

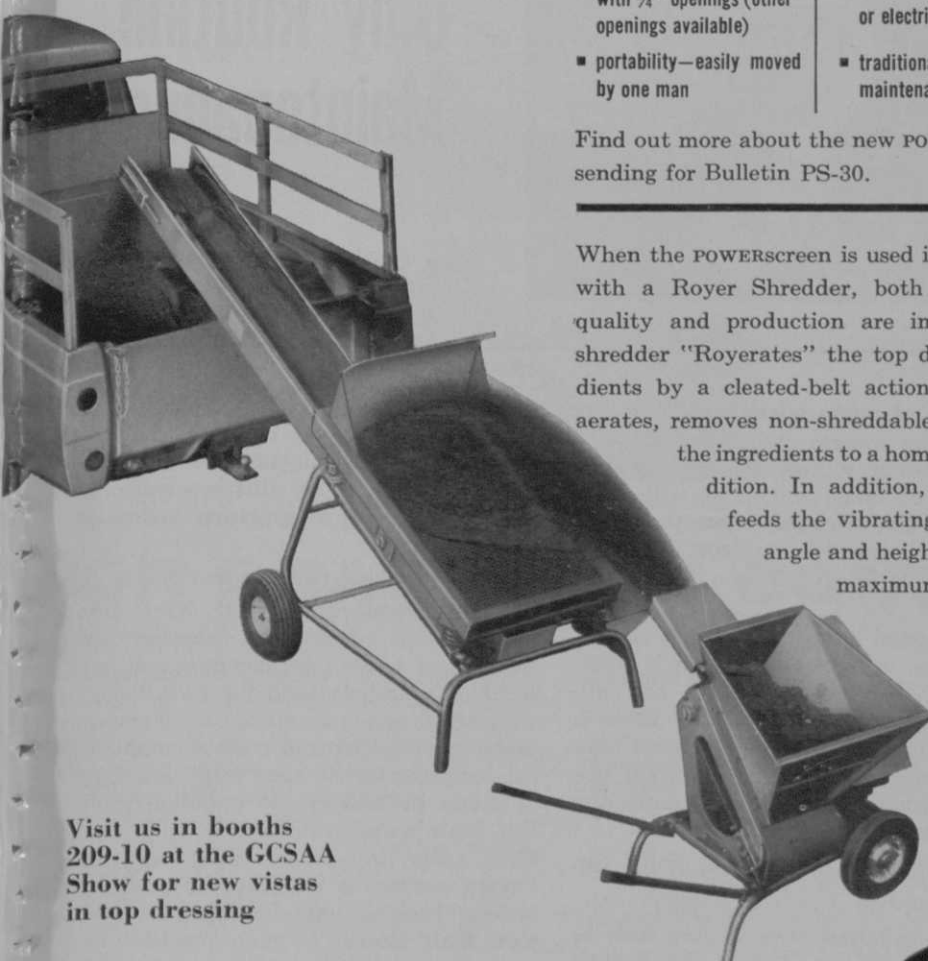
new Royer
POWERSCREEN
mechanizes the
production of fine
top dressing

Now, preparation of the fine, uniform top dressing required for greens and tees can be a mechanized operation by using the latest of Royer's golf course-designed equipment—the POWERSCREEN. This unit combines the screening and conveying of top dressing into a one-step operation. A sloped-deck, vibrating screen prepares the fine top dressing mixture and a discharge conveyor moves the mixture away from the screen to a height convenient for either stockpiling or loading small trucks or trailers. Ruggedly constructed, the POWERSCREEN features—

- welded, tubular-steel frame
- woven-steel-wire screen with $\frac{1}{4}$ " openings (other openings available)
- portability—easily moved by one man
- troughing-type, discharge conveyor
- choice of drives—gasoline or electric
- traditional Royer low-maintenance design

Find out more about the new POWERSCREEN by sending for Bulletin PS-30.

When the POWERSCREEN is used in conjunction with a Royer Shredder, both top dressing quality and production are improved. The shredder "Royerates" the top dressing ingredients by a cleated-belt action that shreds, aerates, removes non-shreddables, and blends the ingredients to a homogeneous condition. In addition, the shredder feeds the vibrating screen at an angle and height that assures maximum production.

