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its system, which was considerable. He advises others not to be thrifty unless they're concerned about bottom lines.

"We used quality materials and a quality contractor," he adds. "We purchased the latest and greatest equipment as far as a controller, central unit and computer. It doesn't pay to be cheap, especially when you want to host championships."

But many people, especially members, become tightwads when it comes to purchasing a new irrigation system, says Brian Maloy, a USGA agronomist in Carrollton, Texas. "Most people start coughing when it comes to spending more than a few thousand dollars," he adds.

Something buried underground is out of sight and mind to members, Maloy says, even though it's paramount to the operation. "Probably the most difficult challenge that superintendents face is trying to convince membership that an irrigation system is the most important thing in their arsenal to provide great playing quality," he says.

Maloy, who covers Texas, Oklahoma, Arkansas, Louisiana and New Mexico, says up to 70 percent of the golf courses he sees are functioning with outdated irrigation systems. What's an antiquated system? A single-row design without wall-to-wall coverage, Maloy says. "There are a lot of isolated wet and dry areas because of this system," he adds.

Hazeltine's old irrigation system was built with the course in 1963. Over the years, fairway designs had changed, but the irrigation was never updated. When Hazeltine was awarded the PGA two years ago, Nicol knew a new irrigation system was essential.

"We needed to establish a severe rough," he says. "We wouldn't be able to do that if there was a drought."

Also, because the old pipe was contaminated with asbestos, Nicol didn't want his crew members trying to repair cracks in it.

The decision to purchase a new system may come down to whether or not a superintendent wants to keep spending money to fix an old system, McWhirter notes.

"If a course has a 20-year-old system, the superintendent is probably spending a lot of money to maintain it," he says. "That's money down the drain."

The consulting factor
If you've convinced your boss to purchase an irrigation system, you may want to hire a consultant.

"An irrigation consultant tells you what you need, and you tell him what you can afford," Maloy says. "Then he tries to marry the two."

Irrigation consultants have been around for about 30 years. Bulmer says, but they have become popular in the last 10 years. There are about 65 U.S. consultants, and some have formed their own

DROUGHT BUSTERS
In dry times, superintendents can find an oasis of comfort in high-tech irrigation systems to help keep their golf courses green and playable

Art Eichas, superintendent at Ridgemont CC in Rochester, N.Y., summed up the general feeling among golf maintenance professionals about a drought that occurred last summer.

"It scares you to death," he says. "When you look at the course, you can actually see the brown coming."

Eichas certainly wasn't the only worried superintendent in the Mid-Atlantic and Northeast, where dry weather persisted through August. Mandatory water restrictions across the region had superintendents scrambling to find ways, not simply to keep their courses green, but to keep them playable.

"We were in a drought from the end of May into September," notes Bob Miller, superintendent at En-Joie GC in Endicott, N.Y. "We didn't get any rain until Hurricane Floyd came along and decided to give us a dose. No one was in good shape all year in terms of water availability."

Judging from their experience this summer, Eichas and Miller agree on one thing: If there's no water, golf courses will suffer. Both superintendents believe there are ways that can help courses cope with water shortages, however.

Irrigation answers
"Technological advances in irrigation central control systems give courses the ability to use water efficiently and effectively," says Eichas, whose course uses a Rain Bird decoder system and Nimbus central control. He believes that moderately dry conditions are preferable to overly wet conditions when you add a good irrigation system to the equation.

"Too much water is a worse situation," he adds. "In severely dry conditions, central control technology gives a golf course a chance by putting down just enough water to keep the grass alive. This technology not only makes irrigation easier, it makes irrigation more efficient."

Rod McWhirter, national specifications manager for Rain Bird Sales/Golf Division, explains that superintendents need to maximize the water they have available when it's in short supply. "The latest central control systems utilize a weather station, which allows the system to put down an exact amount of water," he adds.

An important advancement in central control technology is the use of evapotranspiration-based watering. Through a weather station located on the course, irrigation control systems can actually track the exact amount of water lost on the course each day and use that information to create a watering schedule, which only replaces the amount lost. According to McWhirter, an irrigation system with this technology can automatically adjust sprinkler run times to apply only what was lost in 24 hours. "In the end, these systems make water conservation convenient," he says.
association, the American Society of Irrigation Consultants. ASIC’s mission “is to enhance the role of the independent professional irrigation consultant as the unbiased advocate of the client.”

David Beck, who operates an irrigation consulting business in Boise, Idaho, says his job is to help superintendents and other course personnel design and update irrigation systems. He provides bid documents, but not installation. He rarely endorses a supplier.

