

Irrigation design, pump house technology continue to meet, or exceed, industry standards

Today, radio control...
Tomorrow, relative
humidity & soil moisture?

By HAL PHILLIPS

The future of golf course irrigation is here — but only to an extent. Computer-controlled heads and valves are old hat, while radio-control technology — allowing individual head manipulation and in-the-field versatility — has made its sizeable mark on the industry after only a few short years on the market.

However, when it comes to innovation, some members of the irrigation/design field feel this market segment has only scratched the surface.

"We've got this enormous computer and all we're doing is turning heads on and off," said Dr. Michael Hurdzan, principal of Hurdzan Design Group of Columbus, Ohio. "I think we're going to start to see overall sensing packages.

"Environmental monitoring in terms of weather stations can be a joke. We need to measure soil moisture at different depths; soil temperature at different depths, relative humidity. We need to monitor air movement. I think we could probably even factor in light quality, quantity and duration.

"The new breed of superintendent is going to want to know this type of stuff. And I think we'll see it by the year 2000."

Of course, Hurdzan's wish list isn't necessarily irrigation technology. Indeed, most irrigation systems now tie in with weather stations in order to conduct, among other things, evapotranspiration testing. Considering both Toro and RainBird use the same weather station vendor, Campbell Scientific of Utah, will there come a day when irrigation firms manufacture their own weather stations?

"Perhaps we will get into the weather station business," said RainBird's Rod McWhirter, speaking of his company and its primary competitor, Toro Irrigation. "It's a very sophisticated device and neither firm can justify the cost of manufacturing at this point.

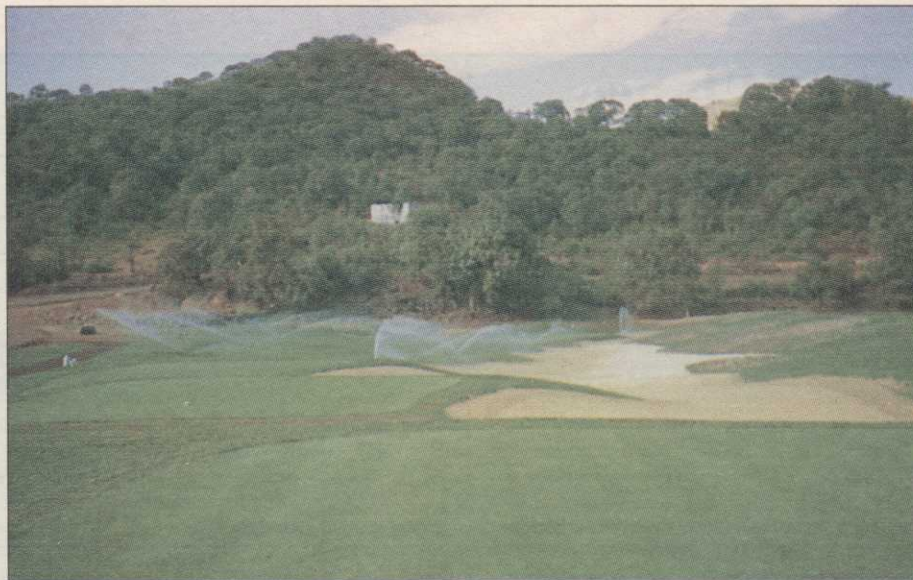
"We both tie into weather stations. We both take atmospheric readings and calculate turf-water use using a formula called the Penman Equation. It's accurate enough. It's very accurate, as a matter of fact."

McWhirter doesn't see soil-testing as a goal worth pursuing.

"There is a misconception that you can get a better reading from taking soil-probing tests," he said. "Perhaps you could, but you'd have to take so many readings from so many different places, it wouldn't be worth it."

For now, the cutting edge in irrigation technology involves radio-controlled programming and head manipulation. Radio waves allow for mobility and, because there are no wires or cables, retrofitting doesn't require digging up the course.

