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GOLF COURSE NEWS

THE NEWSPAPER OF THE GOLF COURSE INDUSTRY

VOLUME 1 NUMBER 8
OCTOBER 1989

Ransomes expands umbrella

Cushman purchase creates megaforce in industry

BY MARK LESLIE

Ransomes PLC of the United Kingdom has continued its American buying spree that finds it boasting a product line covering the gamut of turfgrass care from mowing to renovation.

Ransomes' purchase of Cushman in Lincoln, Neb., from Outboard Marine Corp. for $150 million in late September included Cushman subsidiaries Ryan in Lincoln and Brouwer Turf Equipment in Keswick, Ontario, Canada.

"I'm excited about working with Stuart Rafos (Cushman president) and the rest of the management team at Cushman," said Ransomes America President Helmut Adam. "Its product line complements the Ransomes line of commerial turf equipment extremely well."

Indeed, both companies feel the partnership makes a perfect mix and will help Cushman greatly increase its annual domestic and international sales in the near future.

"I expect our international business — outside North America — will double because of Ransomes' strong distribution network internationally," said Cushman Market Director Clarke H. Staples. "Certainly we will also increase sales in North America at the present rate, about 15 percent a year."

Staples said Cushman has doubled its sales over the last four years,

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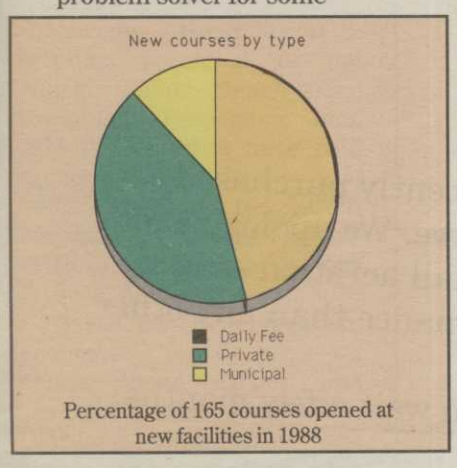

Percentage of 165 courses opened at new facilities in 1988

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Accolades open ASU course

The latest Pete Dye designed golf course, the Karsten Golf Course at Arizona State University, was dedicated Sept. 15 as the man for whom it was named celebrated his 78th birthday.

"If someone had told me 10 years ago or 20 years ago that something like this would happen, I never would have believed them. All I can say is that it's been a real pleasure," Karsten Solheim, president of Karsten Manufacturing Corp., maker of Ping golf clubs, said after a standing ovation by the several hundred people who

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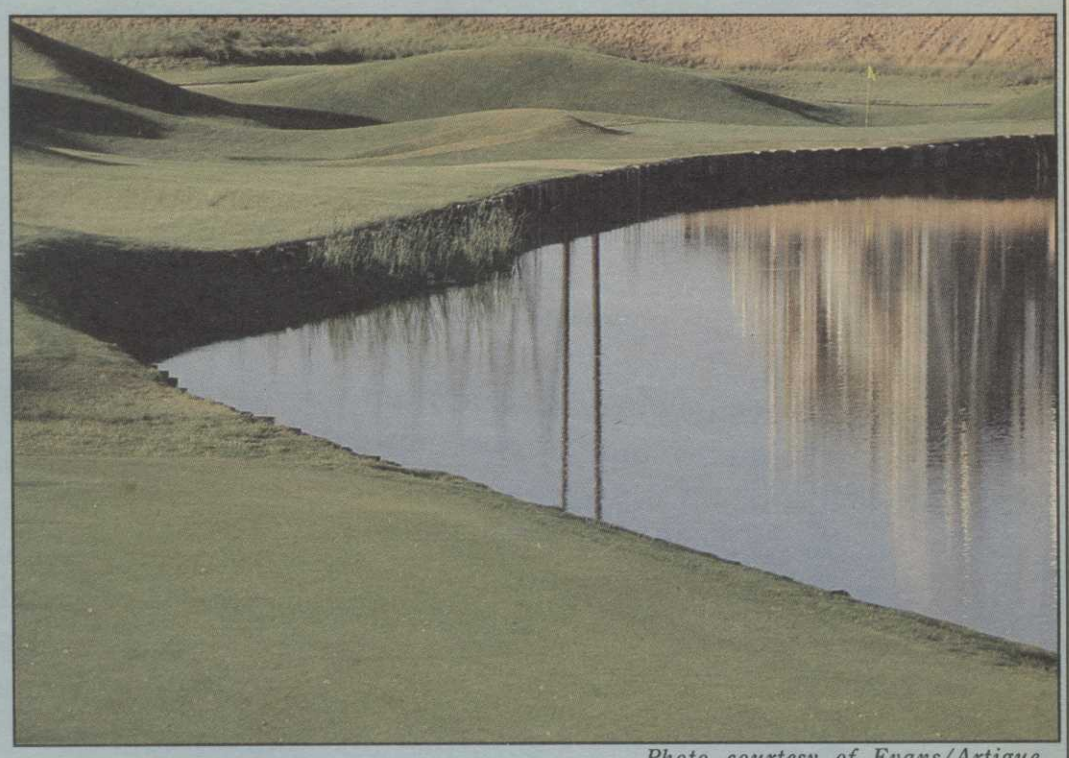

Photo courtesy of Evans/Artigue

ASU's Karsten course challenges golfers with water on four holes.

Europeans warned about design

BY MARK LESLIE

American golf course architect J. Michael Poellot told an international audience at Golf Course Europe '89 that more championship courses need to be built the world over but those courses should be designed to accommodate every level of player.

Declaring that golf course architects "lost sight of the strategic element" of golf with the advent of televised tournaments in the 1950s, Poellot said it is "quite possible" to build a high-caliber course for everyone.

Poellot, president of his own design firm headquartered in Saratoga, Calif., and designer of more than 200 courses around the world, said, "Given an adequate budget and the technical capability, any site can be turned into a world-class golf course."

Architects have 'lost sight of the strategic element.' — Poellot

J. Michael Poellot

He told the group at the first day of the three-day conference and exposition in Wiesbaden, West Germany: "We believe the golf course architect must set up an environment

Continued on page 28

Professors report breakthrough

BY MARK LESLIE

Two Ohio State University professors are optimistic that research on three projects will result in safer and more effective ways to control insects in turf.

Entomologist Dr. Harry Niemczyk and agricultural engineer Dr. Erdal Ozkan have made modifications to:

- Rain Saver Jr., made by Clearwater Industries in Nez Perce, Idaho, so that the machine can inject liquid chemicals and biological agents into the ground rather than spread them on top.
- The machine so that it will insert granular fertilizer or insecticides into

Continued on page 28

A letter of apology from Cushman.

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Frank McDonald
Marketing Director

P.S. If you'd like more details on the Cushman GA60 Large Area Aerator, just call toll free 1-800-228-4444.

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*Based on August '89 price survey.

Good management guards against nitrate contamination

Cornell University study lists recommendations for golf course superintendents

Golf courses can protect their ground water from nitrate contamination through good management practices, according to a recent study by Dr. A. Martin Petrovic of Cornell University.

To avoid contamination, Petrovic recommended that golf course managers take certain measures, such as:

- Apply frequent, light rates of nitrogen or use slow-release nitrogen sources.
- Avoid fertilizing when turfgrass is naturally slow-growing, especially during cool weather.
- Conservatively irrigate the course to save water and reduce leaching.

Managers can also help themselves by reducing the scope of the heavily managed areas of the course and by using less energy-demanding plants wherever possible.

To reduce possible nitrate leaching, superintendents can grow grasses and other plants that have a low nitrogen requirement; collect, treat or recycle runoff or drainage water; and amend soils to retain nitrogen.

Grow grasses and other plants that have a low nitrogen requirement.

A well-designed irrigation system, which can be adjusted according to rainfall and plant water needs, will also help solve any leaching problems, Petrovic said.

Petrovic's research on greens-type sites containing high amounts of sand does not support the conclusion that golf courses are prone to heavy nitrate leaching, especially with today's trend toward lower nitrogen use rates and the use of slow release sources.

Also, findings from sites with less sandy soils — more typically found in fairways, older greens and tees, roughs and general turfgrass sites — further support the conclusion that golf courses do not contaminate ground water with high levels of nitrates.

Robert Trent Jones Jr., president of the American Society of Golf Course Architects, said Petrovic's study "underscores the fact that golf courses have a positive environmental impact.

It also stresses the need for architects and superintendents to work more closely together to formulate a specific fertilizing program for each golf course, analyzing the site's topography, soil composition and irrigation system."

Old Marsh partership retires debt

Old Marsh Partners, developers of Old Marsh Golf Club in Palm Beach Gardens, Fla., have retired the community's bank debt, in what is termed an "expression of unbridled confidence."

Managing partner Robert B. Whitley, president of the North Palm Beach-based Prominent Properties, Inc., said the partners have paid the outstanding balances of $10.25 million to NCNB National Bank and $4.4 million to Hollywood Federal Savings & Loan Association.

"Based on an independent economic analysis we commissioned earlier this year, the projected sellout of Old Marsh — in remaining home sites and equity club memberships — was found to be three times the outstanding bank debt," Whitley said. "It seemed sensible for the partners to retire the commercial loans at this time."

He said the payoffs reflect the partners' "unbridled enthusiasm and confidence in the future prospects for Old Marsh Golf Club."

The equity-membership club, which opened in December 1987, features a 6,900-yard course designed by Pete Dye.

One-half of the club memberships, currently priced at $50,000, and more than half of the half-acre-plus residential sites, priced from the $160,000s to $250,000, have been sold, Whitley said.

Seminar canceled

The golf management seminar planned by the National Golf Foundation and Golf Shop Operations magazine on Nov. 5-7 has been canceled.

An NGF spokesman said no plans have yet been made to reschedule the seminar, which was to have been held in Palm Beach, Fla.

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For free information circle #102

Shinwa buying Stouffer's Maui resort

Shinwa Golf Company Ltd. of Japan has signed a letter of intent to buy Stouffer Wailea Beach Resort on the Hawaiian island of Maui.

The sale, announced by Stouffer President William N. Hulett and Shinwa President Mitsuo Kokufu, is expected to be completed this fall.

Shinwa plans for the golfing resort to complement its other holdings at Wailea, where it owns two 18-hole championship golf courses, a golf shop, and other facilities which it purchased last February from Alexander & Baldwin.

The Kyoto-headquartered Shinwa owns eight golf recreation centers in Japan and has said it plans to significantly enhance Wailea's image as a leading golf resort.

Meanwhile, Stouffer will continue to manage through the year 2030 the 347-room luxury resort it has owned since 1973. It will also retain ownership of the land on which it is situated, although Shinwa will have an option to buy the land.

Terms of the transaction were not disclosed. Nippon Credit Bank assisted in the acquisition.

Marukin closes purchase of Riviera Clubs

LAACO Ltd. has announced from Los Angeles that it has closed escrow in the sale of its 51-percent interest in the Riviera Country Club and Riviera Tennis Club to Marukin Shoji Co. Ltd., of Japan.

With the close of escrow, Marukin attained 100-percent ownership in the Riviera Clubs. As part of the transaction originally announced in August 1988, the clubs were transferred to Riviera Associates, a partnership formed by LAACO Ltd. and its wholly owned subsidiary, Riviera Country Club Inc.

Marukin then bought a 49-percent partnership interest in Riviera Associates for $52.9 million cash. With its purchase Marukin received an option to buy the remaining 51 percent for $55 million cash; and last April, Marukin gave LAACO notice that it would by the remaining partnership interest.

LAACO has continued to manage the Riviera Clubs in the last year but will no longer manage them.

"We have enjoyed our association with Marukin," said LAACO managing partner Frank G. Hathaway, "and we wish them well in this new chapter of Riviera's history."

Robbins warns:
Various costs hamper course cost planning

Land-use and environmental laws and a number of other factors make projecting the costs of building a golf course a nebulous task, according to Rick Robbins, vice president of planning for golf course construction at Nicklaus/Sierra Development Corp. in Tampa, Fla.

Speaking at a recent golf real-estate development conference in Palm Beach, Fla., Robbins said, "The start-up costs of golf courses have become extremely difficult to tie down. Environmental laws have become extremely difficult to tie down."

What a developer really needs to scrutinize when putting figures together on a project, he said, are:

- A reasonable figure for golf course construction.
- What type of course he wants to build since each has "a significant bearing" on cost factors.
- The type of soil on the site, and thus the earth-moving costs.
- What lakes, streams or other bodies of water are on the site.
- The type of architect. Choose one according to what he wants to do. The choice has a bearing on everything from the facility to the maintenance and operating costs, all tied to the budget he will set up.
- What laws he will have to deal with, the time element in getting approvals, et cetera.

He cited a New Jersey project that over three years cost the developer $1.5 million to $2 million over three years to deal with environmental laws.

- Other variables, from maintenance equipment to golf car paths (Do you want no paths or do you want them wall-to-wall?)

Grow-in time for grass is one important factor, he said, adding that maintenance costs can be anywhere from a couple hundred thousand dollars up to $750,000; a maintenance barn and maintenance equipment could cost as much as $2 million depending on the building itself.

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Two John Deere 3325s help Bruce Toepel (right) and Tom Krpicak maintain the quality conditions it took for Golf Digest *to rank the North Course at Sunriver, Oregon, as one of the top 25 resort courses in the country.**

**October 1988 issue*

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Drafting room hints revealed

Team Plan, Inc. President Michael Redd presented several "hints from the drafting room" at a recent real-estate development conference in Palm Beach, Fla.

Redd, whose West Palm Beach company offers comprehensive design services in the United States and Europe, offered theaudience the following suggestions:

• Place the maintenance area as close as possible to an exterior road.

• Avoid east-west holes where possible; if not, early holes should face east and later holes should face west.

• Build your road to the development so that it just "kisses the edge of a green or looks out over a fairway."

• Elevate the clubhouse if possible; this can create an architectural opportunity.

• Build the course at the entrance to the real-estate development and route the entrance along one of the finest holes.

• Put in 8- to 10-foot golf car paths, rather than standard 6-foot paths, so that maintenance vehicles can use them as well golf cars.

• Where bodies of water are present, use them to their utmost to enhance the facilities or course.

• Don't be afraid to have the course cross a road — as many as a half dozen times — but not a main highway.

• Open up your development with a "golf cottage" unit (of 600 to 800 square feet)

This gives potential residents less-expensive units and seeds the project with a lot of potential buyers, yet doesn't hurt the project.

'Architects are important. Think of them as a howitzer. You want to be very careful exactly where you fire it.' — Michael Redd president Team Plan

Good golf called a value-creator

Crucial to the future of a golf course is not how much money the developer spends by how he spends it, according to Joe Hough, Landmark Land Co.'s director of consulting and management services.

Hough, speaking at a golf real-estate development conference in Palm Beach, Fla., said the success of many developments hinges on the fact that "golf creates a value." and on the decisions influencing how a developer creates the golf experience.

Hough said golf course frontage increases the price on real-estate and lot sales by 10-50 percent, and he cited a 294-acre plot of land next to PGA West in La Quinta, Calif., which has increased in value by $40,000 per acre over the last four to five years.

Value is the operative word, according to Hough whose firm numbers among its golf courses Oak Tree Golf Club, Belle Terre Country Club, Carmel Valley Ranch and La Quinta Hotel Golf & Tennis Resort as well as PGA West.

"You create value by putting in high-quality facilities" at a hotel and resort, he said. Club memberships, dues and rate-fee structures all increase at this type of complex. "If you spend $8 million for a Pete Dye PGA West Stadium course, you can charge a $150 greens fee," he said.

Hough said that if a developer creates a facility that can command TV rights to the PGA Tour, or Skins game, or the like, people from investors to homebuyers "like to be affiliated with places like that." Plus it adds to the commercial ventures in the area, he said.

He warned, however, not to enter a project believing that hiring a famous architect will lead to high greens fees and therefore to success.

"It's not that simple," Hough said. He said a wouldbe developer must develop a plan, decide the type of community he wants to build, have market studies done, inspect the demographics of those studies, decide if he can build a facility and draw people to it, and discover beforehand how long the permit process will take.

He cited a development in California that took seven years to get the necessary permits.

And finally, Hough said, "You need good financial support to carry you through the lean years ... and make your project work."

In the end, he said, "it's not how much money you spend, it's how you spend your money that's important."

Thanks for your input and support

October marks our eighth issue and I'd like to offer a special thanks to our readers who have offered many encouraging words and thoughts over the last few months. I'd like to share some of these comments with you:

"The best thing to happen to golf courses since the triplex greens mower."
J.M. Fulmer, superintendent
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"Excellent publication... Could become the modern version of Golfdom ... a much needed missing link."
Paul Weiss, superintendent
Blue Ridge Golf Club
Palmerton, Pa.

"Your publication is tops for golf course planning and development professionals."
Dan P. Gray, president
The Dan Gray Co.
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"Most complete coverage of golf course news of any publication. Great."
John J. Lisk, superintendent
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Oswego, N.Y.

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Thanks for your readership!