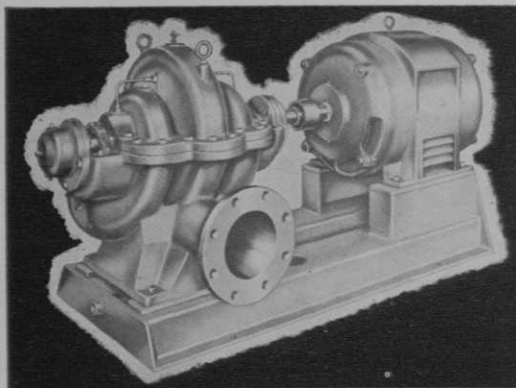


Visit us in booths
209-10 at the GCSAA
Show for new vistas
in top dressing

ROYER FOUNDRY & MACHINE CO.

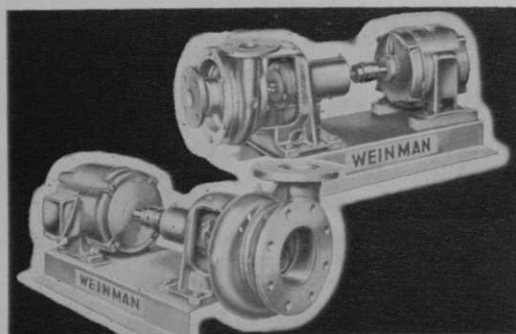
ROYER

171 Pringle Street • Kingston, Pennsylvania • Export Department: 10629 S. Vernon Ave., Chicago, Illinois. Cable: ASMAN



*Unit Is Practically
Trouble Free*

Centrifugal Pump Requires



Only Routine Maintenance

By **CLARENCE NORDSTROM**
Thomas Pump Co., Chicago, Ill.

The type of pump selected for a course irrigation system is dictated by the available water source. Wells as sources aren't too common, and so we will dwell on pumps that are used where the water source is a man-made reservoir, or where the supply is bought from a city pumping station.

A horizontal centrifugal pump is preferred when water is drawn from a reservoir or local source, although an end-suction type may be used. The latter is more economical than the horizontal unit, but is selected only where irrigation systems requiring smaller pumping capacities and discharge have been installed.

The horizontal centrifugal pump can

A split case centrifugal (Type L) pump made by Weinman Pump Mfg. Co., Columbus, Ohio, is shown in the top photo. Below is the single stage, end-suction type pipe, also a centrifugal unit.

be either a single or two-stage design type. It offers better hydraulic balance and is easier to maintain than the end-suction unit. It is my first recommendation when a course irrigation system is to be installed.

Packing Is Important

A centrifugal pump with cast iron bronze fitted construction (impeller and wear rings) is the most common unit and will hold up satisfactorily for several years without presenting major maintenance problems. Packing rather than mechanical seals should be used with this type of pump because of the pollution problem. Seals operate satisfactorily only when clean water, free of sand, silt and other foreign matter, is fed into the pumping system. Packing with hardened stainless steel shaft sleeves is more practical because it is relatively impervious to dirt. It should be noted, however, that ceramic

ASK FOR....

AZAK*

Selective Pre-Emergence Herbicide



A 12.5-lb. bag of Azak wettable powder covers one acre. One application lasts through crabgrass germination period.

FOR CRABGRASS CONTROL

AZAK*, Hercules' new carbamate herbicide for pre-emergence crabgrass control in established turf, puts effective and proved control within the reach of every budget. Dollar for dollar there is no pre-emerge crabgrass control on the market that has the many advantages of Azak:

Economical—a 12.5-lb. bag of wettable powder covers one acre, or 43,560 sq. ft.

Nonleaching—one application lasts through the crabgrass germination period.

Safer—to established turf.

Low in toxicity—to warm-blooded animals.

Practically odorless—pleasant to handle and use.

Of Special Interest to Manufacturers

Azak is compatible with most fertilizers and pesticides. Available as an 80% wettable powder, Azak 80-WP, it can be applied in conventional spray equipment or used for granular formulations. Also, it's low in cost.