“I put a golf course in the position to get the best system for the best price,” he says.

Beck says 75 percent of his work is replacing existing irrigation systems that are 25 to 30 years old. He’s paid 3 percent to 5 percent of the total project cost.

Hazeltine hired a consultant to help with its design, and Nicol says it was money well spent.

“The consultant did a lot of work and took the pressure off me as far as design and pipe fitting,” he says. “He was a great conduit between myself and the contractor.”

Beck says most superintendents don’t know all there is to know about irrigation systems. “They’re familiar with the maintenance of systems, but they’re not familiar with hydraulics, pipe fluid mechanics and electrical power requirements,” he adds.

One of the worst things that could happen is if a golf course spends between $500,000 and $1.5 million on an irrigation system and something goes wrong. Beck says, adding that after-service is a vital component of the purchasing process, whether it’s from the consultant or manufacturer’s distributor.

“I provide the assurance that I will be there at the end of the construction process to make sure a superintendent understands how to use a system,” Beck notes.

Nicol says availability of personnel is the most important part of after-service. For instance, Nicol had a slight problem with his new irrigation’s system pump station after it was installed. But a distributor representative came to the course to solve the problem the day it was reported.

Distributors can’t afford to be lax in their efforts to provide excellent overall service. Competition is intense among the few suppliers, Bulmer says. “We’re selling products at a lower margin than we ever have,” he adds.

But business, despite low margins, is also healthy. That has to do with the state of the golf course industry, which is booming in new course development and renovations.

Bulmer expects business to thrive until new course construction, which comprises about 45 percent of Toro’s business, begins to slow in the next 12 to 18 months.

McWhirter predicts that irrigation system replacement will remain steady for the near future.

“At least half the courses in the United States have systems that are 15 years or older,” he adds.

While En-Joie GC never endured a mandatory restriction, the municipal course drastically curbed its consumption of city water as a courtesy, Miller says.

“I was able to call the city’s water superintendent and tell him exactly how much we needed to use each night,” says Miller. “When you have the ability to determine exactly how much water you will need to use, it’s helpful in this type of situation.”

While Eichas believes ET-based watering is the key for eliminating overwatering, he likes the fact that advanced systems give superintendents the ability to tailor the watering schedule.

“I get out on the course every day to see what’s going on,” he says.

“We’re located on an old lake bed, so we have anything from gravel to clay to sand soil to work with. It’s important for me to go out and see how things look and make adjustments as needed.”

In a drought, the ability to tailor a water schedule can mean the difference between getting by with available water and running out in midseason.

“Instead of watering for 15 minutes and putting down a quarter inch, I can go out and take a look at what’s happening and make a slight adjustment in a matter of minutes,” says Miller, whose course hosts the PGA Tour’s B.C. Open. “I can drop the system down to eight minutes, put down half the water and possibly get the same results because I know exactly how much that area needs.”

**Design considerations**

McWhirter says that central control systems can’t conserve water without a well-designed irrigation system. “If you have an older system in terms of sprinkler heads and piping and you’ve upgraded it with a newer control system, it won’t compensate for poorly spaced or inadequately spaced sprinklers,” he says.

McWhirter says systems installed in the last five to eight years probably have newer sprinkler technology as well as advanced central control systems. Systems with more sprinklers spaced closer together will have better watering uniformity and greater ability to pinpoint watering.

“Irrigation design consultants and manufacturers have been preaching the importance of a good system design for water conservation for years,” McWhirter says. “We now use smaller sprinklers, zone them specifically, and let the environmental conditions determine how long they run. That wasn’t typical 10 or 15 years ago.”

He compares a well-designed irrigation system to a well-designed lighting system. A ballroom, for example, won’t have one big light in the middle of the room. Rather, the room will be illuminated by various specialized lights — around the edge of the room, recessed in the ceiling and over a stage. Golf course irrigation systems aim for the same type of specialized design to assure uniform coverage and minimal wasted water.

Eichas and Miller believe that advanced irrigation systems are vital to cope with water shortages and for furthering environmental stewardship, but they also believe expectations for course conditions are sometimes unrealistic. They point out that technology can only ensure that existing resources are used efficiently. Beyond that, they say it’s out of their control.

“Golf is an outdoor game, played on an outdoor surface,” Miller says. “Everyone should know that you can’t fight Mother Nature because eventually she is going to win.”

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**Editor’s note:** Jason Schmaderer, the author of this story, is a public relations writer in the turf maintenance industry who’s based in Lincoln, Neb.
here comes a time when each of us concludes that top 100 lists are taken too seriously. I sensed something amiss came when I visited the pro shop of a great old course and found it had embroidered the course's current Golf Digest ranking on every cap for sale.

