

750 - TREE IDENTIFICATION

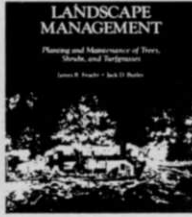
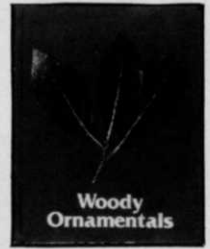
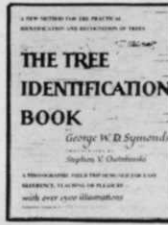
by *George Symonds*
Pictorial reference to identifying trees by checking leaves, buds, branches, fruit and bark. Like its sister publication, SHRUB IDENTIFICATION, popular and botanical names are listed with index tabs for easy reference. **\$14.95**

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by *Kathleen W. Kerr, Editor*
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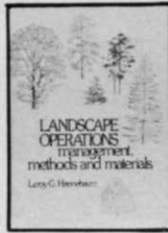
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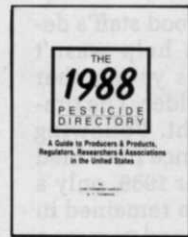
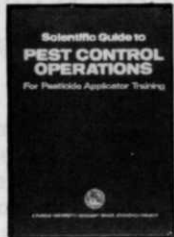
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Besides traffic problems, the walkway between Brynwood's 14th and 15th holes suffered from bad drainage.

ARCHITECTS AS PROBLEM-SOLVERS

Brynwood Country Club needed a solution. Where did they go? To a local landscape architect. Today, club members are glad they did.

By the summer of 1986, the terms "muddy and unattractive" were the best anyone could apply to the route between Brynwood Country Club's 14th green and 15th tee. There was no defined cart path—just a mess where golfers had trekked.

The area also had drainage problems after rainfalls, which eventually led to a rutted path on this Milwaukee-area golf course. That's when Lied Buettner & Associates was called in.

"We realized we had to do something," remembers Steve Blendell,

course superintendent, "and we knew we wanted to do it right. That is, in the most attractive way possible."

The in-house crew decided not to tackle the project itself.

"The job was just a bit more complex than it initially seemed," Blendell says. "We were looking at an overall distance of approximately 500 feet between the periphery of the green and the next hole.

"We felt this wasn't just a matter of planting a couple of shrubs. We envisioned changes in the terrain and integration of different types of landscaping ideas and knew the different

grades would also present a problem," he remembers.

Additionally, Blendell points out, drainage problems would need tile work and grading problems required retaining walls.

Although the Brynwood staff's decision to seek outside help wasn't made lightly, there was yet another important factor to consider. The timing was extremely tight. Following their request for assistance from Lied Buettner in late October 1986, only a little more than a month remained in which to develop a plan and prepare a budget for the club's capital improve-

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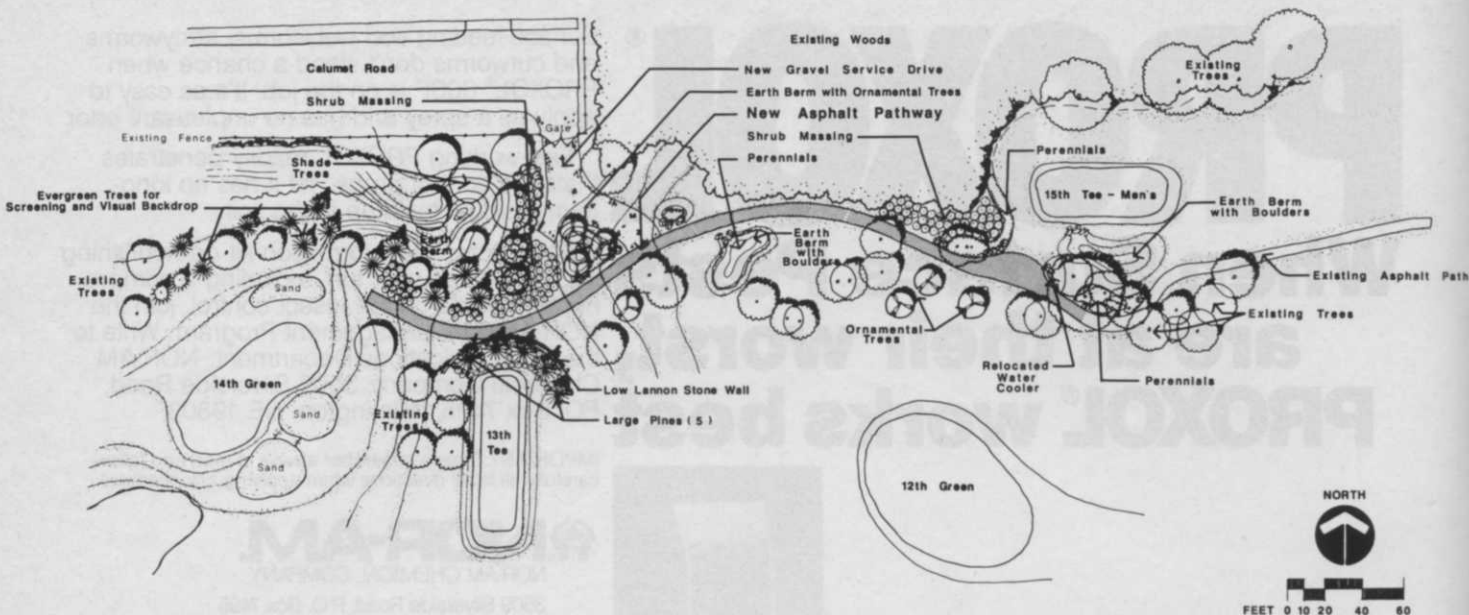
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The landscape plan used logs and boulders to prevent carts from wandering onto other parts of the course.