Sincerely,
Charles E. von Brecht
Publisher

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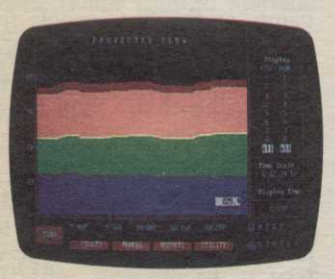

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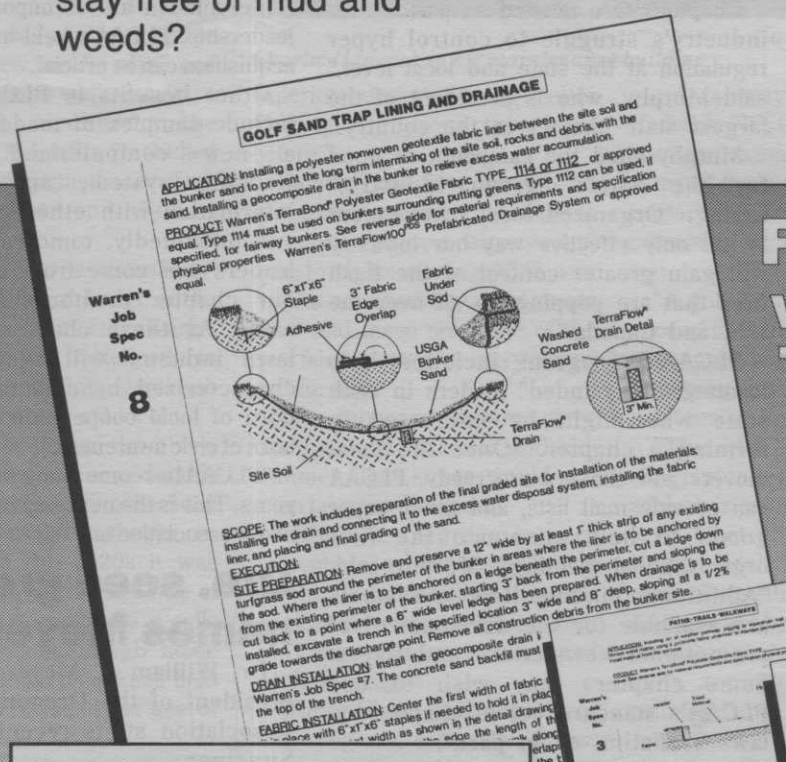

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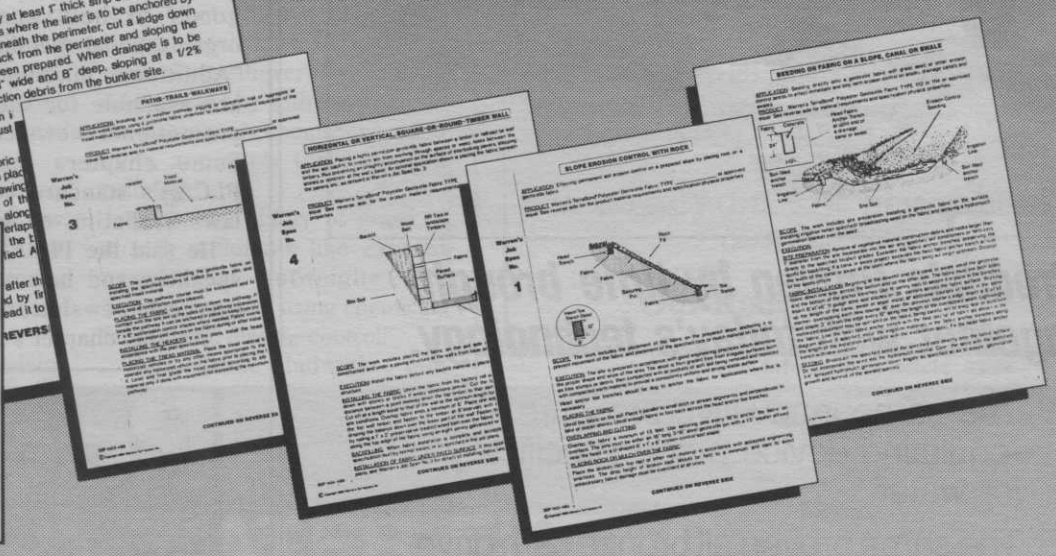

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ASTA elects Peterson head

Jerry Peterson, president and chief executive officer of Peterson Seed Co. of Savage, Minn., was elected president of The American Seed Trade Association for 1989-90 at the 106th annual convention held in Washington, D.C.

Peterson, of Edina, Minn., has been with the Peterson Seed Co. for 32 years. He's a former president of the Turf and Forage Seed Division at Pioneer Hi-Bred International, a former regional vice president at ASTA, Farm Seed Division chairman and a past president of both the Western Seedsmen's and Minnesota Seed Trade associations.

George L. Jones, also of Edina, Minn., president and chief executive officer of Northrup King Co., was elected first vice president. He is president of the American Seed Research Foundation, a director of the Western Seedsmen's Association and of the U.S. Feed Grains Council.

John A. Studebaker of Hudson, Ohio, president and chief executive officer of Agrigenetics Co. and a vice president of Lubrizol, was elected second vice president of ASTA.

Regional vice presidents for 1989-90 are James L. Girardin for the North Central Region; David L. Knutson, Western Region; James R. Billings, Northeastern Region; G. William Hill, Southeastern Region; John T. Moss, Southern Region; Kent R. Schulze, Central Region; and Lloyd Dyck, Canada.

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ASSOCIATION NEWS

Tougher local laws spur drive for chapters

"Hyper regulation at the state and local level" has prompted the Professional Lawn Care Association of America (PLCAA) to launch a campaign to help start local chapters.

PLCAA Membership Committee Chairman Dave Murphy, president of Green Valley Co. in Shawnee Mission, Kansas, said the campaign is designed to make it easier to start a local association.

Chapters "are needed as part of our industry's struggle to control hyper regulation at the state and local level," said Murphy, who is president of the largest state chapter in the country.

Murphy cited the campaign as good for the whole "green industry," saying, "Organized local involvement is the only effective way our industry will gain greater control of the flash fires that are popping up all over the U.S. and Canada."

PLCAA's program includes help locating "like-minded" leaders in each state who might be interested in forming a chapter. "Once the local movers and shakers are ready, PLCAA can provide mail lists, and other paper goods to help announce the first organizational meeting," Murphy said. "Additional mailing lists and labels are available for the development of promotional newsletters and flyers. Some chapters may wish to use PLCAA's standard set of chapter by-laws verbatim, or in part."

He said the PLCAA can also provide speakers and help a chapter prepare its first newsletters.

"As the chapter's needs change so does our help," he said. "PLCAA can instruct the chapters on how to become proactive with their state and local governments.

"We can help support their news media and public relations efforts with information, then show them how to conduct these efforts themselves when needed."

Murphy said one of the downfalls of many associations is that they fail to work at the critical job of signing up members, and since membership dues and member representation are as important as good leadership, PLCAA's held in membership acquisition can be crucial.

Other benefits to PLCAA chapters include samples of model legislation, a new computerized legislative tracking system, and access to information with other chapters.

"Undoubtedly, tomorrow's industry leaders will come from the cream of our chapter membership," Murphy said. "As these chapters grow, the lawn industry will be increasingly characterized by colleaguesmanship born of local cooperation, and success born of civic awareness."

"PLCAA has come a long way in its first 10 years. This is the next step in the evolution of our association and our industry."

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Ore. seed group names Meyer

Dr. William A. Meyer was elected president of the Oregon Seed Trade Association at its recent meeting in Sunriver.

Meyer, vice president of research for Turf Seed Inc., will direct the OSTA throughout the upcoming year.

The OSTA is an alliance of Oregon seed companies working together to improve standards and to promote Oregon's grass seed industry.

ASPA to work with other groups

The American Sod Producers new president, Randy Tischer, says the organization ASPA will continue to support research and work with other "green industry" associations and publish information documenting the value of turf in reducing the greenhouse effect.

Tischer, who owns Green Velvet Sod Farms in Bellbrook, Ohio, was elected president at ASPA's annual convention in Columbus, Ohio.

Tischer said in his acceptance speech that improving the environment through the use of turfgrass is the most important issue facing the ASPA.

Also elected to the group's board of trustees were vice president, Cecil Collings, Green Valley Turf Farms, Inc., Canfield, Ohio; secretary-treasurer, Darwin McKay, Turfco, Meridian, Idaho; trustees: Bill Gil, The Grass Farm, Morgan Hill, Calif.

Also, John McPhail, Gold Star Sod Farms, Inc., Canterbury, N.H.; Richard Schiedel, Compact Sod Farms, Cambridge, Ont.; and Ron Nixon, Cowikee Turf, Ltd., Eufaula, Ala.

Hadwick — following in steps of 'Sod-Father'

SUPER FOCUS

BY GARY BURCHFIELD

Charlie Hadwick has been superintendent at the Country Club of Lincoln for just five years. But ghe literally grew up on the course.

His dad, Joe, was superintendent at the club for 33 years. Joe was instrumental in founding the Nebraska Golf Course Suprintendents Association, of which Charlie is now president, and the Nebraska Turfgrass Foundation. Associates referred to him affectionately as "the Sod-Father."

Charlie's career began at age 12 when he worked on the night watering crew during the summer. When he reached his 18th birthday, he was promoted by Joe to the day crew, and he continued to work summers while earning a degree in horticulture at the University of Nebraska. He studied turfgrass management under Drs. Ed Kinbacher and Robert Shearman.

After a two-year "assistantship" under Bob Alder at Lodge of the Four Seasons, Lake of the Ozarks, Hadwick returned to Nebraska to take over the superintendent's job at the Country Club of Lincoln.

Because it's one of the oldest courses in Nebraska, considerable pride and prestige are associated with the course. When the course was built in the 1920s it was surrounded by cornfields. One of the older club members recalls when Charles Lindbergh made practice landings on a small field carved out of farmland just west of the golf course.

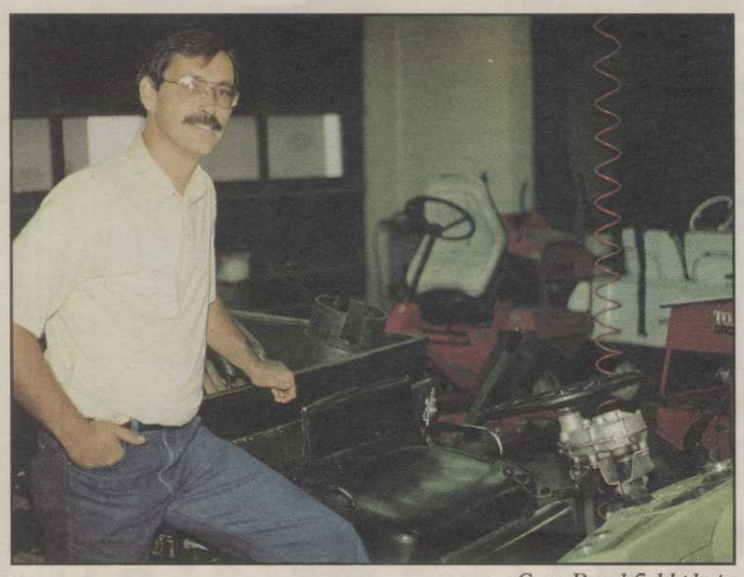
Today, the Country Club of Lincoln is practically in the middle of town.

"Superintendents have to think more like a golfer today," says Hadwick. "Just eight years ago, the course had about 20,000 rounds played per season. This year, we'll probably have close to 35,000 rounds.

"That's almost too many for a private club. For a course like this, a maximum of somewhere around 25,000 rounds would be better, not only for the turf but for the convenience of members, too."

Despite nearly 5 inches of rain in one 24-hour period in mid-September, the course was only closed for a day and a half.

"Balancing the needs of members and the agronomic needs of the turf isn't always easy," Hadwick says. "But I think superintendents today offer better playing conditions than ever before."



Gary Burchfield photo

Charlie Hadwick in his maintenance building.

Hadwick has firm opinions on how to manage turf. He has put in perennial ryegrass fairways and gone to triplex mowing at 5/8 inch.

"Our members like it and guests have said these are some of the best fairways they've every played on," he said.

The fairways before were bluegrass and poa annua, and mid-summer heat stress would too often take out the grass.

Although ryegrass is very susceptible to pythium and brown patch, Hadwick says the hot-weather tolerance of rye enables his crews to keep it drier and minimize fungus.

Winterkill can also be a problem with ryegrass, especially in low, wet areas. "But, it germinates fast, so we can overseed in early spring and have good grass in three to four weeks."

Aeration is critical to maintaining good fairways, according to Hadwick. "It's the most important 'tool' turf managers have, but too many of them underestimate the importance of aeration in promoting oxygen exchange in the soil.

"A golf course is like a green 'mecca' in the city. The grass and trees supply so much oxygen, while absorbing a lot of pollutants. People don't realize how valuable it is."

"The idea that golf course superintendents are chemical addicts is wrong, too," Hadwick says. "Most of them wouldn't spray if they didn't have to, and they generally use the very least amount they can get by with. Nowhere in the industry are chemicals applied more accurately than on golf courses.

"Plus, the ability of grass to absorb pullutants like exhaust gases far outweighs the disadvantages of using chemicals for pest and disease control!"

For Charlie Hadwick , golf course management is a demanding but rewarding life. And it is practically the only life he has known.

"My grandfather, also Charlie Hadwick , was superintendent at Jefferson City (Mo.) Country Club for 50 years, and a cousin is superintendent there now," he says.

"My brother John has been superintendent at Grand Island (Neb.) Municipal Golf Course since it opened 12 years ago. Another brother, Bob, is superintendent at Dubs Dread Golf Course in Lansing, Kansas."

"There's no magic formula for growing good turf," says Hadwick . "You have to make judgments every day, and use your experience and common sense.

"My advice to young people coming into the field today would be, first, to thoroughly understand aeration. With water shortages, increasing pollution levels, et cetera, it's going to become more and more important."

Gary Burchfield is a writer who lives in Lincoln, Neb.

If you know of a standout golf course superintendent who is long over due for peer recognition, please let us know. Golf Course News welcomes nominations for such accolade.

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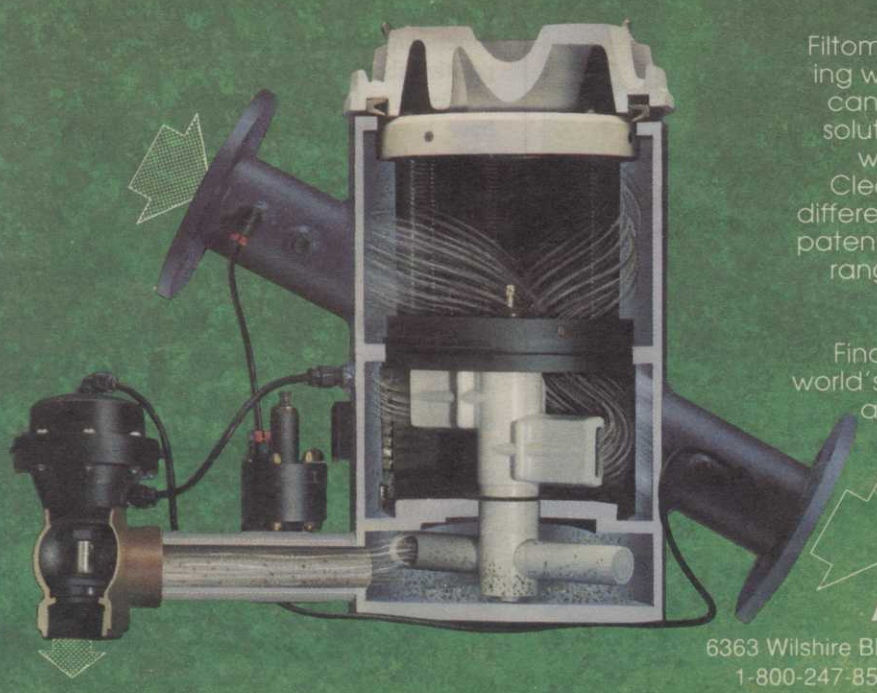

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Short ball goes long way for developers

BY VERN PUTNEY

Lower construction and maintenance costs, less playing time, tighter competition — the Cayman ball could be the answer for a lot of golf developers.

It seems strange that Jack Nicklaus, the king of the long ball for perhaps 20 years, would take the lead in developing a ball good for only half the distance of the regulation ball. But it now appears he was a man of vision.

As available land worldwide shrinks, so may future golf courses — and the Cayman, or "Modified Distance Ball" Nicklaus first commissioned McGregor Golf Co. to develop — could be in the forefront of the action.

A keen student of the game with an eye to history, Nicklaus probably was aware there was patent application in 1939 for a golf ball that went one-third the distance of a conventional ball. An adequate ball never was developed.

Chucker ball, a golf-like game played with oversized golf balls, 6-inch cups and shorter length holes, gained only limited support.

Fortunate timing played the biggest role in getting the ball off the drawing board and into the air.

Shortly after Nicklaus in the spring of 1982 commissioned MacGregor to develop the short-distance golf ball, developers of the Brittania resort at Grand Cayman Island in the British West Indies approached Nicklaus.

MacGregor's Troy Puckett, left, with Cayman ball proponent Jack Nicklaus.

They wished to offer golf as an amenity but had only about one-third of the average golf course acreage.

Could a short golf course be built?

Nicklaus savored the challenge. Building a short course and having the unharnessed ball sail into the nearby ocean wouldn't work.

The ball was the key.

"The golf ball always has dictated how much land we need for a course," said Nicklaus. "I felt we could tailor the ball to the land."

Troy Puckett, MacGregor's director of manufacturing who led the "half ball" research forces in the early to mid-1980s, submitted at least a dozen prototypes before the present Cayman ball was born.

Since then it has been renamed the Modified Distance Ball because a Japanese golf association patented the name Cayman. But whatever its name, the ball goes half the distance of a conventional ball, no matter what club is used.

The short ball chips and putts much like the conventional ball. It travels the same distance and sounds and feels similar. The balls behave similarly when hit out of sand.