The collaboration of Toro and Motorola produced the industry's first practical application of this technology, the OSMAC (On-Site Management And Control), which is basically a paging system



IRRIGATION SYSTEM MANUFACTURERS

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Phone 714-688-9221

Rain Bird Sales, Inc.
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P.O. Box 37
Glendora, CA 91740
Phone 818-963-9311

Hunter Industries
1940 Diamond St.
San Marcos, CA 92069
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Buckner, Inc.
4381 N. Brawley
Fresno, CA 93722
Phone 209-275-0500

Rain Master, Inc.
1825-103 Surveyor Ave.
Simi Valley, CA 93063
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Hartland, WI 53029-0530
Phone 800-356-6686

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P.O. Box 750549
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Diffusing the dreaded
'water hammer' means
savings via pipe relief

By HAL PHILLIPS

Superintendents have discovered hidden savings attached to the latest in pumphouse technology, making variable frequency drive (VFD) even more popular.

As more units are installed in the field, superintendents are beginning to realize savings with regard to pipe repair.

"There's no water hammer when you turn the system off," explained Kevin Ross, superintendent at Falmouth (Maine) Country Club. "No question: The pipes in the system survive better with a VFD.

"The manufacturer guarantees a 15- to 20-percent reduction in energy savings and, obviously, you don't waste as much water. But the money you save in repairs is substantial."

While VFD technology has been available for more than 20 years, and the concept of conserving water and energy — through modification or institution of VFD — is becoming more popular, thanks mainly to the efforts of two Texas firms: Carroll Childers Co. of Houston and Flowtronex/PSI of Dallas.

Bent Pine Golf Club in Vero Beach, Fla., doesn't yet own a VFD pumping system but plans to purchase one are in the works, according to superintendent Scott Bell.

Energy and water savings are a given, Bell said. But pipe longevity will provide the hidden savings.

"With the current system," Bell explained, "if there's the slightest lack of balance, the water hammer comes down, leaks start popping up and the pipes start breaking. With what we have now, you get the same pressure for one head as you would have for six.

"With VFD, you only get the horsepower you need. I'm really looking forward to it."

Watertronics of Hartland, Wis., achieves the same results without the aid of VFD. Instead, Watertronics pumphouses rely on solid state technology to save water and energy, while also eliminating the dreaded water hammer.

"We emulate VFD operation," said Bob Emmerich, sales and marketing manager at Watertronics. "One of the things our owner and his team have done is apply the electrically actuated butterfly valve for pressure regulation of a station. There are some benefits to this: We pressure regulate per pump. When the pump starts, the valve is still closed, so we stop any surge going down stream.

"When it shuts off the valve closes as well, stopping a surge. We feel we can save as much water and energy, if not more, using this system.

"There are some very practical applications of the VFD — Don't get me wrong. What we say to the user is, *What are your practices?* Greens alone? Tees alone? When we get flow ranges, we can be just as efficient."

adapted to irrigation. With OSMAC, every sprinkler has its own valve and each one is controlled by a master valve on the course. OSMAC ties it all together with the central computer.

"It gives you the most flexibility when it comes to in-the-field programming," said Patty Knaggs, superintendent at Hazeltine National in Chaska, Minn., who doesn't have an OSMAC — yet.

"The first upgrade I'll do is next year, and I'll do OSMAC. With people playing more and complaining about, say, not watering fertilizer into the green fast enough, anything that buys me time or flexibility is pretty important. It makes it very easy to monitor on-the-spot changes during dicey weather and grow-ins.

"And their software has gotten better every year."

What little criticism of OSMAC has stemmed from its ties to paging technology. Because it's a one-line system, any reprogramming must be done from the central computer.

"I don't really have a problem with that," said Scott Bell, superintendent at Bent Pine Golf Club in Vero Beach, Fla., and president of the Florida Golf Course Superintendents Association. "The way we water, and with water so unpredictable in

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Asian roundup

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designed course and an Arnold Palmer track.

Player's Blue Canyon course in Phuket, Thailand, played host to the 1994 Johnny Walker Classic.