For Technical Information and Product Availability, contact the nearest district office listed below or Agricultural Chemicals, Synthetics Department, Hercules Powder Company, Wilmington, Delaware 19899.

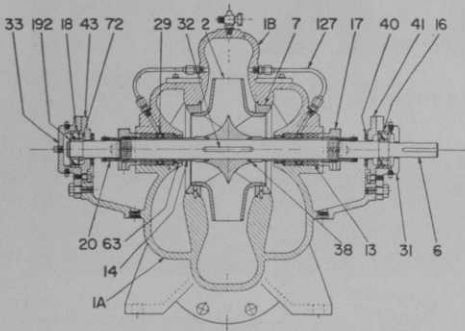
*HERCULES TRADEMARK



BOSTON, MASS./CHICAGO (OAK BROOK), ILL./DALLAS, TEXAS/GREENVILLE, MISS./LOUISIANA, MO./MONTGOMERY, ALA./PHOENIX, ARIZ./RALEIGH, N.C./SAN FRANCISCO, CALIF.

5269-2

Details of the Horizontal Centrifugal Pump



- | | |
|------------------------------|-------------------------------|
| 1A Casing (lower half) | 32 Impeller key |
| 1B Casing (upper half) | 33 Bearing housing (outboard) |
| 2 Impeller | 38 Shaft sleeve gasket |
| 6 Shaft | 40 Deflector (liquid) |
| 7 Casing ring | 41 Bearing cap (inboard) |
| 13 Packing | 43 Bearing cap (outboard) |
| 14 Shaft sleeve | 63 Stuffing box bushing |
| 16 Bearing (inboard) | 127 Seal piping |
| 17 Stuffing box gland | 192 Retaining ring bearing |
| 17A Seal cap | |
| 18 Bearing (outboard) | |
| 20 Shaft sleeve nut | |
| 29 Seal cage | |
| 31 Bearing housing (inboard) | |

coated shaft sleeves have given better service in many instances than even stainless steel.

75 Horsepower Average

The average golf course sprinkler pressure is around 150 psi and, although it varies, the horsepower for an 18-hole system is approximately 75. Some, however, run as low as 40 hp and some as high as 150. An installation made by our firm at Silver Lake CC, Orland Park, Ill., last spring was a 50 hp, two-stage horizontal split case centrifugal pump that sprinkles as many as 18 greens, some of which are 1,000 yards away.

Centrifugal pumps actually don't require much maintenance. If bearings are lubricated, packing replaced and the

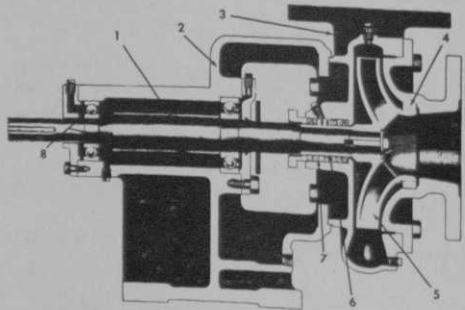
strainer cleaned as often as two times a year under normal circumstances, little trouble will be encountered. If this is done regularly, this type of pump will continue to give good service indefinitely. If a bearing has to be replaced, there is no reason why the course maintenance department can't handle the replacement. But if the impeller and wear rings need to be replaced, the supt. should have it done by a service man from the manufacturer which makes the pump.

Clarence Nordstrom is president of the Thomas Pump Co., 407 S. Dearborn St., Chicago 60605, a firm which represents Weinman Pump Manufacturing Co. and U.S. Pumps, Inc., in the northern Illinois area.

Sectional View of End-Suction Pipe

Large size steel shaft (1), accurately machined, eliminates deflection or vibration. Sealed, oversize ball bearings carry both radial and thrust loads. Stuffing box (7) with bronze glands and studs uses seven rings of packing unless furnished with lantern ring for grease or fresh water seal. A bronze sleeve (6) protects the shaft passing through the stuffing box. Impeller (5) is regularly enclosed type. Renewable wearing ring (4) provides means to compensate for wear and resulting leakage at the impeller inlet.

