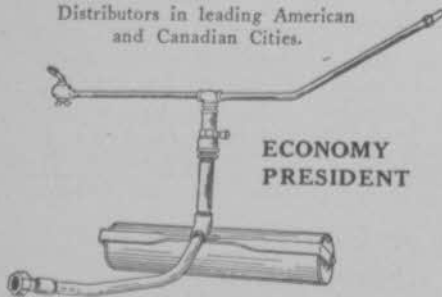
The Economy President, used with water pressure about 40 pounds, is without a peer in the sprinkler field. It gives even distribution and greatest coverage. Slow speed. Gearless. Has long life. Ideal head for hoseless systems. Equipped with either sled or roller base.

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# ECONOMY SPRINKLERS

cost. In a second installation added expense is incurred in removing and replacing sod. Extra maintenance work is also needed to bring this replaced sod back into first-class playing condition. In the case of this particular drain, the repair work to the fairway made necessary by damage from flooding will probably cost as much as the work of installation.

Thus it will be seen that wherever a second installation of rigid type pipe can be avoided by use of corrugated pipe there is an economy in favor of the corrugated type.

We have purposely neglected up to this point to consider the value of a course kept in playable condition. If the drain break floods the course there will be a reduction in ground fees, and that is an important point to most private as well as fee clubs. The loss due to "ground under repair" is more difficult to estimate. But we are of the opinion that most experts and officials will rate it as the highest priced of them all as no club can afford dissatisfied players. For that reason clubs which are still "digging and digging" will welcome the advent of this new drain pipe that takes only one installation regardless of trucks, rollers, tractors and frost.

## MACOMBER BUILDING AIRPORTS

Chicago, Ill.—A new department for the design, engineering and construction of airports has been formed by Leonard Macomber, Inc., 664 N. Michigan Ave., one of the oldest and best-known golf architectural firms in the central states.

Capt. Harold H. Ambler, whose airport building experience extends back to the early stages of the World War when he built Orly Field, the largest airport developed by the American Service in France, has been made vice-president of the company and will have charge of the airport branch of the business. Assisting him will be Morrow Krum, second vice-president and widely known in American aviation circles.

## SPORT TRADE DIRECTORY OUT

St. Louis, Mo.—Charles C. Spink & Son have issued the 1929 edition of the Sporting Goods Dealers' Trade Directory. This volume, the 23d annual edition of this reference work, gives the source of supply of virtually every item manufactured in the sporting goods industry. It also contains a list of sporting goods jobbers, wholesalers and semi-jobbers, classified by states; trade marks and trade names; list of manufacturers' representatives; and exporters and importers, with lines carried by each.

The advertisers pay for your GOLFDOM; deal with them.

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1 lb. .... \$5.00  
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Order direct or from leading supply houses.

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## The Peerless Mower Sharpener

**THE Peerless Lawnmower Sharpener**  
grinds all makes of Power, Horse and Hand Mowers in 20 to 30 minutes, with razor-like edge giving any desired clearance or bevel. Mowers run easier, require less power and gain in speed. One owner writes, "The Peerless Sharpener saves us from \$700 to \$800.00 annually." Write for catalog and list of users.



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"If it's a Staude—it's Sturdy"





The Orchestrope at the Lake Tippecanoe C. C. fits into the dining-room nicely, and is moved into the lounge and onto the dance-floor when occasion requires.

## Music Hath Charms to Soothe Savage Deficit

WHEN a country club official reports that a change in his club's music program helped put the clubhouse out of the red and into black operating figures, the testimony is worth studying. J. E. Armstrong, secretary-treasurer of the Tippecanoe Lake Country club at Leesburg, Ind., is the club executive who credits his club's use of its automatic phonograph with the erasure of the annual house deficit. He says, relative to the instrument the Tippecanoe Lake club is using, "We can give our members a continuous program of amplified music in the main lobby of the club, or furnish the music for the regular club dance, or move the instrument into one of the dining rooms, and provide, if desired, a musical program for a private dinner party. The variable volume control feature is especially valuable in these cases, as it can be adjusted to a whisper—or loud enough for the largest dance hall.

"Another feature our members are pleased with is the length of the program before repeating. It takes just about four hours to play the fifty-six selections on both sides of the twenty-eight records, which are changed and turned automatically before the first selection re-appears."

During the latter part of last season the Tippecanoe club did away with the orchestra entirely and thus made the financial saving that showed the profit.

Generally the erroneous idea prevails that these automatic phonographs have too much of the "mechanical" sound to make them desirable substitutes for the actual playing, but recent progress in this equipment has dissipated this notion. They have an edge on the radio in that the programs may be selected according to the club's requirements and desires and is not frequently interrupted with broadcast of advertising.