ment budget meeting.

Enter Buettner

Blendell, who was familiar with the work and reputation of Dennis Buettner, called in the principal planner and landscape architect for Lied Buettner & Associates Land Planning of nearby Sussex, Wis.

Why a landscape architect or even a land planner for a project like this?

"A landscape architect frequently gets involved when a presentation must be made to an approval body," Buettner explains. "Implementation can usually be accomplished by the grounds staff, but the professionally-developed landscape plan provides the budgetary rationale required to get the project approved in the first place."

Buettner says using an outside consultant often helps diffuse internal politics and enhances the acceptability of a project when a committee has to justify expenditures to the membership. These recommendations to the budget committee are also backed by the reputation and experience of the professional landscape architect, who may even serve as a mediator of sorts. When called on, he or she can act as a facilitator between different points of view on budget committees or boards of directors.

Blendell, Buettner and Brynwood general manager Norman Eckstaedt made the initial presentation. The landscape committee in turn presented it to the capital budget committee. Both groups approved the plan.

The solution

Buettner's recommendations began with drawings showing a curvi-linear

paved cart path, the use of which would be reinforced by berms and plantings designed to keep carts on the path and prevent shortcuts.

"What we wanted to do," Buettner says, "was to create an attractive 'obstacle course,' so to speak. We intended to channel golfers along the path through the use of landscaping."

The landscape plan (see diagram) used logs and boulders to prevent carts from wandering onto other parts

'We wanted the cart path to be a pleasant experience that would keep people's interests and entertain them.'

—Steve Blendell

of the course. Where the path curved in two points, small hills or berms would contain golfers and prevent shortcuts from those points.

"Lied Buettner succeeded very well in focusing attention on the different landscape techniques we used," Blendell says. "Especially considering the length involved, we wanted the cart path to be a pleasant experience that would keep people's interests and entertain them rather than just being a straight walk from one green to the next tee."

"There's no doubt that this project also added to the overall beauty of the course," he adds.

In addition, Lied Buettner's plan provided for widening the cart path at the men's 15th tee and suggested re-

location of the water cooler station there to make it more accessible to golfers.

Who does what?

While Lied's did a lot of the actual work once the ground was workable, the Brynwood staff also did part of it.

"Prior to taking this to the landscaping committee, we had already discussed with Dennis just what portions of the project Lied Buettner would handle and what could be done by our staff," Blendell explains. "We knew before we made the budget portion of our presentation approximately who would handle what."

The entire project, including Lied Buettner's planning fees, was in the neighborhood of \$20,000, Blendell reports. That encompassed everything from asphalt and heavy equipment costs to the cost of tall landscaping materials and their planting.

Both Buettner and Blendell were pleased to find there were no major problems implementing the design, other than what Blendell calls the "usual weather problems—either it's too hot or too cold, too wet or too dry."

If anything, he recalled, what required the most effort was the need to carefully coordinate the work of the asphalt crew, the wall and drainage people, and those doing the planting work.

"Overall," Blendell says now, "I'd have to say we were generally very pleased with the project. What's most important to us is what our members' think and their reactions were very favorable."

"The feedback we got was that the new path was not only thoughtful and well-conceived, but equally well executed."

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THE BLACK DEATH

Researchers agree on some curative methods for black layer on golf course greens, but they still don't seem to agree on all of the causes.