I realized rankings transcended rationality, however, when a frustrated architect told me the "restoration" project he wanted to undertake had become an excuse for club members to toughen their course. The emphasis had shifted from bringing back the classic architecture to shoring up the course's resistance to scoring. The members felt that a tougher course was their only way to higher position on Golf Digest's "America's 100 Greatest" list.

The rankings obsession has deepened to the point that the jobs of architects, superintendents and management personnel can depend on how a course is perceived by ranking panelists. That's a sad statement, considering that, at best, the lists have given us something to talk about. At worst, the rankings stem from severely flawed criteria and are voted on by too many panelists who don't know how to discern ordinary golf holes from great ones.

But you have no choice, right? The ultimatum has been issued from the club president in so many words: "We must get ranked, and your job depends on it."

Want to know what criteria you have to meet to keep your job? Funny, some panelists determining your fate wonder that as well.

Overemphasizing trivialities

Golf Digest came out firing this year, proclaiming its list the original and oldest (true). The magazine also patted itself on the back for being the most open and consistent regarding voting procedure and criteria (also true). And yes, architecture editor Ron Whitten, who oversees the panel but for some reason can't vote, writes eloquently about the essentials behind the great courses in each biannual "100 Greatest" issue. Yet the panel consistently ignores what Whitten preaches, and emphasizes conditioning, aesthetics and resistance to scoring.

Consider this: The best-defined category on the Golf Digest ballot, playability, only counts in balloting for its biannual listing of the best public courses, even though panelists award a playability score for each course they see. Now, ponder this definition of "playability": "How well does the course challenge the low handicapper golfers, while still providing enjoyable options for high handicappers through the use of shorter lengths, alternative routes, placement of hazards and accessible pins?"

Am I missing something? Aren't these the most common traits among the timeless course designs?

The Golf Digest panel is unusual, however, in that it sees a higher annual growth rate than most Fortune 500 companies. In 1999, the panel reached 660, up from 577 in 1997 and 450 in 1995. Described as well-traveled, publicity-shy low-handicappers, they apparently have created a frat-house buddy system to gain access to America's best courses. The low point came in this year's issue when a Golf Digest associate editor revealed the group awarded a panel position as a 50th birthday present.

The Golf Digest ballot consists of seven categories that each require a 1-to-10 score: shot values, playability, resistance to scoring, design variety, memorability, esthetics (yes, that is how they spell aesthetics in Trumbull, Conn.) and conditioning. The often misinterpreted shot values count double in the final tally, while playability is eliminated and conditioning is tinkered with to soften the blow of an off-maintenance day.

Once scores for all of the above are tallied, two points are added for courses that allow walking, while no points are awarded if carts are mandatory. However, panelists are not required to walk, and rarely do — another major flaw with all panelists regardless of the magazine they represent. You can't see what the architect intended and built from the cart paths, although...
if recent trends continue, “cart path camouflage” will be a new category in 2001.

There is, however, the ever-so-important saving grace for the Golf Digest Top 100 — the tradition category. This is a score tacked on by a mysterious in-house committee once the panelists have weighed in on America’s toughest and prettiest. Consider these editorial modifications:

Prior to the tradition score, Wade Hampton comes in at No. 8, but moves to No. 22 in the final published ranking. Shadow Creek arrives at No. 6 in the panelist’s eyes, and moves to No. 20 on the final list. Colorado’s Sanctuary GC lands at an amazing No. 17 before the in-house committee drops it down to No. 48.

However, thanks to the tradition score (and I mean it in these cases), Baltimore CC goes from the panelist’s No. 84 to a more respectable No. 50. Classy Kittansett Club starts at No. 71 and gets moved to a more reasonable No. 39. Baltusrol (Lower) goes from a surprising No. 62 to a more logical post-tradition No. 34. And, thanks to the editors, Riviera CC surges from No. 52 to No. 24.

So why does the Golf Digest panel produce results that force the editors to drastically, but wisely, correct their findings? Personally, I’d say they have too many low handicappers voting. Like Tour players, most good golfers selfishly focus on what they shot or how “fair” the course seemed to them, instead of analyzing the design and how interesting it could be for all players.

Frankly, who cares about what some publicity-shy, rich guy thinks is a good test? Please tell us which are the best golf course designs, since anyone can make a course difficult. Tell us which courses are the most fun for the most people, as well as the most thought-provoking, timeless layouts.