The space-saving comes off the fairways, rough and tees. The traditional "feel" of golf near or on the greens is preserved.

The one-piece short ball is made by mixing a thermo-plastic polymer and glass bubbles with a chemical blowing agent. The mixture is molded into a golf ball. The end product weighs about 24 grams compared to a conventional ball that weighs 45 grams.

The short ball floats, so likely will have a longer ball life.

What of the Modified Golf Ball and golf future?

Ball developers are looking to Japan. They say the concept of "experimental, novel and interesting" has burgeoned into one of bright potential.

The Japanese lack the land, but they're devoted to golf. The Cayman ball and course may be an answer to their land dilemma.

And Japanese are buying land all over the world at an amazing rate.

Cayman courses in Florida, Arizona, South Carolina, Wisconsin and New Hampshire are thriving.

Golf course architect Bill Amick of Daytona Beach, Fla., president of the non-profit American Modified Golf Association, is positive about its future.

"Response has been overwhelming. There have been several Cayman tournaments, with sizable acceptance," said Amick, whose AMGA likely would be the governing group should Cayman golf soar as expected. "As with most changes, unless groups of people do it, individuals won't go out and do it on their own."

Golf organizations such as the PGA, USGA, PGA Tour, LPGA and the National Golf Foundation are keeping a watchful eye on Cayman golf.

Cayman golf is largely consistent with their objectives. It is not meant to replace conventional golf, and can only increase the amount of golf played. They may have to help develop rule changes.

Cayman proponents cite these advantages:

- Cayman courses can be played in much less time, for less money. The short ball can be used to handicap some golfers in order to equalize abilities within a group. Business people may play during lunch or after work.
- Players are more likely to walk, resulting in more exercise. Seniors, especially, should enjoy it; many have spent a near-lifetime on the links walking and would prefer to continue in that pattern.
- Persons not now playing for reasons of time, money or location are prime candidates.
- It is less threatening, exhausting and penalizing, because the ball travels less distance. It de-emphasizes distance because the short ball responds better to a ball hit well, rather than hard. The player will be rewarded more for accuracy than distance.
- Practice facilities will be more available, requiring only one-third of the land once necessary.
- It is safer in congested areas.

Cost and availability of land hamper golf course development, Amick said, adding 150 acres are "hard to find near metropolitan areas."

"It saves in construction costs and in maintenance costs," Amick said. "Plus playing time: None of us like to wait; there are those who like to fill their day with golf and there are others of us who enjoy two or three hours rather than all day... This is the answer for them."

Developers may figure prominently in Cayman growth.

For instance, municipalities usually have limited budgets and little land for recreational purposes. Yet they want to make golf facilities available in areas where land is typically very expensive.

Hotel chains or resorts may use Cayman golf as an amenity to increase occupancy rates. Condominiums, apartments or luxury home complexes may adopt to increase sales.

Existing regulation golf facilities may add a Cayman course if they have extra acreage. This could increase membership revenues, ease capacity problems or contribute revenues to existing overhead.

Some regulation clubs also may wish to convert and develop the remaining acreage into residential or commercial facilities.

This would be particularly attractive to financially troubled clubs or those located in densely populated, high land-cost areas.

Existing par 3 or executive facilities might be converted to a short or combination course to increase play and service to the community.

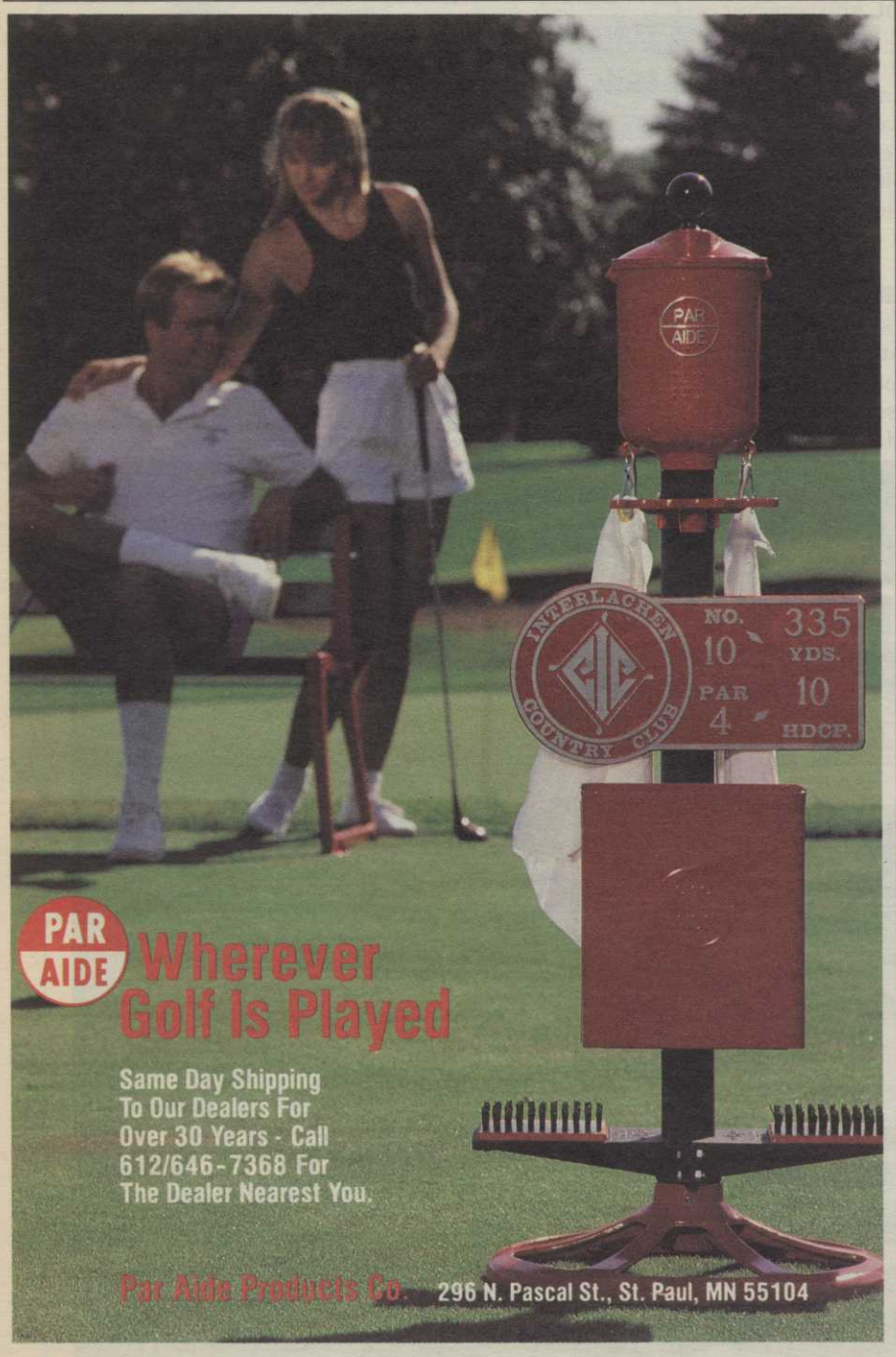
Since 1888, the ball ranging from the lopsided "gutta percha" to the current aerodynamic beauty 1.68 inches in diameter, weighing 45 grams and designed to travel 250 yards when smacked with a driver has "driven" billions of dollars into real estate for golf courses in the United States.

Cayman adherents see large-scale success — and some controversy — beyond the current excitement. MacGregor might simply say it was a sound business venture.

Tourney set

The second annual International Modified Golf Open Championship will be played Oct. 14-15 at the par 72, 4,164-yard Eagle Landing Golf Club in Hanahan, S.C., according to golf course architect William Amick, president of the American Modified Golf Association.

Players entering the 36-hole tournament must use the modified or "Cayman" golf ball. Entry fee is $55 and the tournament is open to men and women of all ages and skill levels. For information write The AMGA, P.O. Box 1984, Daytona Beach, Fla., 32015, or call Eagle Landing at 803-797-1667.



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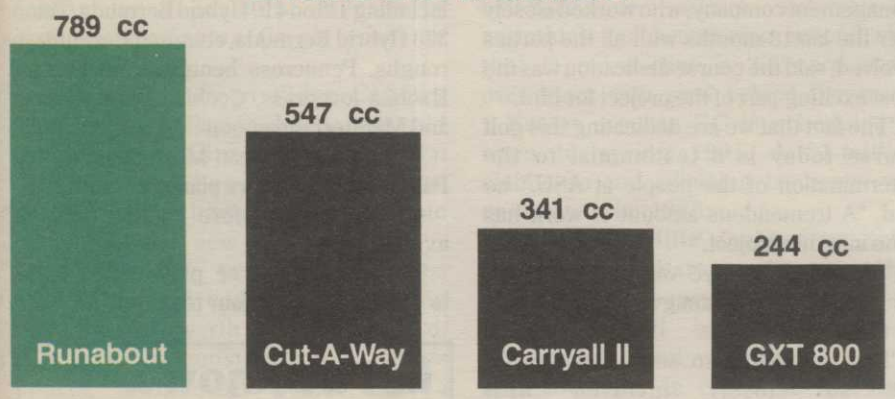

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The 16th hold at Wolf Run Golf Club in Zionsville, Ind., is indicative of the beauty at the 6,735-yard layout designed by Steve Smyers.

New Courses

Wolf Run a splendid creation

The Wolf Run Golf Club, a 6,735 yard, par 71 course designed by Steve Smyers, has opened on 310 acres in Zionsville, Ind.

The private development includes 100 acres that will eventually be developed into house lots. The course is located north of Indianapolis. It was slope rated from the back tees at 143 and the course record so far is 66 by Indiana professional Bob Mann. The 13th is a 243-yard par 3 over a ravine with 15 bunkers surrounding an elevated green.

Smyers, who was formerly associated with Ron Garl of Florida, has been in the business for 10 years.

Hurdzan Design Group busy on 16 courses

The Hurdzan Design Group of Columbus, Ohio, is working on or planning no fewer than 16 new golf course projects in the United States and Canada. It is also studying numerous improvement and renovation projects at existing golf courses.

According to Tracy D. May, senior project manager, the Midwest and Ontario are boasting golf course-starved players in both private and public domain.

In Ontario, Hurdzan is working on the Devil's Links Golf Course in Caledon, an 18-hole private course; a new public18-hole course named Royal Woodbine Golf Club in Toronto, and the private, 18-hole Devil's Pulpit Country Club in Caledon.

In Ohio, work is under way or scheduled to begin at the private, 18-hole Royal American Links in Columbus; the public, 18-hole Royal Oaks Golf Course in Delaware; the public, 18-hole Eagle's Nest Golf Course in Zanesville, and the public, 18-hole Indian Springs Golf Club in Mechanicsburg.

Hurdzan is designing an 18-hole private course in Rochester, N.Y. , named Cobblestone Creek Country Club, as well as an 18-hole municipal course in Cheektowagda, N.Y.

The firm is designing an 18-hole public course in Ocean City, Md., called Eagle's Landing Golf Course and 27 holes of public golf called Little Bennett Golf Course in Frederick, Md.

Construction will begin next spring on an 18-hole public course in Columbus, Ind. ,called Mill Race Park Golf Course; and construction is already under way at Hickory Heights Golf Course, an 18-hole public layout in Pittsburgh, and on a nine-hole addition at the Country Club of Scranton, Pa.

The 18-hole, semi-private Silver Leaf Golf Course in Rome, Ga., is under construction, as is a nine-hole addition at Baker II, in Minneapolis.

Improvement studies and renovations by Hurdzan are under way at Honesdale (Pa.) Golf Course; Minikahda Country Club, Minneapolis; Fairfield Golf Course, Cincinnati, Ohio; The Lakes Golf Course, Richmond, Va.; Antioch Golf Course, Chicago; Copper Hill Country Club, Flemington, N.J.; Spring Valley Country Club, Sharon, Mass; Sunset Country Club, St. Louis; and at The Shorehaven Golf Club in East Norwalk, Conn.

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ASU course

Continued from page 1

gathered for the ceremony.

"It is wonderful when you can get people working with you and making a success of something was was a dream," said Solheim, whose donation for construction of the course was the largest single cash contribution ever to the university.

Dedication of the championship public course, located at the ASU campus in Tempe, culminated more than a decade of work by university officials, alumni and boosters and members of the community.

"This course is a long-awaited addition to ASU's family of athletic facilities," said ASU President Dr. Richard Peck.

"The course will not only benefit our students and athletes, but also bring together faculty, staff, alumni and members of the community in friendly competition and the shared enjoyment and appreciation for Pete Dye's wicked artistry," Peck added.

Among those at the ceremony were members of the Sun Angel Foundation which was instrumental in raising more than $7 million to build the course and is still raising funds for the construction of the clubhouse.

Henry DeLozier, president of Resort Management of America, the course's management company, who worked closely over the last18 months with all the parties involved, said the course dedication was the most exciting part of the project for him.

"The fact that we are dedicating this golf course today is a testimonial to the determination of the people at ASU," he said. "A tremendous amount of work has gone into this project."

Although Pete Dye was not on hand, son Perry, who managed construction of the course, was.

"It is rewarding to see a course you are so closely involved with dedicated," Dye said.

"When you have the opportunity to build a great golf course that everyone can play, it is a benefit to the industry."

Besides its beauty and challenge, the facility is unique in other areas:

- Ponds, which come into play on five holes, are stocked with three species of near-extinct fish to study their habitat — a project monitored by ASU Professor Paul Marsh.
- ASU climatologist Dr. Robert Balling has set up a permanent weather station on the course to monitor the effects of a golf course on the environment.
- Seven types of grasses were planted including Tifton 419 Hybrid Bermuda, Tifton 328 Hybrid Bermuda, common Bermuda in roughs, Penncross bentgrass on greens, Hachita lovegrass, Cochise Blue gramma and Mediterranean.
- Some 175 Chilean Mesquite and Blue Palo Verde trees were planted.
- Caddies and fore caddies will be available.

The par-72 course plays from 7,057 to 4,760 yards from four tees.

Let us know

Each month Golf Course News — in cooperation with the American Society of Golf Course Architects — will publish news stories on new courses being built.

We are asking people who are planning or have begun construction on new courses, or rebuilding or expansion of existing ones, to write to:

Golf Course News, P.O. Box 997, Yarmouth, Maine 04096.

Please include such information as type of course, number of holes, terrain and other interesting facts. Four-color photos are also welcome.

Courses newly planned in the U.S.

Location	Course Name	Type	Holes	Address	Architect/Contact
Alabama					
Huntsville	Jetport GC	M	18	City of Huntsville	Denis Griffiths
Arizona					
Green Valley	St. Ignatio Hills	S-P	18	P.O. Box 587, Green Valley 85622	Arthur Hills
Florida					
Biscayne Bay	Fisher Island	P	9	7 Fisher Island Dr, Fisher Island 33109	P.B. Dye
Naples	The Club at Pelican Bay	P	9	801 Laurel Oak Dr, Naples 33963"	Arthur Hills
Palm Beach Gardens	Ironhorse	P	18	P.O. Box 31885	Arthur Hills
Jupiter	Jonathan's Landing	P	18	17290 Jonathan's Landing	Arthur Hills
Georgia					
Rutledge	Hard Labor Creek	D	9	Ga. Dept. of Natural Resources	Denis Griffiths
Atlanta	Eagle Watch	D	18	N/A	Palmer Design
Idaho					
Idaho Falls	N/A	D	9	6227 E. 1st St., Idaho Falls	N/A
Illinois					
Long Grove	Royal Melbourne	N/A	18	Landmark Homes, Barrington, Ill.	G. Norman/T. Robinson
Massachusetts					
Hanson	Hanson GC	D	18	324 Holmes St., Hanson 02341	N/A
Michigan					
Comstock Park	Green Ridge CC	P	36	P.O. Box 368, Comstock Park 49321	Arthur Hills
New Mexico					
Farmington	Pinon Hills	M	18	City of Farmington	Finger Dye Spann
Red River	Moreno Valley GC	D	18	P.O. Box 111, Red River 87558	N/A
Ohio					
Columbus	Winding Hollow CC	P	18	3900 Westerville Rd. COlumbus 43224	Arthur Hills
Columbus	Turnbury GC	M	18	Parks&Rec Dept, 90 W.Broad St.	Arthur Hills
South Carolina					
Charleston	Hope Plantation G&CC	P	18	P.O. Box 559, Johns Island 29455	Clyde Johnston
Edisto Beach	The CC at Edisto	N/A	18	901 Fairway Dr. Edisto Beach 29478	N/A
Texas					
San Antonio	Cedar Creek	M	18	City of San Antonio	Finger Dye Spann
Utah					
Washington	Green Springs GC	M	18	111 East 100 North, Washington 84780	Gene Bates
Virginia					
Manakin-Sabot	Hermitage CC	P	9	P.O. Box 222, Manakin-Sabot 23103	Arthur Hills
Washington					
Lynnwood	Harbour Point	D	18	P.O. Box 6699, Lynnwood 98036	Arthur Hills
Bellevue	Bear Mountain Ranch	N/A	18	P.O. Box 4005	N/A

Hills designs take shape around U.S.

Continuing its expanded work in the West, Arthur Hills and Associates reports three new projects in that region.

From its Tempe, Ariz., office the Toledo, Ohio, firm will renovate the existing course and design a further 18 holes at The Half Moon Bay Resort, just south of San Francisco; design a semi-private 18-hole city-owned course in Pueblo, Colo.; and design a course for a Japanese investment group at Covington Creek, south of Seattle, Wash.