One-piece metal frame (2) has drain pocket for collecting stuffing box leakage which can be piped to the drain. Volute (3) are streamlined for maximum efficiency and tenoned into the power frame.





Lightweight tractor and multiple fires kept turf damage at minimum when irrigation trench was dug at El Dodaro course.

If It Works in the Oil Fields It Will Work for Us

*That is what El Dorado CC officials
decided when they picked Delrin
pipe for their irrigation system*

Economy at no sacrifice of efficiency was in the minds of the committee headed by Walter Harbison at the El Dorado (Ark.) CC selected to install a completely automatic watering system for the 18-hole, 6,361-yard course. Thanks to the committee, the club realized its goals — and golfers were only slightly inconvenienced during the five weeks it took to install the system.

Today, fairways, tees, and greens are watered by a system incorporating Toro automation and sprinkler heads and Du Pont's "Delrin" acetal resin pipe.

Delrin was not unknown to many club members of the southern Arkansas town, the petroleum center of the state and an important farm trade center for the area. The pipe had proved itself in the oil fields, but it was not, prior to its installation at El Dorado, known for golf course watering systems.

Installed were six miles of pipe, 200 quick-disconnect couplings on the fairways, and some 100 pop-up, permanent sprinkler heads at tees and greens.

Installed for \$46,000

The total cost of the installation was \$46,000. While the committee was interested in a low cost irrigation system, the final decision was based on its long range prospects, versatility, and ease of installation.

Surge resistance of Delrin was an important consideration. A course system, always under high water pressure, can develop large pressure surges, particularly when a sprinkler is disconnected from a

Think Thrift and you'll think Davey

The least costly way of all to have dangerous, dead trees and broken limbs removed from your course is the Davey way. Here's why: Davey experts have the right, modern equipment to do the job efficiently. And they are experts. They know how to get their equipment in where it's needed — without damaging your greens and fairways. They're fast on the job, too. No trial and error operations.

And now's the time to prune off limbs overhanging the edges of your fairways. A winter-weakened, cracked limb can come crashing down. These things do happen. Why risk an accidental clunk on the head of someone under the falling limb? Few courses can afford a serious lawsuit. Take the easy way out — have Davey come in and clean up your course — any time now while the limbs are clearly visible. You'll be in business early for the very first enthusiasts.

And remember: with Davey's modern equipment, you eliminate all cost of owning and maintaining any equipment needed. Plus the expense of efficient operators.

*Write direct to F. F. Lofgren,
Sales Manager*

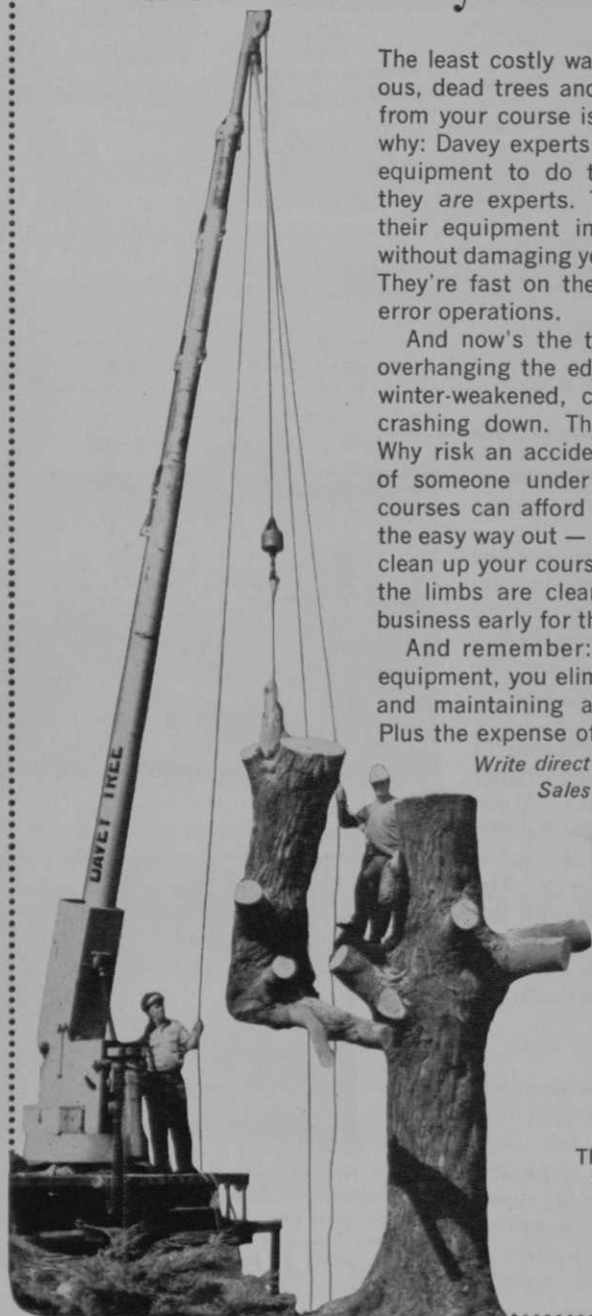
DAVEY TREE EXPERT CO.