Please stop giving points for layouts perceived as extraordinarily “pretty” or points for how they were maintained on the one day you played. A course should not be penalized because the superintendent rested the collars on the lone day a Golf Digest panelist happened to test how resistant to scoring your course was.

Intentionally opposite to Golf Digest, Golf Magazine’s list of the Top 100 U.S. layouts employs the overly vague I-know-it-when-I-see-it criteria for judging. This is a dangerous way to evaluate the greatest designs, especially when two-thirds of the network morning show hosts are panelists, and livelihoods depend on their assessments.

There’s no criteria when voting for Golf’s list, just an “A to F” grading system for its panelists to use in determining what they like and don’t like. Just tell us what you think because you are special and — say it with me now — you know it when you see it.

While the Golf Digest panel overemphasizes elements of a course it shouldn’t, Golf Magazine is creating debatable results by not asking its panelists to analyze any design features, nor are they being held accountable on their ballots to explain extreme scores. Golf’s list is notorious for its infatuation with certain new courses, only to inexplicably turn on them a few years later (i.e. Troon North, Kiawah Island Ocean Course, Wild Dune and Haig Point).

Furthermore, with such an open-ended system and a panel that is heavily stocked with designers, big-name developers, Tour players and even a public relations rep for several architects, doesn’t this raise just as many conflict-of-interest questions as the Golf Digest panel’s obsession with wealthy, well-traveled types who supposedly can break 80? Wouldn’t a little criteria help cut down on the conflict-of-interest questions raised with Golf’s list?

The truth is, rankings are inexplicable and largely at the whim of the panelist’s flavor of the month. Sure, the top 100 lists have been beneficial to the golf business in raising the stature of courses, bringing recognition to excellent designs and course operations and improving the stature of architects, superintendents and management.

But the lists carry too much clout considering such inexact systems are in place. Too many panelists are in it for playing free golf instead of analyzing the best design work.

The rankings have little affect on what matters: People enjoying the courses they play, regardless of ranking. And since no panelist has paid a green fee since the beginning of time, can you imagine how much money is lost in green fees due to panelists and their friends perusing the country and playing golf the last 20 years?

Worst of all, rankings now have too much influence on livelihoods. No, the magazines did not set out to make them this weighty, but now that the lists are so popular, the panels and criteria must be more closely monitored and refined.

Architects and superintendents are being pressured to create something “great” in order to be ranked by a few too many people who don’t know what great is. Developers are spending millions more to try and top the course down the street in hopes of landing on the best new lists.

Meanwhile, the rankings and their panelists are no longer merely a little strange. They are dangerous.

Geoff Shackelford’s latest book is The Golden Age of Golf Design. He can be reached at geoffshac@aol.com. He occasionally writes for Golf Magazine and is a former Golfweek panelist. When he ranks a course, he prefers to examine the design not the density of the grill room milkshakes, the prettiness of the flowering dogwood, Majors hosted, artistic turf striping or what he shot when he visited.
The Tree Doctor Is In

BY LARRY AYLWARD, MANAGING EDITOR

From the tee, the 80-foot oak tree looms in the distance — its monstrous branches stretching over the fairway like Frankenstein's arms.

You feel the tree's ominous presence as you prepare to hit your ball. You swear you hear its perverse voice whispering in your ear. "Watch out for me," the tree says with an evil hiss. "If your ball hits me, I'll bounce you in the rough, and you'll never make par."

The tree is to the right, about 225 yards from the tee. You have the muscle to hit the ball that far, but the tree has you spooked. So you aim left and end up hooking your ball over a slope and into an adjacent fairway.

"Fore!"

Angry and shaken, you glance at the tree, which seems to wear a sinister smile on its expansive trunk. You scatter like a goose being chased by a border collie. You'll gladly take double bogey to be done with this hole.

Welcome to the 13th hole at Firestone CC's South Course in Akron, Ohio, where the famous — or infamous — 100-year-old oak tree has messed with the minds of many golfers for years. But the tree doesn't mean to terrify them — it's all in the name of fun and challenging golf.

Competitive players realize if you took away the towering tree, the par-4, 457-yard hole would play as free and easy as a character from a Jimmy Buffett song. They don't want the hole to be smooth sailing. And they're thankful it's not because they know it could have been. The cruel world almost took the awe-inspiring tree from the 13th hole. One can only say, "Thank god for technology of yore."

The problem

It's a wonder the tree has stood this long. "It's a giant lightning rod," says Mark Connor, the South Course's superintendent.

What lightning couldn't do, however, decay caused by weathering nearly did. It started when the tree's huge lower limb broke off its side several years ago.