Turf researchers now agree that black layer on golf course greens can be dealt with.

Not long ago, it was thought the superintendent had to replace the green once the condition occurred. While this remains a viable—though expensive—option, principle researchers of the condition find that cultural practices can alleviate it.

Number one

Aeration is number one on the list. "I'm talking slicers, spikers—anything to break up the surfaces," notes John Hall III, Ph.D. at Virginia Tech University.

The condition apparently arises from a number of causes, but commonly from lack of oxygen combined with excess moisture. "The concern is that we have oxygen in the soil so it can breathe," Hall says.

Compaction, or layering related to the condition, is cured through coring. Regular aerators help, but deep aeration may be necessary to get through the layering. Judicious use of irrigation and fertilization also helps al-

leviate the effects.

Opinions vary on the causes, however. Here is what some researchers say:

Hall: "The pressure on (superintendents) has increased in recent years because of traffic on your courses. There were 25,000 to 30,000 rounds played per course in 1960; there were 65,000 to 70,000 per course in 1987. We have moved toward sandier media to reduce the amount of stress due to increased traffic."

Hall has found these contributors to the condition: sulfur; blue-green algae; salinity greater than 10; podsolization (the maturing of intensely-managed soils through leaching of iron, aluminum and silicate compounds); silt and clay stratification; low phosphorous; high metal concentrations; and "chromatographic irrigation." He believes black layer is not a common problem.

Clint Hodges, Ph.D., Iowa State University: "You don't have to have an anaerobic condition for the layer to start. But there is some component produced by the algae that you have to have. It can start in aerobic conditions. We are



Vargas: not unique to sand



Hodges: accelerating nature

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simply accelerating a natural system. If we are going to continue our management practices, then we'll have to deal with it. We don't really know what kills the grass. The system we're working with shows iron is enemy No. 1, sulfate is enemy No. 2."

Roy Goss, Ph.D., Washington State University: "It all comes back to oxygen exchange within the soils. Even though you aerify, a 3½-inch depth may not be adequate. It could occur below that. We need to cure the condition first, then fertilize the turf."

Bob Shearman, Ph.D., University of Nebraska, using figures obtained in a GCSAA survey, says the condition can occur in any region on any turf, but most often occurred on bentgrass or bentgrass/poa greens, usually in July or August. "Why is it showing up more now?" Shearman asks. "Water management is the critical issue. We need to be judicious in meeting the evapotranspiration demand of the grass. Nutrition plays an important role. The best results are with aerification and the use of wetting agents."

Application of a balanced fertilizer containing equal amounts of nitrogen and phosphorous helps.

Jim Tiedje, Ph.D., microbiologist, Michigan State University: "Black layer is very common in nature." He believes there are four conditions that must be present to have black layer: anaerobic conditions; a food supply; sulfur compounds; and sulfur-reducing compounds. Anaerobic conditions form from restricted oxygen supply and increased oxygen consumption, he says.

Joe Vargas, Ph.D., Michigan State, notes the condition is not unique to sand but occurs in soil as well. "We could all tolerate black layer if it didn't kill the turf," he says. Vargas believes it is caused by a relationship between algae and sulfur. "Sulfur takes oxygen out of the system, making it anaerobic." He says conditions are caused by excess irrigation, heavy rains and poor aeration down in the soil.

Stan Zontek, USGA Green Section, notes three types of black layer, two being: anything black, such as peat, but not a "bad black layer;" and a type which forms from physical differences in the soil such as layering. This type is easy to manage physically, he says. It can be combatted with core aeration and back-filling with sand or rebuilding the greens.

"The third type gives us the most concern," he says. It occurs just below the surface thatch layer, "even on USGA-specked greens. It's the result of something living in the soil. This type is associated with greens in pockets of slow air circulation." Sulfur is a cause, but not a direct one, he says. "Sulfur occurs naturally everywhere so backing off (applications) won't help that much." He explains that sand can have a hand in forming the layer if the high-draining media sits atop a much slower draining media like a clay soil.

Applications of a balanced fertilizer containing equal amounts of nitrogen and phosphorous also helps. Drainage improvements are necessary. "Build a new soil structure on top of the old but without causing layers." He emphasizes not changing top dressing media radically but getting a gradual transition in the particle size mix. He suggests raising cutting heights in the summer and aerating both shallow and deep. "Black layer is not AIDS," he concludes. "Not everyone is going to get it, and it can be gotten rid of."

So if you have it, it's not the end of the world. Solutions to the problem are agreed upon—even if the causes vary by source.

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