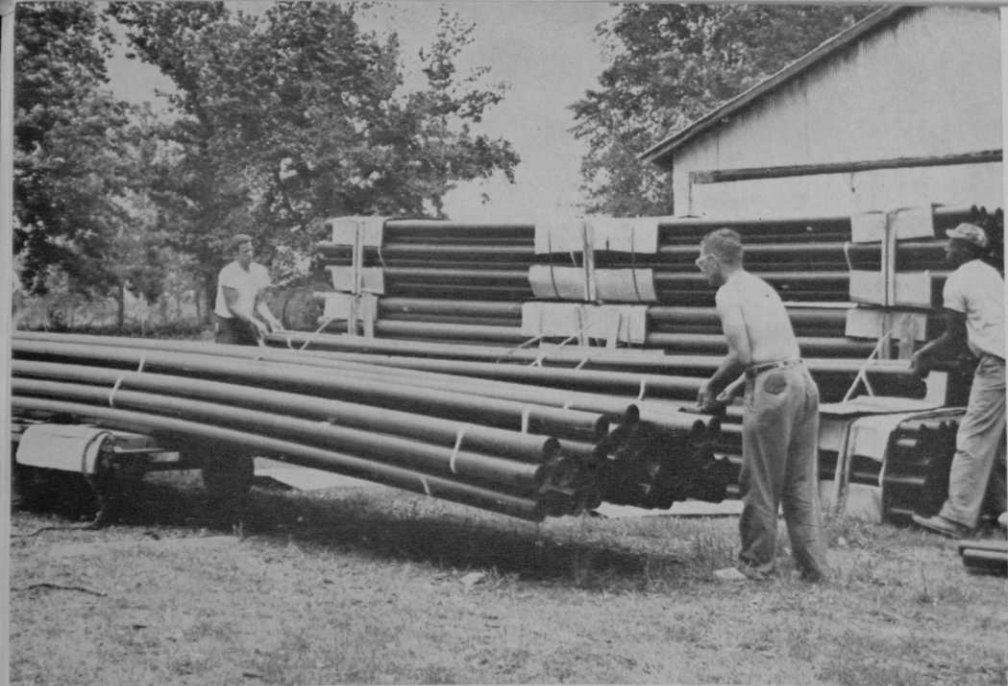
Kent 40, Ohio

DAVEY
TREE EXPERT CO.



The Oldest and Largest
Tree Saving Service
in the World





Two men handled three 20-foot sections of light-weight 4-inch pipe at one time when El Dorado installation was made. Pipe was hauled to installation site on small trailers.

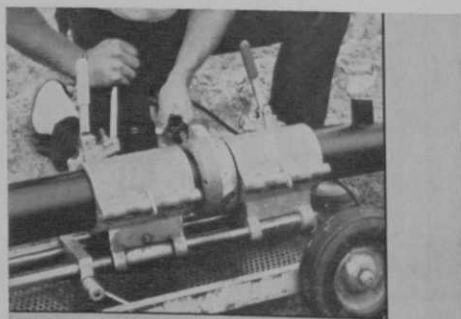
quick coupler. Automatically operated valves for green and tee watering also cause pressure changes because of their quick closing action. The resulting pressure surge and water hammer can be destructive if sufficiently strong pipe is not used.