All was well, but more than two years ago the tree's massive secondary trunk began rotting on the side where the limb broke off. Carpenter ants, recognizing an opportunity to feast, swarmed...
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over the barkless trunk as if it were a huge crumb. They dug toward the core, and the
tree’s base weakened.

A summer storm with a stiff wind could have flattened the tree — and tamed the
13th hole.

Options
Connor and the folks at Firestone weren’t
about to chop down the tree, even though
that’s what you do these days
with old, sickly hardwoods.
They knew they had to stop
it from rotting — but how?

Brian Mabie, Firestone’s
director of golf course main-
tenance, phoned the tree doc-
tor — in this case, Stow,
Ohio-based Davey Tree Ex-
pert Co. Davey’s Gordon
Matthews, a certified ar-
borist, agreed to examine the
tree.

What he saw — a hideous
7-foot-high deterioration —
was not pleasant. What he
told Mabie was worse.

“I said, ‘Brian, I have to be
honest with you. I don’t know
what I’m getting into,’”
Matthews says.

Solution
There was no magic potion to turn the 5-
foot-wide trunk solid again. In fact, there
was no state-of-the-art solution. So
Matthews opted for an old method of tree
surgery.

The operation began with a chain saw.
Matthews’ crew cut portions of the rotted
wood in blocks and removed it. “They cut
into the heart of the tree,” he says.

Matthews discovered another grapefruit-
sized rot pocket had formed on the trunk’s
opposite end. He figured the two rotted
ends would meet in the middle of the tree.
Fortunately, he was wrong. Only about
2.5 feet of the tree’s 5-foot-wide trunk was
decayed. The middle 2.5 feet of the tree
was solid.

After the rotted wood was removed,
Matthews began researching the old art of
filling a gaping tree cavity, which is similar
to the way a dentist fills a tooth. He dusted
off old maintenance books and researched
other information from the 1940s. He con-
tacted a retired Davey foreman, Ivan Frank,
who worked for the company for more than
40 years and specialized in tree surgery.

“He sent me some notes and gave me an
overview about how to do it,” Matthews
says.

A cavity filling requires much more
than dumping concrete into a hole in the tree. In
fact, filling a cavity in a tree is similar to the
way a dentist fills a tooth cavity. One of the
first steps is to carve out the decayed area
and remove any rotted wood.

After the trunk was cleared of decayed wood,
Davey Tree’s Gordon Matthews (right) and
Roger Hays installed rods to help provide
additional support for the cavity.

This type of tree surgery was in vogue in
the ’20s and ’30s, Matthews notes. But
over the years, the technique became less
popular because of rising costs and time-
consuming labor.

“People stopped seeing the importance
of it,” Matthews says. “They figured that a
hollow tree was a hollow tree, and it goes
when it goes.”

But Matthews knew it was the only
method to save Firestone’s oak tree. And
yes, the doctor was sweating over perform-
ing the surgery like a pilot on his maiden
flight.

Matthews and his assistant Roger Hays
first installed rods to help provide addi-
tional support for the cavity. When the
rods were in place, a protective covering
was used to line the inside of the tree.

Matthews and his assistant then built a
base anchored by a wood form filled with
concrete, much like a sidewalk. It provided
a horizontal surface to fill the cavity.

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The job turned tricky when the two men began working to fill the cavity. The problem was getting concrete to hold in a 7-foot-high vertical area. The mix couldn’t be soupy or it would slip out of the cavity.

"It took us about a day to figure the right mix," Matthews says.

The thick mix included masonry sand, Portland cement (made from limestone and clay) and a small amount of water. The workers placed pieces of tar paper between layers of mix laid in the cavity. They had to wait for a layer to dry before starting another.

"The tar paper between each layer gives the cavity filling a little flex and sway to it," Matthews explains. "When the wind blows, there’s some give. If the cavity was filled with one solid piece, it would eventually crack."

The cavity took about six days to fill and cost about $4,500, but only about chat about its huge cavity filling, as did TV announcers who covered the NEC Invitational golf tournament last summer. From a distance, people will tell you the filling looks like tile in a bathroom shower. But Matthews says grooves were added to the final layer for aesthetic reasons.

"It would look terrible if it was a flat surface," he adds.

Matthews visits the tree after powerful storms to make sure it’s holding up. On a recent day, he fertilized it with slow-release tree food.

Matthews is keeping a close watch on a callous that surrounds the filling. The idea is for the callous to grow from both ends and eventually cover the filling with bark. It’s growing slowly, but the filling might not be covered until Tiger Woods hits the Senior Tour.

But the bottom line is the oak tree has been saved — and it’s as big and bad and unnerving as ever.

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