Meanwhile, Green Ridge Country Club in Grand Rapids, Mich., has sold its present facility to a commercial developer and has engaged Hills to design two championship 18-hole courses at the new site.

The Michigan project is 10 miles east of the old course and is being built by Wadsworth Construction Co.

It includes construction of tennis courts, swimming pools and a 55,000-square-foot clubhouse.

Green Ridge is a member-owned private club, established in 1921. The present facility involved a 27-hole course, nine under development. Club completion target date is Oct. 1, 1990.

Terrain involves 180 feet of elevation change, four ponds and two creeks. The clubhouse site, located at the highest point on the property, offers vista-type views of the golf course.

Hills said this is the most extensive private club built in Michigan since the 1920s.

And Kenton County Golf Course in Independence, Ky., will soon begin construction on a third 18-hole course, making the 54-hole development one of the largest municipal golf operations in the area.

The 7,026-yard course will include bentgrass fairways and double-row irrigation with strategically placed grass hollows and sand.

The 18th hole will be a signature 510-yard, par-5 with a waterfall for aesthetics and a tempting second shot that is more than a 200-yard carry over water with sand behind the green.

Kenton County GC is scheduled to open in spring 1991. A $1-million clubhouse and adjoining landscape was completed in 1988.

Out West, Hills spokesman Keith Foster said, "Part of the new Half Moon Bay Resort property to be converted will be 125 acres of oceanfront land dominated by a dramatic reparian cut 40-50 feet deep and some 150 feet wide."

The Pueblo course adjoins the South Colorado State University campus.

Foster reports a lot of "interesting vegetation and tree cover" on the Covington Creek property.

Updating other Western projects:

- Harbour Pointe in Seattle: The back nine on this daily fee course has been grassed, and grading has started on the front nine.
- Salt Lake City: Shaping and irrigation contracts have been let out on this public links project for the city's Parks and Recreation Department.
- Fairfield Communities, Green Valley (south of Tucson): Planting is underway on this third course at this retirement community. Late fall opening is the hope.
- The Legacy at Green Valley (Las Vegas):This daily fee course is in the grassing state with a projected fall opening.

Ross course faces rebuilding in Tennessee

Extensive renovation, which is being overseen by architect Grant Wencel, has begun on city-owned Brainerd Golf Course in Chattanooga, Tenn.

The course was built in the 1920s and was partially designed by Donald Ross.

The original layout will remain intact while all greens and tees will be rebuilt.

Wencel, of Atlanta, Ga., said sand traps, mounding and five ponds will be added in an effort to improve drainage on the old course.

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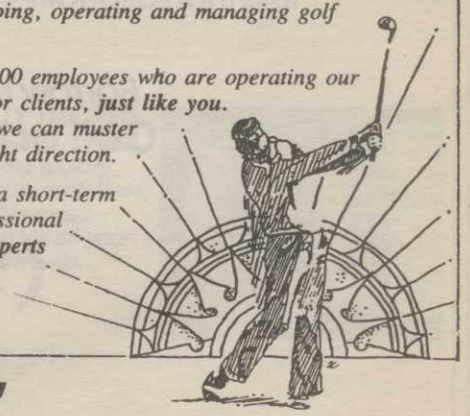

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Design a crucial element to a working system

BY MARK L. GUNDERSON

Golf course superintendents who spend six figures on sprinkler irrigation systems have learned — some the hard way — that the quality of the system's design can save them hefty sums over what appear to be less expensive systems.

Certified irrigation designer Rick Manley, director of Century Golf Team's technical design department, said, "Many superintendents have learned that a 'lowball' system they thought was a bargain turned out to be a bad deal that ended up costing them a lot more in the long run.

"That's particularly evident since the Drought of 1988 put huge demands on poorly designed systems that couldn't stand up to the strain."

The result, said Manley, have been yellow fairways, faded greens, parched roughs — and unhappy greens chairmen, club members, golf course owners and players. All this, plus high repair bills, inefficient and wasteful operation and early replacement of major components.

Some sprinkler irrigation distributors include design as a service to golf course superintendents at no charge. However, Manley warns against the temptation to bypass professional design and rush to buy less expensive, inadequate components he said some companies sell to make a quick deal.

Manley said golf course superintendents should educate course owners and executives that good design is a cost-saving feature over time. It creates a system that delivers optimum operating efficiency, reduced maintenance, repair and replacement expenses and assures greater longevity of components, he said.

"Sometimes irrigation sales people want to 'close the sale by offering the lowest price,' " Manley said. "Golf course superintendents should develop a healthy skepticism of 'quick and cheap' sales tactics. Buying that way hurts in the long run because it doesn't give the superintendent the insurance he should be getting."

By "insurance," Manley means margins that take into account greater-than-average water demand and strain on a sprinkler irrigation system.

The Drought of 1988 — the worse in 100 years — has proved his point many times over the past year, said Manley, who has 10 years experience in irrigation design.

Superintendents who bought sprinkler irrigation designs calling for the least capital cost learned that buying value is more important than buying price only, he said. Overloaded pipe wore out early, overloaded pumps burned out early or consumed unusually high amounts of electricity. Burst pipe, fittings and valves also added to the headaches, he added.

"If the Drought of '88 demonstrated anything," Manley said, "it showed that a poorly designed system can't hack it when the going gets rough.

"And in the end, the golf course superintendent who was happy to save a few bucks up front was disappointed and angry that he has lost all his savings and more — plus he has inherited headaches he can do without."

"With golf courses, everything's amplified," he said. "You're dealing with 10, 15 to 20 times the amount of water you deal with in the average commercial installation. It becomes that much more important to make sure the job is properly designed and properly calculated.

"The superintendent must demonstrate to his bosses that good irrigation system design is worth its weight in gold. It's our job to help him demonstrate the point."

Manley figures his 15-man department designs hundreds of systems a season at its Great Lakes, Mich., area outlets.

"In our climate, you can grow bluegrass giving it 1 inch of water per week, " said Centry Executive Vice President Ben Taliaferro III. "We design slightly above that so if there is less rain or higher temperatures, the balance between system capacity and the turf's need for watering is not upset. Last year, we needed 1 1/2 inches at times. It's insurance. You want a system to make it through a drought."

Because of the 1988 drought, the scale of design

Continued on page 15

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Irrigation conclave featuring many experts

David N. Kennedy, director of the California Department of Water Resources, will deliver the keynote address at the opening session of the 1989 Irrigation Exposition at the Anaheim (Calif.) Convention Center, Nov. 12-15.

Kennedy, who will speak at 10 a.m. Monday, Nov. 13, will be one of several technical and business management experts speaking at the conclave coordinated by The Irrigation Association.

Kennedy was appointed in 1983 by California Gov. George Deukmejian after serving nine years as assistant general manager of the Metropolitan Water Dsitrict in Southern California.

He had been an engineer with the Department of Water Resources for six years.

The conference will cover the latest developments in turf and landscape irrigation and agriculture in two days of presentations. On Monday the California Department of Water Resources will present two concurrent sessions on agricultural water conservation programs and turf and landscape topics.

DWR's Marsha Prillwitz will moderate Monday's turf/landscape session on what tools are available for landscape professionals to survive dry times. Agtech Associates President Gary Kah and a representative of the Green Industry Council will cover the Landscape Water Management program, xeriscape, residential water audits and landscape ordinances.

Tuesday's session will include National Xeriscape Council President Bruce Adams speaking on "Xeriscape and the Irrigation Industry"; School of Architecture and Environmental Design landscape architecture director Gary Robinette speaking on "Urban Landscape Water Management''; Aqua Engineering's Stephen W. Smith and Robert Beccard speaking on "CADD Design of Landscape Irrigation Systems" and "Landscape Irrigation with Effluent Water"; and Drip Irrigation Specialties owner Bob Galbreath speaking on "Water Saving Micro-Irrigation Solutions for Urban Landscapes."

Management seminars are planned on Tuesday and Wednesday. On Tuesday, Robert A. Franciose, IBM's manager of marketing development for the wholsesale services industry, will speak on "Using Technology To Gain Competitive Advantage," and Applied Scholastics President Ingrid Gudenas will cover "Communicating Effectively Under Stress."

On Wednesday, Bruce Merrifield will discuss "Marketing Strategies for a 'Glut Economy' " and "Making Perfect Service Happen."

Prior to the exposition opening, The Irrigation Association will conduct four special short courses on Saturday and Sunday, Nov. 11-12, at the Anaheim Marriott designed to improve professional expertise and help people prepare for IA certification.

The courses are Landscape Contracting and Installation, Designer Preparation, Water Management, and Landscape Irrigation Systems Operation/Maintenance.

More information on the exposition is available from the IA at 1911 North Ft. Myer Drive, Suite 1009, Arlington, Va.; 703-524-1200.

Design

Continued from page 14

has moved up to 1 1/4 to 1 1/2 inches per week from 1 to 1 1/4 inches per week.

"When customers on large jobs such as golf courses are spending in six figures, they look for protection for their investment," Taliaferro said.

"If a pump is too small," Manley explained, "it works too hard and it will break under the strain. If it's too large, it's fat and lazy, delivering a low efficiency of 40 to 50 percent, versus 70 to 80 percent, which is ideal."

Taliaferro added, "If you use a pipe that's too small you have to pay for it with more horsepower over the life of the system. It's better to spend more on pipe diameter once than to pay more on a continuing basis for energy.

"A good design loses no more than 20 percent of available pressure under highest demand," he said. "A poorly designed system may lose 30 to 40 percent to the farthest sprinkler head. So we start at the farthest head and work back to the pumphouse. If we lose more than 20-percent pressure, we change the system to make it 20 percent or less. We can use larger pipe, smaller nozzles or loop lines so less pressure is lost."

Mark L. Gunderson works for Century Rain Aid.

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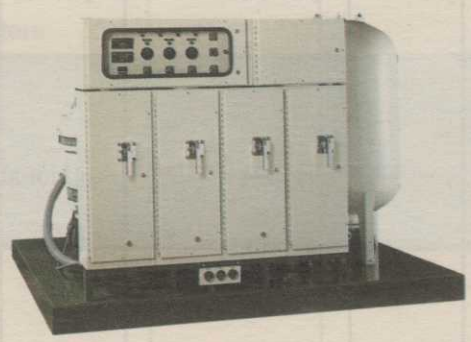
A



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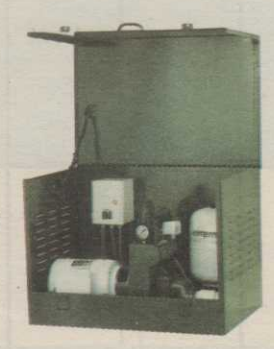

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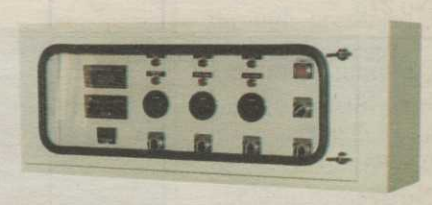

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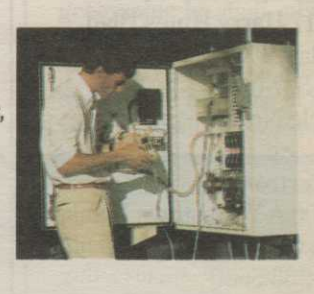

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GOLF COURSE NEWS

Exclusive survey

Pump system makers

As energy and labor costs continue to rise, golf course greens committees, owners and superintendents are demanding more efficient, flexible and reliable pump stations.

Pump station manufacturers have responded with innovative use of computer circuitry and solid-state measuring devices.

This technology provides precise control of pump selection corresponding to flow, pressure, and safety controls while increasing efficiency and reducing maintenance.

Current technology in solid-state circuitry has allowed pump station manufacturers to add alternatives to hydraulic regulating valves and limit switches, which have been the mainstay for pressure regulation and pump sequencing over the last quarter of a century.

Pressure regulation has become more accurate and trouble-free with the increased use of electronic flow and pressure sensors, variable frequency drives (VFDs) or electrically actuated butterfly valves.

VFDs regulate pressure by varying the rotational speed of the pump in response to changes in the irrigation cycle. Some manufacturers have been hesitant

Company Name	VFD	Hydraulic Pressure Regulating Valve	Electrically Actuated Butterfly Valve?	Enclosed Booster Station	Retrofit Existing Stations?	Pressure Tank Type	Station Isolation Valve?	Digital Flowmeter With Totalizer?	Each Tank Pressure Regulated?	Factory Authorized Start-up Cost
Aquature 1363 San Jose Blvd. Jacksonville, FL 32217 904-268-6707 Circle No 270	yes	yes	no	yes	yes	bladder hydropowermatic	yes	yes	yes	included
Best Equipment P.O. Box 702 Addison, TX 75001 800-537-8778 Circle No 271	yes	yes	no	no	yes	optional	yes	yes	no	included
Carroll Childers 4922 Almeda Genoa Houston, TX 77048 800-233-1587 Circle No 272	yes	yes	no	option	yes	all types	optional	optional	no	included
Commercial Pump Service 401 Broadway Swanton,OH 43558 419-825-3714 Circle No 273	yes	yes	no	Yes	yes	Bladder hydropneumatic	yes	optional	no	included
Gator Pumping Modules 2318 Paseo Street Orlando, FL 32805 800-330-5788 Circle No 274	no	yes	no	yes	yes	all types	optional	yes	yes	included
Hydro Tech Pump Systems P.O Box 1685 Pinellas Park, FL 34564 813-572-8403 Circle No 275	option	yes	option	yes	yes	ASME rated	yes	yes	yes	included
Kesler In't Division, Sancroflo 6700 Best Friend Rd Norcross, GA 30071 404-447-4443 Circle No 276	yes	yes	yes	yes	yes	yes	yes	optional	yes	yes
Pumping Systems, Inc. 10717 Harry Hines Blvd. Dallas, TX 75220 800-527-0539 Circle No 277	yes	yes	option	yes	yes	bladder or steel	yes	optional	optional	option
Watertronics 13400 A Watertown Plank Rd Elm Grove, WI 53122 800-356-6686 Circle No 278	yes	yes	yes	yes	yes	bladder	yes	yes	yes	included
Western Pumping Systems 17046 S. Weber Dr Chandler, AZ 85226 602-961-0150 Circle No 279										

keeping pace with golf course demands

to use electrically actuated butterfly valves, while others insist they maintain constant pressure by modulating the performance of each pump, again in response to changes in the irrigation cycle. Electrically actuated butterfly valves have been used for some 20 years in other fields, including in compressors and filtration.

Butterfly valves reduce the high friction loss inherent to hydraulic regulating valves. As flows reduce, butterfly valves also experience friction loss — though less than hydraulic valves — as they modulate to maintain a constant downstream pressure.

Since butterfly valves do not use pilots, they are dirty-water tolerant and typically don't require as much maintenance as hydraulic valves. VFDs are "not a bed of roses... They're a dynamic system and not at all simple," said the president of one major company which makes only hydraulic systems. But they're obviously important to advances in the industry.

An advantage of VFDs and electrically actuated butterfly valves is that surge pressure created from pump starts is completely eliminated from the irrigation system. With a butterfly valve, this is accomplished by closing the valve as a pump is turned off. When the pump is reactivated, the valve remains closed.

As the pump reaches full speed the valve is slowly opened to allow the water downstream. This slow opening is what eliminates the pump-start surge.

Variable frequency drives are made to eliminate surge pressure by starting slowly and ramping the pump speed up to achieve the desired operating pressure.

Prompting the move toward VFDs is the potential for energy savings and the subsequent reduction in utility bills.

Prime candidates for VFD pump stations would include courses with any of the following:

- Variations in suction pressures supplying the pumps.
- Unpredictable and changing flow rates.
- Varying discharge pressures (possibly due to elevation changes).
- High electrical demand charges.

As pump stations age, the valves and pressure-regulating components become more maintenance-prone. Retrofitting existing pump controls becomes an economical alternative to replacing the entire station.

With today's programmable logic controllers and new methods of pressure regulation, the performance of an existing pump station can be greatly enhanced through retrofit.

The replacement components are typically preassembled at the manufacturer's facility and often installed with only a one- or two-day interruption in the irrigation cycle.

Some irrigation applications call for a small amount of water or simply a pressure boost from a main supply line. In these cases a single-pump booster station is a suitable choice. These packages feature automatic actuation through pressure sensor, flow sensor, or irrigation controller pump-start circuitry. All the components are preassembled by the manufacturer and might even be contained in a lockable steel enclosure, making the pump station tamper-resistant while eliminating the need for a pump house.

When considering a pump station change, a golf course should be evaluated with respect to its unique requirements. Evaluation parameters should include current irrigation system demands for pressure and flow, plans for future expansion, horsepower requirements, pump preference (verticle turbine or horizontal centrifugal), type of pressure regulation desired, geographic location, utility rates and budget.

Today, prefabricated pump stations are available in a greater variety and with more features than just a few years ago. There is little doubt that innovative pump station manufacturers will continue to use improving technology to provide golf courses with more efficient and reliable pump stations.

	U.L. Listed Control Panels?	Brands of Pumps and Motors	Self-Cleaning Filters Included?	Years in Business	Number Service Centers	Contact Person
	yes	varies by demand	optional	16	2	Kent Curley
	yes	American Turbine, Goulds, I.R., US Motors	optional	10	14	Dave Brockway
	yes	U.S. Motors, Newman, Marathon	optional	36	9	Terry Wallace
	optional	Crane-Deming, Cornell, Berkeley	yes	25	4	Carol Dunbar
	yes	Cornell, Jacuzzi, Sta-Rite, Flint	yes	8	1	Fred Tannler
	yes	as specified	optional	25	10	John Swanson
	yes	Sycnchroflo, Newman, G.E, U.S. Motors	optional	35	20	David Kesler
	yes	Newman, U.S. Motors, Worthington, Gould	optional	15	13	Emil Gram
	yes	American, Peerless, U.S. Motors, A. Bradley	yes	17	20	Lee Krmpotich
		Cornell, Brunfos,G.E. U.S. Motors, Newman,				

A list of manufacturers of irrigation and related equipment is printed on page 18.