At El Dorado, automatic watering of tees and greens is done from one to four remotely controlled sprinkler heads. A station near the clubhouse contains electrically driven timers set to water any green or tee through a pre-set sequence. The time of day and duration of watering can be pre-set and varied according to conditions. Water flow is controlled by hydraulically operated valves upstream of the sprinkler head.

Use Five Segments

The system is broken into five segments for operating efficiency. The control unit shifts segments automatically, but does not water adjacent segments in sequence. This avoids overlapping that can lay down too much water if time for absorption is not considered. Three, 300-gallon-a-minute connections supply the system.

(Continued on page 103)



(Above) First stage in fusing Delrin pipe. Hand held heating unit is operated with power from a portable generator. (Below) Second stage in joining pipe. The pipe is ready for testing at rated pressure within 30 seconds of second stage fusion.

*The Cleveland Clinic is the place
to go for Medical advice*

*The DeFrance Clinic at Booth 303,
the Turf-Grass Conference—is the
place to go for Agronomic advice.*



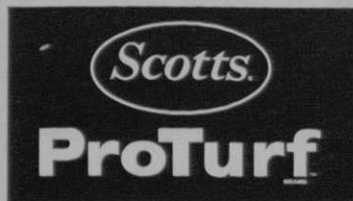
DR JESSE A. DEFRANCE, holder of the GCSA *Award of Merit* "in recognition of outstanding contributions to turf grass research and education," is now Senior Scientist of Scotts Professional Turf Counselor Service.

"Doc" as he is known to thousands of his GCSA friends is ready, willing and able to talk turf all night long if you want to.

Why not enlist him as your assistant?

He and his professional associates are available as helpers—and at no charge. In fact they'll save you money and manpower.

Please do drop by for a chat.



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GRAU'S Answers to Turf Questions

BY FRED V. GRAU

Need for Understanding

• For me this new year brings a new beginning — this time in a free and independent position. All ties with industry have been severed. All, that is, except for the Penngift crownvetch business that Mrs. Grau and I have developed. Contacts will be maintained with the turfgrass industry thru travel, correspondence and consultation. There will be opportunities for occasional consulting with those who feel I can help them. Speaking engagements with GCSA sponsored groups can be arranged on a travel-cost basis — no fee. My mail address will remain unchanged — College Park, Maryland 20740. Correspondence on turfgrass problems thru GOLFDOM Q & A will continue to be welcomed. •

Thirty-eight years of intimate association with every phase of the turf industry makes it clear that all of us need to develop to the utmost an understanding of principles which underly thought and action. Time and time again we have heard it explained that, in turf, there is no cut-and-dried, easy formula for success. Success comes only when principles are understood and intelligently applied to the problem at hand.

One of the most common illustrations of the need for understanding principles occurs in the blending of ingredients for a putting green top-mix. With few exceptions, the questioner wants a ready-made answer as to how much of each

material he should use. To accomplish this with chances for a high degree of success one must know how soil fractions (clay, silt, sands) are put together in the site soil; how the available sand will act; how the characteristics of the organic material will modify the mixture; and, finally, how the final mixture will hold nutrients, allow moisture to percolate and air to be exchanged.

All this demands an intimate knowledge and understanding of the physical and chemical properties of soils. Many older men in the profession may not have had the chance to study in this field although the younger men have that chance. It is to the credit of older supts. that they have done such an outstanding job of learning by doing and by asking questions. It behooves us to study carefully their successes and their failures so that those who have the advantage of technical training may better understand the underlying principles.

Do we understand the other fellow's point of view? The green chairman views the course maintenance operation with a certain set of values in mind. To know what these values are and how they were developed may become very important to the supt. Some time spent in looking into the background of the chairman, his

(Continued on page 99)

See "When Elements Unite"
on page 42