At Player projects elsewhere in the region, ground has been broken on the 18-hole Beihai Golf Course, located in the southern Chinese city of the same name, in Guangxi Province. China's "official" freeze on golf course building permits was issued directly after Beihai received its go-ahead.

In Indonesia, construction continues on Royal Jakarta, an 18-hole course integrated with the Royal Sentul Highlands development. A summer 1996 opening is planned.

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JAKARTA — Construction crews are halfway finished on Imperial Golf Club course outside Jakarta, a private 18-hole track designed by **Desmond Muirhead**.

"We've got nine holes rough-shaped out," said Ed Easley, Muirhead's director of construction. "They've grassed No. 10 and are ready to grass the practice range. "We're trying to get construction done by the end of the year."

Owned by Lippo Bank, the \$8 million course will have six sets of tees and cover more than 7,000 yards from back tees, Easley said. He added that because of heavy clay soil, crews are performing the rare task of spreading 3-1/2 to 4 inches of sand over most of the course. "It's really going to help because the clay is so bad," Easley added.

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KOBE CITY, Japan — Six years after developer Shigeru Matsui dreamed up Malibu International Golf Club, ground



GRI PUTS FINISHING TOUCHES ON IWAKI DESIGN

Turf matures on the 8th hole on the West Nine at Byron Nelson Country Club in Iwaki, Japan, just north of Tokyo. The 27-hole Iwaki club — which opens for play this month — was designed by Dallas-based Golf Resources, Inc. (GRI) which has now completed two projects in Japan. GRI's Le Petaw opened in Hokkaido last fall.

is scheduled to be broken here in October.

The 18-hole **Robert von Hagge** design received government approval in 1993, but delays have dogged the project until now, according to von Hagge design associate Mike Smelek. Kajima Construction Co. is handling the course building process.

Just north of Kobe, von Hagge Design Associates has finished a 9-hole addition to Arima Royal Golf Club. The new nine should be open for play come spring 1995.

Renovation of Arima's fourth nine — another von Hagge project — begins in November.

Elsewhere in Japan, in Yamanashi Prefecture, construction at von Hagge's Minobu Golf Club should be completed by October, said Smelek. The first five holes are ready to plant and the course has scheduled a summer 1995 opening.

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SINGAPORE — Golden Bear International, which includes **Nicklaus Design**, has moved its headquarters here. Mark Hesemann, general manager of Nicklaus Design, can now be reached at 133 New Bridge Road, #21-01 to #21-10 Chinatown Point, Singapore 0105. Telephone: 65-538-8912; fax: 65-538-2468. GBI will continue to maintain an office in Hong Kong.

Pumping stations: Stopping the hammer

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Patty Knaggs, superintendent at Hazeltine National in Chaska, Minn., is a Watertronics fan.

"I inherited one and it's been great," said Knaggs. "It does all the things VFD does, and their service has been fantastic."

Of course, the current technology can outstrip a superintendent's needs — and his or her sense of practicality.

Pat Lewis is superintendent at Portland (Maine) Country Club, where

the city water main runs right by the club entrance.

Lewis uses no pumphouse, much less variable frequency drive — and doesn't plan on acquiring either one anytime soon.

"We don't have to tell any pumps to come on," he said with a laugh. "We don't have a pumping system because we simply don't need one. Straight city pressure. I've checked with the city, and our water source will never dictate to us."

"One of the hard parts is my highest pressure is 80 psi. So I can't turn on all the heads at once, but we can do the whole course in two shifts."

Ross, on the other hand, couldn't be happier with his VFD.

"It's been absolutely awesome since we bought it," said Ross. "Three pumps: two big ones and one small jockey pump. They used to be on and spin at the same speed, but VFD changed all that."

"I'll be honest with you: I used to visit my pumphouse every single day. Now I'm feeling a bit guilty because I hardly ever go out there."