Wastewater a solution for some courses

In the West, where a century ago bitter range wars were fought over water rights, drought conditions have dramatized the scarcity of water and have fueled a search for remedies. Many now feel wastewater can provide a major solution to the problem of insufficient water supplies — even though, as one superintendent put it, "It's a pain in the neck."

And while supplying the water needs, wastewater can mean a financial windfall, especially for golf course operators in the Southwest, Southeast and on the West Coast who face water bills of $50,000 and more.

National Golf Foundation Field Services Director Sheridan D. Much said in a NGF report: "Burgeoning population and resultant expanding demands for water for domestic industrial and agricultural use make control of this resource a political as well as a practical issue.

"In addition to diminishing supply and rising costs, golf operators often face the resentment of a water-conscious public because they irrigate many acres of turfgrass.

Much said new water sources "must be found." One of those sources is wastewater.

Superintendent George Corthouts of Gainey Ranch Golf Club in Scottsdale, Ariz., has found success using wastewater in his computer-controlled irrigation system. Yet he warned, "It's a pain in the neck."

Markland Properties, Inc., developers of the Gainey Ranch course and its surrounding community, built a $4-million wastewater treatment plant and dedicated it to the community. It uses the effluent to water the 27-hole championship course and all other common greenbelts and landscaped areas in the community without worry of a water shortage in the water-poor Southwest.

'It's a pain in the neck ... but worth it.'
— George Courthouts
superintendent

State law stipulates that Corthouts can not irrigate with the effluent during the day.

Because effluent has a higher chemical content than fresh water, standing water leaves deposits of salts, chlorides and metals that are harmful to plant growth, Corthouts programs the irrigation system to slowly soak the ground, therefore leaching the chemicals down through the root zone.

"The effluent is obviously more corrosive than fresh water, but we get excellent, trouble-free performance from the valves and rotors in our ... system," he said.

"You're not going to get more benefits with effluent than, say, well water, but it's worth it," Courthouts said. "It's an excellent place to put effluent, certainly better than dumping it into a river or a hole."

Courthouts said each golf course will face different problems with effluent, depending on the source of effluent being used.

"In our case it's heavy in nitrates and phosphates. It's like pouring fertilizer

In some others it's higher in salts, which keeps the algae down in the water but is tougher on turf-growing."

Gainey Ranch's treatment plant is state-of-the-art, fully enclosed with no noise or odor, and "visitors are not even aware that it's there," Corthouts said.

James W. Adams, Toro Company irrigation group vice president, feels golf course developers should take notice of success stories like Gainey Ranch.

"New golf course construction in many parts of this country will not be possible unless recycled wastewater is available for irrigation," he said. "Some golf courses now operating could not exist if they were not irrigating with wastewater.

"This is true for many golf courses on military installations. The engineer at George Air Force Base in California, for example, said he would have to close down the base golf course if he were not able to irrigate with effluent from the base sewage treatment plant — which produces 1 million gallons per day. The golf course has been irrigated with wastewater since 1941."

A number of other Western courses are being irrigated with wastewater — or what Much terms "the only practical supply for their heavy needs."

"Golf courses are perfect on-land disposal sites in an era when governmental pollution controls are making this a problem for municipalities and industry," Much said in a NGF report.

In fact, at least in Florida, environmental regulators are supporting wastewater use.

Donald Wisdom, president of the engineering firm of Wisdom Associates Inc. of Stuart, Fla., said at a golf course development seminar in that state in August: "Construction of an irrigation system for a golf course using gray water or effluent from domestic sewage treatment plants is encouraged by the regulatory agencies. The main reason for this is the fact that potable water is a finite resource.

"Florida's population explosion is causing it to become an endangered resource."

Wisdom said getting an irrigation system that is built for effluent on line "will be expensive" and any breakdown would be costly, but it is beats having no water at all.

State laws regarding gray water vary, but in Florida the law requires a reliable irrigation system, high level of disinfection, less than 1 part per million detectability, and automatic diversion if limits exceed on-line chlorinator and turbidimeter.

Wisdom cited St. Lucie West and Martin Downs as Florida country clubs that have installed irrigation systems using effluent.

Dr. James R. Watson, Toro Company vice president, examined the nation's water problems and offered some confirming conclusions.

Many sections of the country, he said, have insufficient water to maintain normal activity in homes, farms and industry.

"Tucson, Ariz., San Antonio, Texas, and Miami, Fla., have been informed that they are taking water from their underground supply — upon which they are solely dependent — almost five times faster than it is being replenished by nature," Watson said.

In Long Beach, Calif., and Baytown, Texas, land subsidence created by overpumping wells has been so bad that it has cracked utility lines and undermined building foundations.

It wasn't merely the drought of 1987 and 1988 that brought the water issue to a critical point. "It is a century of waste aggravated by a government policy of cheap water and optimism that we could make deserts bloom at little cost," Watson said.

"And it is, finally, recognition that our finite supply of water must be managed to meet future demands imposed by the worldwide, explosive growth of population with an ever-increasing demand for food, clothing and shelter — all of which must come from existing water supplies...

"How long the present critical situation will continue is

Continued on page 19

Manufacturers of irrigation and related equipment

Following is a list of companies dealing with irrigation and related equipment and who are not in the chart on pages 16-17:

Advanced Drainage Systems
3300 Riverside Drive
Columbus, OH 43221
614-457-3051
Circle No 209

A-I-Irrigation
3608 U.S. 92
Daytona Beach, FL 32114
904-252-2941
Circle No 210

Amiad, Inc.
16735 Saticoy St., Suite 109
Van Nuys, CA 91406
818-781-4055
Circle No 211

Athens Plastics, Inc.
15 Signal Ave.
Ormond Beach, FL 32074
904-677-7775
Circle No 212

Arizona Spray Equipment, Inc.
2615 W. Northern Ave.
Phoenix, AZ 85051
602-995-1111
Circle No 213

Atlantic Irrigation Specialties
1108 Ridgewood Ave.
Holly Hill, FL 32017
904-252-2900
Circle No 214

Buckner, Inc.
4381 N. Brawley
Fresno, CA 93722
209-275-0500
Circle No 215

Champion Turf Equipment
318 W. 79th St.
Kansas City, MO 64114
816-333-8000
Circle No 216

Tom Christy Enterprises
1207 W. Struck Ave. "E"
Orange, CA 92667
714-771-4142
Circle No 217

Claude Laval Corp.
1911 N. Helm
Fresno, CA 93727
800-344-7205
Circle No 218

Commercial Landscape Supply
1821 Reynolds Ave.
Irvine, CA 92714
714-474-9044
Circle No 219

Cornell Pump Co.
2323 SE Harvester Dr.
Portland, OR 97222
503-653-0330
Circle No 220

DonuTTrimmer Equipment Co.
2840 NW 2nd Ave. #308
Boca Raton, FL 33431
800-533-5167
Circle No 221

Famillan Pipe and Supply
13035 Saticoy St.
N. Hollywood, CA 91605
818-764-6400
Circle No 222

Federal Lawn Sprinkler Supply
6029 14 Mile Rd.
Sterling Heights, MI 48077
313-264-7460
Circle No 223

Filter Supply Co.
1210 N. Knollwood Cir.
Anaheim, CA 92801
714-527-8221
Circle No 224

Filtomat, Inc.
6363 Wilshire Blvd, Ste. 211
Los Angeles, CA 90048
213-651-0530
Circle No 225

Florida Irrigation Supply
2400 Paseo St., Box 453
Orlando, FL 32802
407-425-6669
Circle No 226

Griswold Controls
2803 Barranca Rd.
Irvine, CA 92714
714-559-6000
Circle No 227

Hobbs-Adams Engineering
1100 Holland Rd.
Suffolk, VA 23434]
804-539-0231
Circle No 228

Hunter Industries, Inc.
1940 Diamond St.
San Marcos, CA 92069
619-744-5240
Circle No 229

Hydro-Scape of Texas Inc.
6102 Centralcrest
Houston, TX 77092
713-956-4040
Circle No 230

Irrometer Co.
P.O. Box 2424
Riverside, CA 92516
714-689-1701
Circle No 231

Lasco, Inc.
3255 E. Miraloma
Anaheim, CA 92806
714-993-1220
Circle No 232

Matco Products, Inc.
405 Adams St.
Bedford Hills, N.Y. 10507
914-241-0662
Circle No 233

Keith McLain, Inc.
P.O. Box 720070
Houston, TX 77272
713-561-8832
Circle No 234

Microjet Irrigation Systems
4104 Airtrade St., Ste. 6
Orlando, FL 32827
407-857-0011
Circle No 235

Mist Co., Inc.
3701 Bee Caves Rd., Ste. 101
Austin, TX 78746
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Field test started on subsurface drip

The Center for Irrigation Technology has initiated a three-year field trial to study subsurface drip irrigation of turfgrass to discover its long-term effectiveness and evaluate products of participating manufacturers.

Plots have been established from tall fescue sod. Participating manufacturers have recommended spacing for their products, and each plot will include lateral spacings 33 percent narrower and 33 percent wider than the recommended spacing.

Drip lines will be installed about 4 inches below the soil surface and the sod will be watered daily, with gross applications based on reference evapotranspiration, adjusted for a crop coefficient and individual system efficiency.

Irrigation times for each product and lateral spacing will be adjusted so all areas receive the same net amount of water.

The turfgrass in each plot will be visually rated on a scale of 1 to 9 for color, density, texture, uniformity and pest presence. Plant stress measurements will be taken using infrared thermometry.

At the end of the study, CIT will offer guidelines on the operation and maintenance of subsurface drip irrigation systems, and will be able to estimate the water-saving potential. CIT will issue reports annually.

Initial funding for the project has come from the Northern California Turfgrass Council, Metrolpolitan Water District of Southern California and participating companies.

Wastewater

Continued from page 18

problematical. Some climatologists say nothing can be done, that the situation will correct itself in 5, 10, 25 years."

Watson said artificial turf could become the "grass" of the future since it requires no water.

Wastewater, he said, is an important water resource which "we are not now using intelligently" and which "we can not afford to ignore."

"After treatment, wastewater is virtually pure water," he said. "It should be strenuously promoted. Active-growing grass will remove a major portion of the impurities in effluent; the soil with its microflora will remove the remainder."

At the same time, the nitrogen removed benefits the turfgrass, diminishing the need for fertilizers, Watson said.

"Not only does effluent provide the nutrients as well as much of the water required by turf, but, as a result of filtration, good quality water is percolated through the soil down to the level of ground-water aquifers and, in effect, replenishes them," he said.

He added that another consideration making wastewater irrigation attractive is that it provides for on-land disposal which the Environmental Protection Agency is encouraging as opposed to disposal into navigable waters.

"More than 2,000 facilities in the U.S. provide such a low-cost method of on-land disposal of municipal and industrial wastewater. About 75 of the nation's golf courses use treated wastewater for irrigation," Watson said.

"Sprinkler irrigation equipment can apply water wisely and without waste. The major advantage cited is that it places control in the hands of the best qualified individual on that turfgrass facility — the turfgrass manager."

"Automatic controllers coupled with valve-in-head, or valve-under-head sprinklers geared to apply water commensurate with the ability of the soil to accept it, conserves substantial quantities of water, and produces superior turfgrass," he said.

Watson said cloud seeding and desalination are, for the most part, prohibitively expensive and of limited benefit to water-needy areas.

Toro's Adams cautioned that it is "not feasible to use wastewater for golf course irrigation unless there is an automatic underground irrigation system."

Irrigation design courses planned

Ten-day design classes are being held through May at Weather-matic's College of Irrigation Knowledge in Dallas, Texas, according to Director of Training Richard B. Choate.

The college, which has been training distributors, contractors, specifiers and professionals in related fields since 1966, opened its 10-day classes in September. Abbreviated five-day courses for specifiers are normally offered in late May and early June.

Choate said enrollment is strictly limited to insure individualized instruction. The basic course includes lectures, domonstrations and practical excercises, both in the classroom and as homework assignments.

Subjects include soil-water-plant relationships, basic and advanced hydraulics, sprinkler application and layout, and piping system design, as well as such business-related topics as materials pricing and advertising sales promotion.

Courses will begin Oct. 16, Nov. 6, Dec. 4, Jan. 8, Jan. 22, Feb. 12, March 5, March 26, April 23, May 14 and June 4.

More information is available from Weather-matic distritors and regional sales managers, or from Choate at 214-278-6131.

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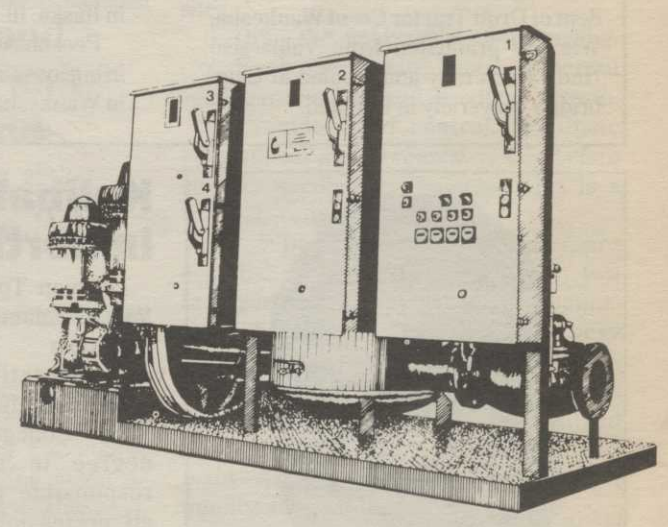

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For free information circle #116

ON THE MOVE

Filter inventor Isaac Orlans named president at Amiad

Isaac Orlans

Isaac Orlans, who invented Amiad Automatic Filters and Disc Filters, has been appointed president of Amiad U.S.A., Inc., of Reseda, Calif., by Amiad Filtration and Fertigation Systems.

Orlans previously served as international marketing manager in Israel for the company.

His Amiad Automatic Filters and Disc Filters are both used worldwide in the industry.

He has designed and supervised installation of filtration projects all over the world, including those used in French nuclear power facilities.

Echo appoints two in sales, marketing

Echo Inc. of Lake Zurich, Ill., has named Martin Drott and William Peel to the company's sales and marketing management staff.

Drott will be the new industrial products sales manager.

He was formerly executive vice president of Drott Tractor Co. of Waukesha, Wis. He graduated from Valparaiso (Ind.) University and studied at Cambridge University in England.

Peel is the new market develpoment manager of Echo's line of trimmers, brush cutters, power blowers and hedge clippers.

He was formerly a director of product and operations for Ryobi America Inc., a power tool manufacturer located in Itaska, Ill.

Peel has earned a bachelor's degree in business from Carroll Collegelocated in Waukesha.

Alan Kulibaba

Kulibaba sales rep in north Jersey

Lebanon Total Turf Care of Lebanon, Pa., has named Alan Kulibaba as its northern New Jersey sales representative.

Kulibaba is a graduate of Delaware Valley College and holds a bachelor's degree in agronomy. He will be responsible for sales and service of all prefessional turf accounts in the area.

Tim Layman has been transferred to the position of sales representative for the states of Rhode Island, Vermont and New Hampshire.

David Chapman

Robert L. Lowell

Chapman, Lowell both promoted at Kubota

Kubota Tractor Corp. of Compton, Calif., has appointed David Chapman manager of the northern division of consumer products dealer development.

Robert L. Lowell, meanwhile, has been named regional sales manager for the states of Connecticut, Massachusetts and Rhode Island.

Chapman will handle new dealer recruitment and provide support to Kubota's regional sales managers. He is a graduate of Illinois State University and previously worked for Deutz-Allis Corp. and Versatile Farm Equipment Corp.

Lowell, a Brown University graduate, will be responsible for dealer development, product training, inventory management and new dealer recruitment within Connecticut, Massachusetts and Rhode Island.

Lowell previously worked 14 years for J.I. Case Co./Ingersoll Equipment Co., and before that he worked eight years for International Harvester Co.

Pennington makes moves at its Georgia, Louisiana facilities

Pennington Enterprises Inc., a lawn and garden distributor with sales in excess of $200 million, has announced several appointments and promotions.

The Madison, Ga., based-seed company has promoted Don Roberts to the position of corporate turfgrass specialist. He will focus on research and marketing of turf seed varieties as well as work with agricultural colleges and universities on trials and evaluation of various turf grass seed.

Roberts, who holds a bachelor's degree in agriculture from the University of Georgia and a master's degree in horticulture and plant pathology from Clemson University, will concentrate primarily on golf courses, athletic fields, professional lawn care and major construction projects.

Mike Massey, formerly manager of Pennington Seed Inc. of Louisiana, was made manager of Pennington Seed Inc., of Orlando, Fla. He has a bachelor's degree in agriculture and an M.B.A. in marketing and management from the University of Georgia.

Tom Regan is the new manager at Pennington Seed Inc. of Louisiana and James Moore, formerly at Pennington of Orlando, was made a consultant to the Pennington parent organization.

Precision tabs Lerfald as national sales head

Precision Laboratories, Inc. has named Warren Lerfald as national sales manager of their turf division.