It has been the experience of the Tippecanoe club and other clubs having automatic phonographs that the character of the music supplied is a noteworthy factor in the building of house business. Music for dancing is available at all times, and the "hot" numbers as recorded by the Victor, Brunswick and other organizations' talent may be played with a purity of tone and freedom from operating annoyance that makes the high grade automatic phonograph something well worth considering by the country club.



## What the MAKERS Have to Say

### FOR THE WATER HOLES

Chicago, Ill.—Pro shops at courses where there are water holes are having a growing business for the Water-iron, a new-comer among the tools of the game, which is made by the Water Iron Co., 228 N. La Salle St. The Water-iron consists of a collapsible set of tubes that extend to 9 feet when fully pulled out but which nest one inside the other until they are no longer than the other clubs in the bag when the Water-iron is being carried out of service. A small net which is carried in the bag pocket, fits on the end of the extended tubing when the Water-iron is reached out into water holes, muddy areas, newly seeded spots or out-of-bounds. The Water-iron is light in weight.

The device looked like a wild idea at first but is taking on quickly at private, daily fee and public courses where its service is needed. One has only to consider the number of balls recovered from water holes by buyers of used balls to get a notion of the business pro shops could do on this device. It has the virtue of speeding up play by eliminating the delays of "fishing" for balls.

### ANT KILLER SALES GROW

Pontiac, Mich.—The Daniels Ant Exterminator Co. is finding considerable success with its Daniels Ant Exterminator. Concerning its use the company says, "Ants are attracted to it when the material is worked into small balls 1/8-inch in diameter and placed near the ant-hill. A warm sunny day should be chosen when making an application. By heat the paste

**TO YOUR OWN CLUB BE TRUE  
AND IT WILL FOLLOW**—that before ordering Charge Checks, Score Cards, Guest Registers, Caddie Cards and other forms you will first see our line of standardized golf printed matter.

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One season's growth—free of weeds—dependable material for supplying you with the finest of greens.

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- 1 Their enviable reputation as perfect putting surfaces.
- 2 Their invariable selection by experienced greenkeepers.
- 3 Their successful record over a period of *many years* on many of the country's outstanding courses.

*Are Three Good Reasons Why*

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will satisfy your committee, your players and the man who has to satisfy everyone—your greenkeeper

Grown only by

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Under personal supervision of Harry J. Collis

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### Tractor Wheel Spuds

The R. H. wheel spuds save time installing and removing, they are made in many sizes for any type tractor or purpose. Low price and quality has been welcomed by Golf Clubs, in use on 1000 clubs.

Sample spud and circular on request; advise make of tractor and purpose used for.

(If your Ford or equipment dealer cannot supply, write direct).

**R. S. HORNER**  
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Manufacturer of Wheel Spuds, Golf Tractor, Golf Wheels for Fordson and Trucks.

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### LAKE GENEVA CREEPING BENT NURSERIES

who take pride and pleasure in pointing out the many greens planted with their

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Commodore Barry - - -	Twin Lakes, Wis.
Nippersink Lodge - - -	Genoa City, Wis.
Channel Lake - - -	Antioch, Ill.
Woodsmith Farms - - -	Jefferson City, Mo.
Brynwood - - -	No. Milwaukee, Wis.
Sheboygan C. C. - - -	Sheboygan, Wis.
Lafontaine - - -	Huntington, Ind.

The prices are also right.

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### SEMESAN or NU-GREEN

*Two Successful Remedies*

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is changed into a liquid film, a form whereby the ants may better feed upon it. Do not attempt to dilute paste and apply in a liquid form as this method is ineffective. For best results apply after mowing, watering or rolling greens. It will not interfere with play on the green. Activity ceases about 24 to 36 hours after feeding. The poison works slow so that those feeding may have an opportunity to carry the poison back to those remaining in the nest. Eggs remaining in the nest usually fail to develop due to lack of care before hatching. Daniels Ant Exterminator is non-injurious to soil or turf."

### TEE CARRIER IN CLUB

Racine, Wis.—Tod Sloan, professional at the Racine Country club, is the inventor of an ingenious carrier for patented tees. This is a receptacle put into the top of the shaft. The device does not alter the bal-



"Tod" Sloan's ingenious shaft-end tee carrier.

ance or weight of the club, according to Sloan, as it is compensated for by the amount of material bored out of the hickory.

The contrivance has a clever top that ejects one of the tees when it is wanted and snaps closed again after the tee is delivered. Further details of the device will be supplied on request by Sloan.

### SECURITY FEATURING KNICKERS

Chicago, Ill.—Security Golf Wear, 412 South Franklin St., the division of H. L. Friedlen Co., that specializes in golf apparel, is supplying the pros now with the style of knickers that is in accord with the market requirement as revealed by the extensive survey Security made of the pro trade a couple of months ago.

The colors that were said by pros to be most popular are greys, fawn and white. These colors in flannel knickers are proving to be big hits in the pro shops.

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SWEEPER

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