British lawsuits

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Formerly a somewhat routine and lackluster (albeit sited in striking Thomas Hardy country) 18-hole course known as Lakey Hill, the East Dorset course was founded by local farmers in the late '70s and sold in 1985 to a new owner, who added a driving range with artificial grass landing areas and a new pro shop. In 1989 the club was again sold, this time to the Count and Countess Lerche from Denmark.

While recognizing what they had, the Count and Countess clearly were not content to stick with their "vin ordinaire" and immediately set into motion major developments which included the complete reconstruction of the clubhouse, further improvements to the shop complex, the addition of a further nine holes and the reconstruction of all 18 tees and greens on the existing course. It was a major task, one that would offer a real challenge

for Martin Hawtree to satisfy the Count and Countess Lerche, who wanted three loops of nine holes structured to an international championship standard while allowing for equal competition between men and women, as well as appealing to players of all golfing abilities.

They were also keen to see the design stimulate interest and surprise from beginning to end on a landscape character in keeping with the Dorset heathland situation. The course, they stated, also was to provide the maximum year-round play and as such was to cope with heavy rainfall.

Hired as consultant and architect, Hawtree's work was to expand and remodel 21 holes. As "engineer" he was further to design and see constructed six additional holes.

The plaintiff claims that once the holes — some of which had been turfed, others seeded — had been put into play, the condition of the putting greens steadily deteriorated and continue to do so. This, they claim, is due to the use of an unsuit-

able root-zone mix, with too high a proportion of fine particles resulting in excessive water retention and very poor drainage capabilities.

Hawtree, having engaged the Sports Turf Research Institute (STRI) to advise on the testing of several root zones and approving the selected root-zone mix, has brought them into the action by serving them a Third Party Notice (analogous to a writ), claiming that they (the STRI) should indemnify Hawtree against the allegations made by East Dorset Golf Club, should the architect be found liable.

In a report dated Jan. 17, 1990, the STRI stated *inter alia* that the existing greens had been designed and built to a poor standard and required complete reconstruction, that the topsoil on the existing greens was unsuitable and should be stripped away, and that new greens should be formed, using an imported and very sandy growing medium mixture.

In June of the same year the STRI reported to Hawtree on the various samples

Radio-controlled irrigation systems

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Florida, I check with the water program every day before I leave."

"If you were in a drought situation where you were watering every day, then I could see how it might be more awkward."

RainBird last year introduced its own radio-controlled program, the Freedom system, which retrofits to all Maxi systems.

"The name implies that the superintendent has the freedom to run his irrigation system from anywhere on the property," said McWhirter. "What we're doing is actually accessing the main computer. OSMAC can turn on a station or two for water — we're going back to the central controller. One of the buzzwords today is flow management. We're able to do that because we go back through the central."

"We both [Toro and RainBird] might have a super standing there in the field with a radio in his hand. The difference is, Freedom comes with telephone connect, digital key pad and transceiver. So you can reprogram over the phone... The super has access to the irrigation system with any touch-tone telephone."

Buckner's COPPS system has also won its share of converts.

"With COPPS, basically you have a receiver that plugs into a single controller," explained Jim Hodge, superintendent at ValHalla Golf Course in Cumberland, Maine. "Then you can operate any station with that one controller. I can still communicate with my crew via the same radio."

"I like it a lot. I don't use it a lot. I use it when I've put down a fertilizer and don't have to stand right there. I also use it when I'm doing repairs. Saves travel time running back and forth from the controller."

as tested and concluded that the sample identified would be entirely suitable for use on its own as a golf green growing medium and "would provide the ideal growing medium."

At a site meeting in July 1990 the material recommended by STRI was considered and in reliance, thereon the contractor was constructed to commence the importation of the said material.

Hawtree denies allegations of negligence and breach of contract, while the STRI admits no liability to Hawtree's claim "that they were in breach in failing to advise that the root-zone mix recommended was unsuitable and unfit for its purpose."

The Count and Countess Lerche have gone on record as saying, "We wanted the best, we ordered the best, we paid for the best, but the best was not delivered."

The trial date was set for March 6, 1995.

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GOLF COURSE NEWS