A graduate of the University of Minnesota, Lerfald will coordinate sales and marketing for Precision in its turf and hortucultural division throughout the United States.

He has held similar positions at Black Leaf Products Co. of Elgin, Ill., Wilbur-Ellis, Toro and Conwed Corp.

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For free information circle #117

Very little recreational area kept well in U.S.

COMMENT

Outdoor sports and recreation appear to be important ingredients in the American way of life.

Just consider the acreage of land devoted to grassed recreation areas in the country. Yet aside from that acreage devoted to golf, very little of it is really of a quality that we can accept or be proud of.

In a recent trade journal there were two very appropriate articles that addressed the problem.

One article, entitled "Setting Priorities for Public Athletic Fields," by Dr. Elliott C. Roberts of Pleasant Hill, Tenn., clearly defines the national attitudes and delineates the problems and suggests remedies.

The second, "Common Mistakes in Sports Turf Management," by Dr. Henry W. Indyk of Rutgers University, is even more specific as to why we have so few adequate grass recreational surfaces.

This isn't a local or regional problem; it is nationwide.

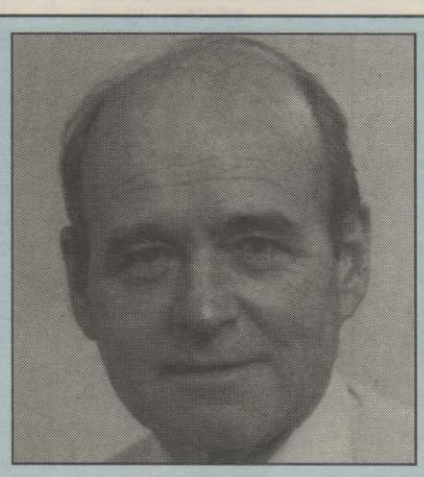
We might wonder why this phenomenon exists. Most of our professional grounds managers and turf specialists do know. We are exposed to the problems on our jobs daily. We read countless articles in the many good journals that cross our desks. We listen to conference speakers regularly through the seasons. And yet, to this time, little has changed in the development or maintenance of quality grassed recreational surfaces.

In my 30-plus years as a turfgrass agronomist, I have had few privileges of being involved with proper construction and adequate maintenance of grassed recreational fields.

Despite better grasses, renovation and maintenance equipment, pesticides and improved specifications, I don't find many heavily used recreational fields that are much better today than they were 30 years ago.

We all know that funding priorities for the development and maintenance of field recreation sites are the major cause of our problems and our frustration. Until we are able to collectively alter these priorities, our problems will continue.

Perhaps, if we can work together as a group to promote the cause and to show the real justification for our efforts, we can make progress. It has to be a joint effort.



Professor C. Richard Skogley, a much honored turfgrass management specialist at the University of Rhode Island, will retire in December.

He has served at URI since 1960. His research has dealt with applied management and has included weed control, fertilizer, maintenance practices, electric soil warning, water protection of golf greens and varietal evaluation.

He has released five improved turfgrasses through URI efforts in grass improvement.

Skogley received bachelor's and master's degrees in agronomy at URI in 1950-52, worked as assistant agronomist there from 1951 to 1953, was at Rutgers University from 1953 to 1960 and received his PhD there in 1957. At Rutgers he served as research assistant and associate from 1953 to 1957 and Cooperative Extension Service specialist in turf management from 1957 to 1960.

Despite better grasses, renovation and maintenance equipment, pesticides and improved specifications, I don't find many heavily used recreational fields that are much better today than they were 30 years ago.

Maintenance

In the meantime, let's consider what we can do with what we have. Let us start with maintenance.

As far as growing grass is concerned, we have both some pluses and minuses in the Northeast. For the pluses we generally have light-textured soil that doesn't compact badly and that may drain reasonably well. We are in a reasonably high rainfall area where irrigation requirements shouldn't be demanding.

Our growing season temperatures are moderate, which permit us to successfully grow all the best cool-season grasses.

On the negative side, our soils tend to be thin, acidic and infertile. Our growing season may be a bit on the short side, which may reduce time available to carry out renovation projects.

Considerations in maintenance include:

1. Take an inventory of your conditions — soil, grasses and general field conditions. Is there potential, given the budget for a proper maintenance program, to develop a quality surface, or is it so bad that the effort would be wasted?

2. Use soil tests to determine the chemical condition of your fields.

3. Establish and maintain a liming and fertilization program, indicated by soil test results, that recognizes the extent of use of the fields involved. Within reason, the heavier the use the more intensive a maintenance program must be.

4. Establish a program of insect and weed control, aerification and top-dressing. These should be standard, annual maintenance practices.

5. Develop a mowing program that keeps pace with grass growth — not according to set schedules. Cut grass as high as field use will permit. Try to keep it at two inches, or above, except during the cool portions of the growing season.

Establish an irrigation program, that, when needed, provides for infrequent, deep watering. It is better to under-water than to over-water.

6. If your fields consist of improved varieties of turfgrasses and if you are providing a good management program, diseases should not be a regular or serious problem.

Always be aware that diseases can occur, and quickly, and be prepared to take corrective action if necessary. A wide array of good fungicides is available, but you need to know which to use for particular diseases.

7. If maintenance questions arise, don't hesitate to contact your area Extension agent or specialist or neighboring golf course superintendent for advice. You might be surprised how much help is available.

Renovation

Now to renovation. Most heavily used fields will require annual renovation — which then becomes part of annual maintenance. It is common, even for good fields, to be thinned by heavy use each year. The requirement then is to reintroduce seed to help thicken the stand. Where heavy renovations are required, I suggest the following:

1. Use a plug-type aerifier and go over the fields several times — each in a different direction. Aerify as deeply as possible. Leave the soil cores on the surface to dry.

2. Top-dress the field, ar at least all low areas and badly thinned areas, with a screened sandy loam-type material. Light textured composts would be ideal.

3. Drag the field with a mat to distribute evenly the top dressing and to break up the soil cores left after aerification.

4. Apply fertilizer — possibly a starter type to get the seedlings off to a good start.

5. Use a slicer-seeder to incorporate the seed into the field. Use improved perennial ryegrasses and possibly some Kentucky bluegrass for overseeding of heavily used fields. Fine fescues (chewings or hard fescue) may be added for less heavily used sites.

6. Drag the field again after seeding.

7. Keep the surface moist to permit seed germination and seedling growth.

8. Provide weed control. Eliminate both annual and perennial weeds before or after seeding as required. This is a critical requirement.

9. When new seedlings are established and have been mown two to three times, apply a maintenance-type fertilizer. This is also very important to hasten re-establishment.

I recognize that these suggestions may require some specialized equipment. Unfortunately, I don't know many successful shortcuts. If we want quality turf, we must pay for it.

I also didn't mention timing of application or operation. Unfortunately, also, we often must work around the use schedule of the particular fields. Timing does influence success or failure.

For free information circle #118

Evergreen Formula plan on hold in New Jersey

GOVERNMENT UPDATE

Hackensack (N.J.) Water Co. is awaiting a decision by two state boards on a proposal that would retain three golf courses on 290 acres the utility now owns, transfer ownership of the land to an affiliated company, and create a $6-million fund for the state to use to buy more open space.

The firm's chairman and chief executive officer, Robert A. Gerber, said in a letter to the N.J. Watershed Property Review Board that the plan is "a unique public-private initiative for preserving water quality and open space ... without cost to the public and without removing it from the tax rolls."

'We're in limbo with the state agencies.' — Martha Green

He said board approval of the formula would "ensure the preservation of 290 acres of open space, create a continuing legal interest in the ultimate fate of the land and bind future generations to fulfill the objectives that we set forth."

After review board OK, the plan must win approval from the Board of Public Utilities.

The water company hopes its Evergreen Formula will put an end to what has become not only a land-use but a political controversy in a state where wetlands preservation is a major issue.

Some members of the public feel the Evergreen Formula doesn't provide as strong protection as it should in preserving the land as open space forever. And Hackensack Water Co. Vice President of Public Affairs Martha Green says it has become a critical area of debate in a number of regional election campaigns.

"We're in limbo with the state agencies," Green said, adding that the election is a month away and the two boards face no deadline in voting on the Evergreen Formula proposal.

One thing is sure in the entire affair: The golf courses, which are all being leased, will continue to operate for awhile at least. Emerson Country Club's lease expires in 1991, Pascack Golf and Country Club's runs out in 1997, and Haworth Golf and Country Club's lease runs into the next century.

But nothing else is certain.

Trouble began for the water company when a law was passed ordering the utility to justify all its land holdings. Any land not necessary for producing power would have to be sold.

The 127 acres at Amerson CC in Oradell and Emerson, along with the Pascack's 97 acres in River Vale and Harrington Park, and Haworth's 67 acres in Haworth, were found to be unnecessary.

So the water company must dispose of the land.

Hacksack Water Co. wants to transfer the 290 acres to Rivervale Realty Co. of Woodcliff Lake, N.J., which is owned by the utility's parent company, United Water Resources.

But some in the public just don't trust the utility.

"We will assure the land will be preserved as open space," says Green, "but we will not say the deed restriction is perpetual. .. We've made a lot of changes that address cioncerns without that being a necessity."

The deed restrictions imposed before the transfer would ensure that before any future owners could abandon the golf course uses at any of the sites, they would have to offer local, county and state government the right of first refusal to buy or lease the property at then-fair market value.

Green cited the golfing boom in the region as reason to believe the land will continue to be used as golf courses.

The Evergreen Formula's $6-million fund stems from the transfer proceeds. A previous agreement with the state's public advocate would have distributed the money to water customers as a half share of the land's net appreciated value. Certified independent appraisals set the market value at $16 million.

Bergen County Freeholders as well as county executives William D. McDowell of Bergen County and Robert C. Janiszewski of Hudson County have endorsed the proposal.

But, as Green said, "It's anyone's guess as to when the boards will decide."

THE MAN KNOWS HIS GRASS!

Carl Schwartzkopf, International Turfgrass Consultant with McKay Golf Properties, Golf Course Owner

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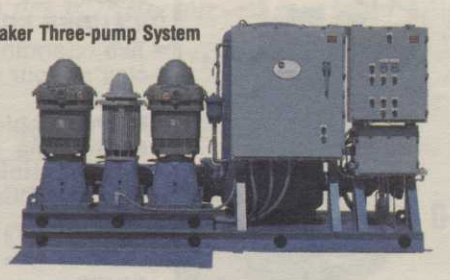

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Golf courses best for environment

'I believe a blade of grass is no less than the journeywork of the stars.'
— Walt Whitman

With apology to the famed poet and esthetic values aside, there's also the shine of dollar signs in those green shoots.

A 1969 study rated turfgrass a $25 billion-plus per-year industry in the United States. It was estimated that more than 500,000 people made their living directly from the care and maintenance of turf in this country.

What must those figures now be?

Dr. Eliot C. and Beverly C. Roberts of The Lawn Institute in Pleasant Hill, Tenn., have compiled a fact-laden booklet, "Lawn and Sports Turf Benefits," that explores several turf-related areas.

Golf courses command a strong share of the focus of the 31-page book which has gone into itss fourth printing and, according to Ms. Roberts, has been sent by the American Sod Producers Association to its members, to all Iowa legislators by several groups, and by the New Jersey and Florida Lawn Care associations and the Professional Lawn Care Association of America to their members.

"We found that there were a lot of books written about turfgrass but each would have one sentence about its benefits," said Ms. Roberts. "We had fun putting it together and the response has been terrific."

She said she even received a request for the book from a Western Australia organization that wants to start a sod farm and is meeting resistance with environmental groups.

Extracted from the book are these choice paragraphs:

• "Golf long has been the favorite game on turf. The game dates to the 1400s when the Dutch practiced a combination of winter hockey and summer golf. By 1414, St. Andrew's of Scotland had become a public golf course and still is public.

• "Golf is played by millions of people worldwide as a means for exercise, relaxation, and as an avenue for business transactions.

• "The first U.S. golf course was built before 1890. Today an estimated 23.4 million play 500 million rounds of golf a year in the U.S. By the year 2000, it is expected there will be 40 million golfers."

(The estimated 14,000 golf courses are expected to spend $4 billion a year to maintain their facilities.)

• "Golf courses influence the tax base of the community. The properties surrounding a course reflect higher appraised values. The game of golf is second only to 'United Way' in raising funds for charity in Westchester County in New York, where about $2.5 million is raised each year through golf for philanthropies.

• "Golf turfgrass in the U.S. protects 2 million acres against soil erosion. Numerous golf courses have been built on old waste landfills, changing unproductive regions into useful sites and undesirable locations into desirable ones. This is direct land conservation plus conserving topsoil by grassing highly erodible land with turfgrass.

• "A high-quality turf will buffer loss of nutrients in runoff water or in the leachate. When effluent water is used on turf, the water is cleaned. This is a tremendous benefit to our environment.

Dr. Eliot Roberts

Beverly Roberts

• "Ten percent of U.S. golf courses are using effluent wastewater for turfgrass irrigation. This reclaimeed water by law can not be returned to most municipal water supplies, nor released into streams, lakes or oceans. Turfgrass, therefore, helps recycle this water.

• "Ground-water recharge is an important benefit of turf. An acre left in open space provides an average of 600,000 gallons of recharge per year.

• "An average golf course has 150 acres. In the Northeast, this area will recharge the water table with a net of 90 million gallons of rainwater and snowmelt a year, allowing for evaporation and transpiration. Consumption of water by a golf course in this same area would be about 9 million gallons.

• "In the U.S., turf is probably the most widely grown, talked about and least appreciated commodity.

• "When decisions must be made about use of water, fertilizer or pesticides on lawns, there often have been only limited objective comparisons made of benefits of turf in relation to cost or possible risk. At times, because of this lack of information on lawn and sports turf benefits, lawns have been allowed to perish only to be replaced by inert or artificial surfaces that are definitely hazardous to our health."

A few more grass clippings:

• "Some feel that a person who keeps the lawn perfectly trimmed is a person who can be trusted.

• "Many states depend on tourism as an important part of their economy. The U.S. Department of Commerce predicts it will be the number-one industry in America by the year 2000. To encourage tourists, landscape at rest stops, scenic overlooks and roadsides is improved each year so that people will have pleasant places to relax, walk around and picnic while traveling.

• "Grasses and people get on truly good together. Lawns help reduce some causes of allergies.

• "Turf along airstrips reduces and prolongs engine life of planes. The first U.S. airport, located in College Park, Md., and many other fields that serve light aircraft still have turf runways.

• "Grass binds the soil more effectively than any other plant. One single grass plant grown under ideal conditions has a tremendous root system — 387 miles of roots (equivalent to the distance between New York and Montreal!)"

The book is available for $2 from The Lawn Institute, County Line Road, P.O. Box 108, Pleasant Hill, Tenn. 38578-3722.

NEW LITERATURE

'Evolution' book in 2nd printing

The second edition of "Evolution of the Modern Green," by Dr. Michael Hurdzan, is now available from the American Society of Golf Course Architects.

The four-part, full-color brochure presents current information on design, construction and maintenance of golf greens.

Individuals responsible for golf course greens and others interested in how greens are built would find interesting Hurdzan's discussions on the origins of greens as well as the engineering and inner workings of what is the most often discussed aspect of golf.

The brochure explains the various techniques used to build successful golf greens and provides the necessary information for the maintenance of greens.

For a copy of the brochure, send a $5 check to the American Society of Golf Course Architects, 221 N. LaSalle St., Chicago, Ill., 60601.

Circle No 352

Ransomes brochure explains Jaguar series

A brochure on Ransomes' new Jaguar 4000 series tractor is now available from the Johnson Creek, Wis., manufacturer.

Easy-to- read, usable information is provided on all four mowers in the line, along with detailed specification data.

The Jaguar 4000 incorporates what Ransomes terms "the best in rotary mowing technology."

Mowing decks of either 61 or 74 inches are available.

For more information contact Lead Inquiry Services, P. O. Box 633, Elm Grove, Wis. 53122. Circle No 353

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Research

Continued from page 1

the ground below the surface.

• A product made by Cross Equipment Co. of Albany, Ga., that hopefully can be developed to inject liquid insecticide into the ground under extremely high pressure without making a mechanical opening in the ground.

A successful implement would bring fourfold results — making it safer for people getting incontact with the turf by injecting chemicals below the surface; killing the pests more effectively; using less chemicals and therefore saving money; and saving money and water because the groundskeeper would not have to water the turf to leach the pesticides into the soil.

"Basically, we're trying to eliminate possibilities of humans and pets getting in contact with chemicals," Ozkan said.

Niemczyk added that besides providing the extra safety of not leaving a residue on the surface, the three pieces of equipment will help control insects that live below the surface.

Research looks good for Rain Saver Jr.

Insects such as white grubs live 1 inch below the surface where thatch and grass meet the soil.

Grubs eat the roots of grass and thatch. Niemczyk adds that skunks and raccoons also often tear up turf looking for these grubs.

Ozkan said in September that research on the Rain Saver Jr. has met with the most success.

"It leaves very little residue on the surface, is more compact than the high-pressure injection unit, and, compared to the conventional system (of insectice use), has had equal or better grub control," Ozkan said.

"Our goal to get better results at the recommended insecticide rates," Ozkan said. "We want to be able to use less insecticide because we are targeting the exact place where grubs live."

The professors say that when conventional pest-control methods are used, some chemicals bind to thatch or grass before they reach the insects. This means extra chemicals must be used.

Niemczyk cites research showing that less than 5 percent of the pesticides applied to the surface ever reach the insect zone. He says recommended rates for pesticides are usually set higher than actually needed where the insects live.

Rain Saver Jr. operates by a set of discs that opens a series of narrow slits in the turf. The discs are followed another set of discs that cut into the turf at an angle, meeting 1 1/2 inches below the surface. A nozzle injects a solid stream of insecticide into the slits.

Ozkan says the slits in the turf are barely noticeable.

The machine can also apply fertilizers, growth regulators, fungicides, biological controls and some pre-emergence herbicides.

The injection method makes the whole environment safer, Ozkan says.

Dry chemicals are usually less hazardous to the environment because, if spilled they're easier to clean up than liquid chemicals, Ozkan says. Also, problems associated with disposing of liquid chemical containers could be reduced if dry chemicals are used with the injection machine.

Research on the liquid projects is in its second season while the granular-injection project is in its first year.

Ozkan said the plots and counted crops in the dry system research will be evaluated in November.

Meanwhile, he said Rain Saver Jr., though "marketable," needs a little more modification, and the high-pressure injection unit "has potential," although last year's tests showed the equipment was "leaving too much (chemicals) on the surface" in turfgrass areas because it couldn't penetrate the blades of grass.

Ozkan said for the Rain Saver Jr., to be more effective, needs to be modified so that the discs that cut into the turf are independently suspended.

The machine now has a fixed axle. But, he said, with the modification, "if you have uneven ground it will still give you uniform coverage, not leaving any area untreated."

Golf Course Europe

Continued from page 1

where every level of player can choose the amount of risk they want to take; the risk must be balanced with an appropriate reward so that every hole becomes a strategic decision for each golfer as to how they want to play.

"A well-designed golf course rewards the thinking player... Such an approach to design returns the element of finesse to the game so that finesse can equal, or better, the element of strength or power."

Poellot decried the effects of televised golf tournaments: "Courses were designed to defeat the professional player. Courses were lengthened for difficulty and power became the most predominant aspect of the game. You had to hit it long and you had to hit it straight, and that was it.

"To this was added new elements from the 'penal' design philosophy that gave us railroad-tie embankments, island greens, 200-meter-long 'waste bunkers' and 10-meter-deep sand bunkers for errant approach shots," he added. "Golf became a heroic struggle for even the professional golfer, and a near impossibility for the average player."

Poellot recommended that architects worldwide return to the centuries-old principle of "strategic design" in meeting world-class standards, building that strategy into the golf course.

He said the worldwide golf boom has affected course design by raising the expectations and standards of the golfers themselves.

Asking why these standards are so important and how they affect new or existing courses, Poellot said, "The reason starts with the current worldwide boom of golf enthusiasm. It's happening in the United States, it's happening in Japan and Southeast Asia, and it certainly is now happening in Europe.

"This boom requires the rapid construction of new courses to accommodate the explosive growth of new players coming into the marketplace."

Poellot said more golfers are traveling all over the world and playing different courses, and thus have a more sophisticated knowledge about golf facilities and higher levels of expectations.

"This means your golf facility is not going to be judged just against those in your local neighborhood, region or even in your country. It will be measured on the basis of the highest standards in the world," he said. "Every golf course is now in the worldwide market whether or not it wants to be."

Poellot pointed to the golfing evolution in Japan, where they have been importing American know-how to build championship-type courses.

By recognizing in the planning process that his course will be judged on a worldwide basis, Poellot said, a developer "can create a golf facility that will be competitive with not only what's present in today's golf market, but by the world-class standards that will be demanded for years to come."

"If you remember that the quality put in up front will pay off for years, and design the course accordingly, you can keep pace with worldwide standards. Yes, you can remodel, but it's difficult and costly. You're far better off to look ahead and determine what your competition is going to be for the future before you decide how your course will be designed today," he said.

Poellot said that for a developer to make his golf facility competitive in the international marketplace, he should get an architect involved early in the planning stages; decide the target golfers the facility will reach and what type course is best suited for them; decide the benefits and drawbacks of the site and how the budget affects the site's potential; and develop a route plan that works best for the site.

Discussing the need to not build a course too difficult for a facility's prospective golfers, Poellot said, "Sometimes it's best to plan multiple courses of varying degrees of difficulty, if your site and your budget will allow. However, it's also quite possible to accommodate different levels of a market into a single golf course.

"It may require a little more land and cost a little more to construct, but a good golf course architect can incorporate varying strategies into the course so that players of all levels of skill can enjoy a game of golf."

A number of Americans lectured at the conference or displayed their equipment at the exposition, showing the global nature and interest of the industry. The event was organized by Expoconsult of Maarssen, The Netherlands.

Ransomes

Continued from page 1

from $50 million a year to $100 million — "a little by acquisition and a lot by new sales programs, products, et cetera."

Cushman Advertising Manager Scott Stuckey said, "The advantage (of the purchase) to Cushman is that Ransomes is closer to our core of business than OMC. Ransomes' strength is its worldwide distribution network. We have some strength outside the U.S. but Ransomes' is much more mature than ours. They've been at it for 10-15 years."

"The bottom line," Stuckey said, "is the Ransomes-Cushman partnership ... constitutes the largest turf maintenance company in the world. And what Ransomes brings in the mowing industry and what Cushman brings in equipment that cares for turf after it is mowed — together we have an outstanding full-line array of products and distributors to distribute our products wherever turf is being maintained."

He said Cushman's foreign sales has increased dramatically in the last two years, especially with the Turf-Truckster, which now is being offered with diesel.

"Diesel is almost mandatory in Europe, so we expect those sales to increase a lot," he said. "We are also increasing our product line, our engine offerings, and the golf market boom in the world (will affect us)."

Stuckey said, "Everyone's looking at it as a good business move and partnership... We're all very excited by it."

OMC decided to sell Cushman because it thought "its best interests were energized in the recreational boating industry and marine products and that is where they want to put their money," Stuckey said.

"Cushman has been doing well and could command a good price. Cushman has been very successful the last few years, golf is booming and we have maintained our name during that boom. OMC decided it was best to cash in."

Cushman, Ryan and Brouwer are just the latest acquisitions in a two-year buying binge in North America by Ransomes.

Ransomes PLC, headquartered in Ipswich, England, now owns Steiner Turf Equipment of Orville, Ohio, which it bought in March 1988; the product line of Salsco, which manufactures turf-renovation equipment, purchased in August; Colorado Outdoor Power Equipment of Denver; and Turf Equipment Northwest of Redmond, Wash. It also recently bought Westwood, a major manufacturer of garden tractors in the United Kingdom.

Ransomes' Adam said Cushman will operate as it has. "It is a well-run company with a good name. We are not going to change something that runs as well as Cushman," he said.

A Ransomes spokesman said Cushman's operations will be "status quo in the Unit-

Continued on ppage 25

Automated tee-time system marketed by Xeta Corp.

Course employees will save time and golfers won't have to dial the same number a thousand times each week to get starting times with the new automated tee time system designed by Xeta Corp. of Tulsa.

American Golf Corp. of Santa Monica, Calif., is among the first to sign a contract with Xeta Corp. of Tulsa, to provide automated tee time reservations to six American Golf-operated courses in the Houston area, including Bear Creek Golf World, Lake Houston, World Houston and Kingwood Cove.

Xeta Corp. is a pioneer in the automation of tee-time reservations. The process is relatively simple to run and golfers may telephone for tee times 24 hours a day, seven days a week by calling 713-777-1100 from any touch-tone telephone. Golfers can also cancel or confirm reservations and obtain course information and directions through the system.

Reservations may be made three days in advance but American Golf Club members may make reservations seven days in advance.

The service is free for weekdays but a 50-cent-per-player charge is added to green fees on weekends and holidays.

Ransomes

'At this point it's too early to tell where Salsco versus Ryan and Cushman products will affect everyone.' — Clarke Staples

Continued from page 24

edStates."

The changes will come in the projected major expansion into the European market, she said.

But Cushman's Staples said duplication exists between the Ryan and Salsco product lines. "At this point it's too early to tell where Salsco versus Ryan and Cushman products will affect everyone."

Staples said Ransomes bought the Salsco line in case it couldn't negotiate the Cushman purchase.

There is "not a lot of duplication" in the two companies' product lines, so none of their products will be discontinued, one official said.

Cushman has already broken ground on a plant that will double capacity of the Edgewater, Fla., facility.

Stuckey added that Cushman bought manufacturing space in Lincoln, Neb., and land next to its present plant.

"The intent of these two purchases is to increase our capabilities. How those resources are going to be used will depend on the demand on our new relationship with Ransomes," he said.

Asked if management changes are forthcoming, Staples said, "We're a $100-million company; Ransomes is in the $150-million range. I don't think they're overloaded with (management) people. When you take on a company this size you need all the talented people you can get — at least at first — and that gives people a couple of years to prove their worth."

Concerning a possible merging of departments between the two companies, Stuckey said, "Not at this juncture. It's pretty much business as usual, but as we move along we will look at how (to change things) from a marketing standpoint, see how we can ge the job done best."

He said, "We have a dealer organization we feel is one of the best in the U.S. The plan is to maintain that distribution and work with dealers on what we have developed...

"This offers Cushman the opportunity to operate at the same modus as under OMC."

When OMC announced earlier this year that it wanted to sell the Cushman group, several potential buyers came forward.

Reportedly, chief players in the talks were Toro, Ransomes, Textron and Club Car.

The negotiations reportedly narrowed down to Toro and Ransomes before the British firm won the bidding sweepstakes.

Staples said that if Toro had bought Cushman, changes in operations would have happened "overnight."

EQUIPMENT NEWS

RedMax wins industry award for innovation

The Innovative Products Award at the 1989 International Lawn, Garden and Power Equipment Expo in Louisville, Ky., was presented to the RedMax Reciprocator.

The award was based on design, safety and innovation, with the judges examining RedMax's configuration, researching its specifications and testing it in the field.

RedMax President Hiroo Taguchi and Senior Vice President John Kelly accepted the award for the product, which uses two reciprocating blades, each containing 20 teeth, and cuts through heavy weeds and brush, can be submerged to trim under water, and stops immediately when the engine is switched off. The blades eliminate kickback and the danger of debris becoming projectiles.

It was chosen from thousands of products exhibited by 550 companies.

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For free information circle #121

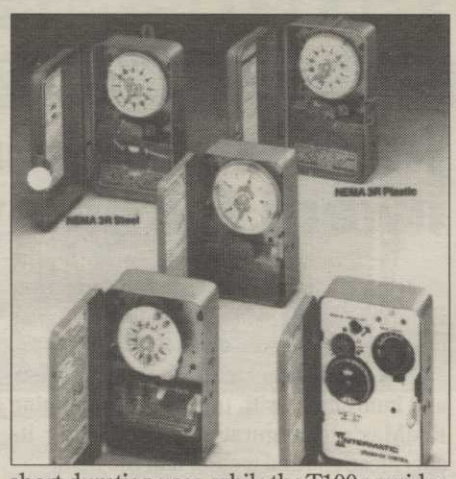
Intermatic introduces timing controls

Intermatic is offering a line of timing controls for industrial and residential sprinkling systems, drip irrigation systems and similar equipment.

Intermatic has always made products that have been used for irrigation applications, but the new controls are devoted especially to this kind of system.

The R8800 and T8800 Series Time Switches permit 60 operations per day and reportedly are ideal for multi-station, hydro-indexing valves. The LS7000 Series time switch automatically controls sprinkling times for up to three zones and can be set for local watering restrictions by setting the skipper wheel to omit operations on selected days or a weekly basis.

Intermatic's line also includes the C8800 Series cycle timers and T100 Series timer. The C8800 is designed for



short-duration uses, while the T100 provides up to 12 on/off operations every day, depending on the number of trippers used.

Contact Intermatic Inc., Intermatic Plaza, Spring Grove, Ill. 60081-9698; 312-372-7090. **Circle No 309**

Irrometer, Automata now interface

A standard interface between Irrometer Co.'s tensiometers to Automata Inc.'s telemetry system now makes it possible for remote soil-moisturing monitoring and remote control of irrigation equipment without hardwiring.

Automata and Irrometer report that the Data=Lynx system makes it possible to acquire information from the fields and send the information directly into the computer, where it is then processed and displayed for making management decisions.

Irrigation can also be controlled automatically. The companies say using the telemetry system for such things as insect monitoring and frost warning make it cost-effective.

Contact Automata, Inc. 19393 Redberry Road, Grass Valley, Calif. 95945; 916-273-0380. **Circle No 310**

Cleaning filters made easier

Amiad U.S.A., Inc. has unveiled a new device that it says substantially reduces the need to open and clean filters in the field.

The Torpedo is an insert adaptable to any 6- to 14-inch Amiad filter now in use. When placed inside the filter, the Torpedo creates an increased water velocity along the internal screen surface and forces all solids down toward the filter's debris-collection area.

Many field-tried filters did not have to be opened and cleaned all season long.

The patent-pending Torpedo is now incorporated into Amiad's newest filter, the Turboclean, which is available in 6-, 8-, 10-, 12- and 14-inch sizes.

Contact Amiad U.S.A., Inc., P.O. Box A, Reseda, Calif. 91337; 818-781-4055. **Circle No 318**

NEW PRODUCTS

Best's new pump station made for high power in small space

Best Equipment Co. has produced a full-function, variable frequency drive pump station that occupies very little skid for its output.

The Power Pack pump skid is 8 by 6 feet, or 48 square feet, instead of the normal 6 -by 13-foot skids covering 78 square feet.

"During the past five years, our engineers have used computer-aided design to produce pump stations that are more compact, durable and efficient," said Product Manager Bruce Weir. "This technology also allows us to service customers better because we can quickly make changes on computer screens instead of conventional drawings."

Best Equipment has also enhanced its SmoothFlow computer software which automatically runs the company's VFD pump stations.

The new software has more advanced capabilities for easy customer access. **Circle No 337**

Golf Course

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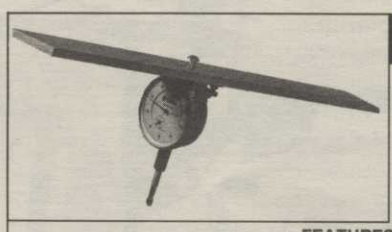

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For free information circle #131

Corrugated conduit flexible, stronger than others

Hi-Q, a polyethylene conduit developed primarily for storm-drainage purposes in the construction market, has been introduced by Hancor, Inc.

Hi-Q features a corrugated exterior for strength and a smooth liner for high capacity.

Hancor says Hi-Q offers 30 percent more capacity than concerete pipe and thus the contractor can use smaller sizes.

Ring-like corrugations make Hi-Q easy to cut and to join by using a simple, strong, soil-tight coupling system.

Hi-Q is about 5 percent as heavy as reinforced concrete on a per-foot basis and Hancor says its flexibility means it can support support larger loads than the rigid concrete.

Hi-Q conduit

Contact Hancor, Inc., P.O. Box 1047, Findlay, Ohio 45839. **Circle No 334**

Valves end main line breaks

Griswold Controls reports that its new surge anticipation valves eliminate main line breaks.

Surge anticipation provides protection against surges created by the abrupt closure of fast-reacting downstream valves.

These valves automatically relieve any pressure buildup on the lines between valves.

Model 2285's combination pressure reducing/surge anticipation is especially suited for the fast-reacting valve-in-head systems used on golf courses.

Model 2250 is a combination of solenoid, PRV and surge anticipation and is ideal as a master valve, Griswold says.

Contact Griswold Controls, 2803 Barranca Road, Irvine, Calif. 92714; 714-559-6008. **Circle No 321**

Filter between inlet, outlet

A new on-line filter with an automatic built-in relief bypass has been added to the line of Filtomat self-cleaning, line-powered water filters available from Orival, Inc.

Models had previously been available in an in-line design that flanged straight into the main pipe line and an on-line design without the relief bypass. The relief bypass on the new model is incorporated between the filter's inlet and outlet.

Filtomat filters can handle flows from 10 to 4,800 gpm and have a filtration range down to 15 microns.

Because they operate on water-line pressure alone, they require no external power and energy use is significantly reduced.

Contact Orival, Inc., Filtomat, Self-Cleaning Filter, 40 N. Van Brunt St., Englewood, N.J. 07631; 201-568-3311. **Circle No 322**

Marketplace

To reserve space in this section, call Simone Lewis, 813-576-7077

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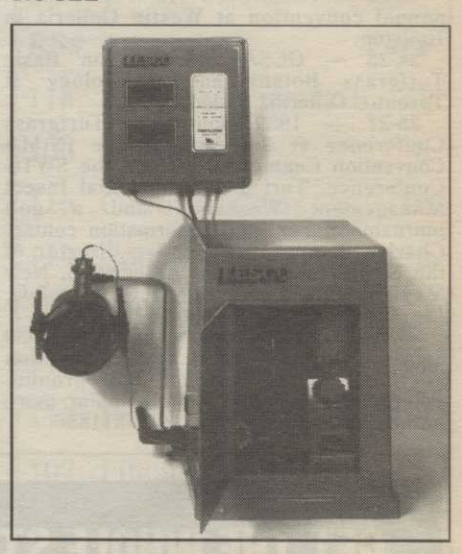

Lesco injection system

System injects fertilizer, nutrients through irrigation

Lesco Inc. has introduced four automatic injection systems to apply fertilizers, micronutrients and surfactants through an irrigation system.

Called Lesco Microfeeder Injections Systems, the models are designed to microfeed turfgrass areas by providing frequent, low-rate product application.

The systems use diaphragm pumps ranging from 3.4 gph at 142 psi to 41.0 gph at 142 psi.

Three of the systems have flow meters and electronic microprocessors to vary the pump rate and provide constant water-to-nutrient or water-to-surfactant ratios

Contact Ned Beach, Lesco, Inc., 20005Lake Road, Rocky River, Ohio 44116; or call Bob Hobar at 216-333-9250. **Circle No 317**

Zurn selling backflow preventers

Zurn Industries is manufacturing 3/4- to 2-inch Wilkins Model 575 Backflow Preventers.

The units consist of a pressure differential relief valve between two independently operated, spring-loaded, poppet-type check valves.

They have two non-rising stem-gate valves and four resilient seated ball valve test cocks.

Contact Zurn Industries, Inc., Wilkins Regulator Div., 1747 Commerce Way, Paso Robles, Calif. 93446; 805-238-7100. **Circle No 325**

CALENDAR

October

10-11 — 1989 Kentucky Turfgrass Conference and Field Day, sponsored by The Kentucky Turf Grass Council, at the Executive Inn in Owensboro, Ky. Contact Dr. Dwight G. Barkley, executive secretary/treasurer, Room 2, Carter Building, Eastern Kentucky University, Richmond, Ky. 40475; 606-622-2228.

11 — GCSAA seminar on Budgeting and Forecasting at Billings, Mont. *

16-17 — GCSAA seminar on Environmental Considerations in Golf Course Management at Melville, Long Island, N.Y. *

18-19 — GCSAA seminar on Disease Identification and Control at Pleasanton, Calif. *

19-21 — USCID regional meeting on Drought Management at St. Louis, Mo. For further information contact Larry Stephens of USCID, P.O. Box 15326, Denver, Colo. 80215; 303-236-6960.

22-24 — Texas Seed Trade Association annual convention at Westin Galleria in Houston.

24-25 — GCSAA seminar on Basic Turfgrass Botany and Physiology at Toronto, Ontario, Canada. *

25-27 — 1989 Southwest Turfgrass Conference at the Albuquerque (N.M.) Convention Center will include the SWTG Conference, Turf and Ornamental Insect Management Workshop and a golf tournament. For more information contact Charles R. Glover, executive director of the Southwest Turfgrass Association, New Mexico State University, P.O. Box 3-Q, Las Cruces, N.M. 88003.

26 — Special preview for the 1990 Sports & Leisure World Trade Exhibition at the East of England Showground, Peterborough, United Kingdom. For more information telephone 0908-311856.

26-27 — GCSAA seminar on Environmental Considerations in Golf Course Management at Manchester, N.H. *

30-31 — An Introduction to Soil Science, a seminar sponsored by the GCSAA. *

November

2-3 — GCSAA seminar on Golf Course Restoration, Renovation and Construction Projects at St. Louis, Mo. *

4 — American Seed Trade Association Annual Lawn Seed Conference at Crown Center Hotel in Kansas City, Mo. For more information contact the ASTA, 1030 15th St., N.W., Suite 964, Washington, D. C. 20005; 202-223-4080.

4-7 — Western Seedsmen's meeting in Kansas City, Kansas.

6 — GCSAA seminar on Golf Course Safety, Security and Risk Management at East Brunswick, N.J. *

6-9 — Professional Lawn Care Associaiton of America's 10th Annual Conference & Show at Las Vegas, Nev., in the Cashman Field Center and at Caesar's Palace. Contact PLCCA, 1000 Johnson Ferry Rd., N.E., Suite C-135, Marietta, Ga. 30068-2112; 800-458-3466.

7-10 — New York State Turfgrass Association annual convention at the Rochester Riverside Convention Center, including one-day seminars on Nov. 7 and concurrent educational seminars on Nov. 8 and 9. Contact Carolyn Steadman, The New York State Turfgrass Association, Inc., P.O. Box 612, Latham, N.Y. 12110; 518-783-1229or 800-873-TURF.

7-8 — GCSAA seminars on Environmental Considerations in Golf Course Management and Golf Course Safety, Security and Risk Management at Lansing, Mich. *

9-10 — GCSAA seminar on Disease Identification and Control at Bolton, Mass. *

12-15 — International Irrigation Exposition and Technical Conference in Anaheim, Calif. For information contact Ann Sheridan, Irrigation Association, 1911 North Fort Myer Drive, Suite 1009, Arlington, Va. 22209; 703-524-1200.

13-14 — GCSAA seminars on Negotiating and on USGA Intermediate Rules of Golf at Goat Island, Newport, R.I. *

15 — GCSAA seminar on Golf Course Safety, Security and Risk Management at Painesville, Ohio. *

16-17 — GCSAA seminar on Irrigation Part II: Systems Design and Management at Painesville, Ohio. *

27-30 — Third Asian Water Technology Exhibition, Kuala Lumpur, Malaysia. For further information contact International Conferences and Exhibitions, Ltd., 29 Deering St., London W1R 9AA, United Kingdom.

28 — GCSAA seminar on The Biology of Turfgrass Soils at Grandview, Mo. *

29-30 — GCSAA seminar on Insects of Turf: Principles of Control at Lincoln, Neb. *

December

4-7 — Ohio Turfgrass Conference and Show, sponsored by the Ohio Turfgrass Foundation and featuring more than 200 exhibitors as well as lectures, at the Ohio Center in Columbus. Contact Phyllis Poureh, Ohio Turfgrass Foundation, 2021 Coffey Road, Columbus, Ohio 43210; 614-292-2601.

4-7 — New Jersey Turfgrass Expo '89, the Annual Turfgrass Educational Conference and Trade Show, sponsored by the Rutgers Cooperative Extension in cooperation with Cook College-Rutgers University and the New Jersey Turfgrass Association, at Resorts International Hotel in Atlantic City, N.J. Contact Dr. Henry W. Indyk, Crop Science Department, P.O. Box 231, Cook College, New Brunswick, N.J. 08903; 201-932-9453.

5-6 — GCSAA seminar on Public Relations and Public Speaking at Atlanta, Ga. *

5-7 — Pacific Coast Turf and Landscape Conference and Trade Show at Washington State Convention and Trace Center in Seattle, Wash., including talks by national and regional experts on plant diseases, toxic waste disposal, ground-water contamination and use of pesticides and fertilizers. The event is sponsored by the Western Washington Golf Course Superintendents Association, Washington State University and Jones and Associates. For further information contact Jones and Associates, Park Center, Suite 200, N. 908 Howard St., Spokane, Wash. 99201; 509-327-5904.

8-9 — GCSAA seminars on Golf Course Construction Techniques and Management and on Golf Course Restoration, Renovation and Construction Projects at Tuxedo, N.Y. *

10-13 — The 41st Turfgrass Conference and Show at Metro Toronto Convention Centre, sponsored by the Canadian Golf Superintendents Association. Further information is available from CGSA at 2000 Weston Road, Suite 203, Weston, Ontario M9N 1X3; 416-249-7304.

11-12 — GCSAA seminar on Business Communication and Assertiveness Techniques at New Orleans, La. *

11-12 — GCSAA seminars on Golf Course Construction Techniques and Management and on Golf Course Restoration, Renovation and Construction Projects at Tuxedo, N.Y. *

14-15 — GCSAA seminar on Basic Principles of Turfgrass Management at Albuquerque, N.M. *

January 1990

7-8 — GCSAA seminar on Basic Principles of Turfgrass Management at Nashville, Tenn. *

9-14 — Golf Course Association's 8th Annual Conference at Wyndham Hotel in Palm Springs, Calif. Contact GCA, 8030 Cedar Ave., Suite 228, Minneapolis, Minn. 55425; 612-854-8482.

10 — GCSAA seminar on Safe Pesticide Management at Raleigh, N.C. *

10-11 — GCSAA seminar on Golf Course Construction Techniques and Management at St. Charles, Ill. *

14-18 — Seventh Annual National Institute of Golf Management at Oglebay Park Resort and Conference Center in Wheeling, W.V Contact the NGF's Golf Course Development Department at 1150 U.S. Highway One, Jupiter, Fla. 33477, 407-744-6006.

** — For more information or to register, call the Golf Course Superintendents Association of America at 800-472-7878 or 913-841-2240.*

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Turf diseases, grasses N.Y. seminar topics

Seminars for golf course superintendents on topics from turf diseases and pests to bentgrasses are scheduled for the 1989 Turf and Grounds Exposition of the New York State Turfgrass Association, Nov. 7-10 at the Rochester Riverside Convention Center.

On Nov. 7 talks will be presented on "Back-to-Basics: Turfgrass Management" by Cornell University and State University of New York agricultural and technical faculty; "Tree Biology and Injury" by Dr. Alex Shigo; and "Estimating and Management Principals for Landscape Contractors" by Charles Vander Kooi.

On Nov. 8 Scott Niven, president of the Metropolitan Golf Course Superintendents Association, will chair split sessions. The topics will be understanding patch diseases, biological control of turf diseases, what is new in bentgrasses and iron and manganese nutrition on greens.

Other issues being addressed that day are maintaining tall fescue fields, herbicide management for athletic fields and Kentucky bluegrass billbug control.

The Nov. 9 a special symposium on white grubs will be given by national experts Drs. Paul Heller, Daniel Potter, Michael Villani and John L. Hellman; and workshops will be conducted on mechanics and landscape architecture.

That afternoon James Skorulski of the U.S.G.A. will chair a session at which superintendent Joseph Hahn of Oak Hills Country Club will talk on hosting the U.S. Open.

On Nov. 10, weed, disease and insect identification and control will be discussed.

PLCAA show wide-ranging

The Professional Lawn Care Association of America will meet Nov. 6-9 at Cashman Auditorium and Field Center in Las Vegas for its 10th Annual PLCAA Conference and Show.

On Nov. 4-6 there will be pre-conference workshops on business, water management and pesticide training, as well as a pre-conference management training seminar at Caesar's Palace for trainers and recruiters.

"These 2 1/2-day workshops are intensive and comprehensive. Employees in lawn care businesses are difficult to hang onto, given the competition and shortage of available workers within the 20-24 age group," said Dr. Barry Troutman, director of education for the PLCAA. "Few people these days have any experience in agronomics and pesticide use. The seminar on training will help PLCAA members deal with the instruction and education of potential employees."

Earlybird workshops on Monday will deal with business, finances, employee career development, drug and alcohol issues in the workplace, water management and pesticide training.

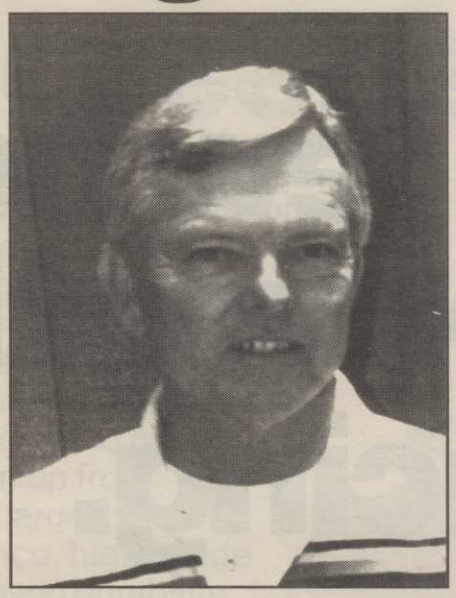
On Tuesday and Wednesday, new products will be presented by company representatives during breakfast.

The annual meeting with the election of PLCAA officers and a general session will follow breakfast. Later that day members will meet to discuss the issues of the 1990s, including water allocation, new technology, regulations, health and finding employees.

To register call the PLCAA at 1-800-458-3466.

An old fish tale bears retelling

Superfish has been a super solution at three courses for Florida's Jones



Dan Jones

What could be more natural than to use nature to control nature?

Dan Jones, a voracious reader who happened upon an article on a voracious fish, has proved that nature's way is sometimes best. His "Superfish solution" to horrible weed problems in lakes at golf courses he has worked at over the years bears retelling, since so many golf course superintendents are newcomers and since pesticide use has come under attack so strongly.

A former president of the Florida Turfgrass Association and South Florida Golf Course Superintendents Association and the superintendent at Banyan Golf Club in West Palm Beach, Fla., since 1980, the 53-year-old Jones has earned a reputation as a progressive groundskeeper — an innovator at tackling problems on the golf course.

But perhaps his stiffest test came when he took a post as superintendent at the County Club of Aventura in Miami in June 1975. Investigating the two golf courses, he found weed-choked lakes on the verge of death.

Yet 120 days later "our lakes went from eyesores to aesthetic gems," Jones said.

The solution was the white amur fish, a fast-growing native of Asia that has an insatiable appetite for vegetation and which Jones had used to control weeds while superintendent at the Dorado Beach Hotel golf course complex in Puerto Rico.

The white amur is legend in China, where it has long been used to help control weeds in paddy fields. Originating from the Amur River region of Siberia, it can grow up to 6 feet, weigh about 100 pounds and, while growing, eat three to five times its weight each day.

In one study in Arkansas, a batch of white amur ate a lake filled with the "superweed" hydrilla clean in six months — attesting to why some scientists have come to call it "Superfish."

It didn't even take six months in Jones' case.

Jones says the lakes at Aventura were one-fourth covered with marine niad and hydrilla, a swarming plant that has been almost indestructible while choking fish and hampering boats. Filamentous algae worked as a cohesive, holding the vegetation together, and the banks of the lakes were covered with torpedo grass 6 to 10 feet out.

Jones reports that the fish first devoured the algae, within a week.

They then attacked the marine niad and hydrilla, annihilating them in 45 days.

The real test was next: the torpedo grass. After four months, the Superfish had eliminated 60 percent of the torpedo grass and, as the fish grew larger each day, they ate more, making the pesty weed disappear all the more quickly.

'A tremendous amount of pesticides are being pumped into our waterways in Florida.' — Dan Jones

When Jones joined Banyan Golf Club, he says, its seven lakes which cover 40 acres were "completely clogged to 8 feet out from the bank with Southern niad and hydrilla. Golfers lost balls consistently; the lakes were an eyesore and a mess."

He went to his old standby, the Superfish, and within a year the waters were completely clear.

A side benefit to the experiment was that Jones' groundskeeping crews could feed grass clippings to the fish, eliminating the need to cart the clippings away.

Jones said the white amur and the triploid white amur — a hybrid variety bred to be sterile and thus be legal in some states that outlawed the fish — can live anywhere in the United States, "unless the lake freezes solid."

Jones said it takes about 55 fish per acre to keep ponds clean, although since the triploid is "not as voracious" more of that variety may be needed.

The state of Florida wrestled for several years with how to legally treat the white amur. It first made them illegal, thinking that the fish endangered the duck population by eating the duckweed.

But it has since made the Superfish legal.

In fact, it was environmental concerns that prodded Jones to use the fish in the first place.

"A tremendous amount of pesticides are being pumped into our waterways in Florida," he said.

"The Department of Natural Resources once dumped a huge amount of diquat into one lake to kill the hydrilla.

"That's the kind of thing being put in our waterways ... and we don't know what it's doing to our children.

"I can understand being cautious, but the one good thing you bring in, they outlaw."

The white amur has only reproduced in its native Asia and its hybrid cousin is sterile.

So, Jones said, because of attrition and (in Florida at least) alligators that eat the tasty fish, golf course superintendents using them have to replenish their waters every four or five years.

The fish has certainly been a trick up the sleeve of Jones, a Florida native who started groundskeeping in 1965 at Fountain Valley in St. Croix, U.S. Virgin Islands.

Jones moved on to Dorado Beach Hotel in 1970 and Aventura in 1975 before being appointed superintendent at Banyan Golf Club in 1980.

Jones is retiring at the end of the year after 13 years as editor of Florida GCSA's Florida Green magazine, which has won the Chapter Newsletter Editor's Contest of the Golf Course Superintendents Association of America since its inception a dozen years ago and won the National Golf Foundation's Harry Eckhoff Award honoring excellence in golf journalism in 1984 and 1985.

But, though retired from the magazine, his legacy will remain — both on the green and in the water.

More states accepting white amur

J.M. Malone & Son Enterprises in Lonoke, Ark., which has been farming the (diploid) white amur fish since 1972 and which first bred the sterile triploid white amur, has been working to legalize the fish in states around the country.

President Jim Malone reports that 11 states allow the diploid white amur and 20 allow the diploid and will grant permission through a state agency for people to import the triploids. The other 19 states outlaw both varieties, although several are expected to allow importation starting Jan. 1.

Malone said the diploid white amur is allowed in Alabama, Arkansas, Colorado (on the eastern slope), Hawaii, Iowa, Kansas, Mississippi (which prefers triploids), Missouri, Oklahoma, Tennessee, and South Dakota (which allows it on a research basis).

The states allowing triploid white amurs to be imported by are Arizona, California, Colorado (on the western slope), Delaware, Florida, Georgia, Idaho, Illinois, Kentucky, Nebraska, Nevada, New Mexico, North Carolina, Ohio, Oregon (on a permit-research basis), South Carolina, Virginia, Washington (on a permit-research basis), West Virginia and Wyoming.

Malone said he expects that on Jan. 1 Indiana, Massachusetts, New York, Pennsylvania and Vermont "will come on line," and all the Northeast will allow the fish in the next year or two.

Pennsylvania, New York and Indiana officials have been researching the white amur for years and Malone has heard that those states will authorize the fish soon.

Meanwhile, Texas A&M University will stock some white amur in a research project before the state legislature will approve the fish.

Superintendents wishing to import the white amur should contact their state Department of Fish and Game.

On the Green

Tell us your story

If you have something to share — be it how you solved a particular problem, or devised some sort of innovation, or "a-funny-thing-happened-on-the-way-to-the-maintenance-building" tale — please write and share it with us. It's worth $50 if we use it.

Just write: On the Green, Golf Course News, P.O. Box 997, Yarmouth, ME 04096.

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