azalea, red bud, holly, peach, juniper and fir and more. In fact, each hole is named after a plant that dominates its terrain.

Everything is green, from the turf itself to the shop when it was located below the fifth fairway. The bleachers, the rest stations, the trash containers, crowd control states and ropes everything!—is green. The yellow sticks and yellow flags make the targets even better because of this.

Bob Jones had some help in designing Augusta National, a man we are more familiar with of late—a Scottish golf course architect named Alister McKenzie. Jones once wrote their purpose "was to provide a golf course of considerable natural beauty, enjoyable for the average golfer and at the same time testing for the expert player...We want to make the bogeys easy, if frankly sought, pars readily obtainable by standard good play, and birdies, except on par-fives, dearly bought ..."

And then, "...with a course as wide open as is needed to accommodate the average golfer we can only tighten it up by increasing the difficulty of play around the hole. This we attempt to do ...by placing flags in more difficult and exacting positions and by increasing the speed of the greens. Additionally we try to maintain our greens at such firmness that they will not hold a misplayed shot. Generally speaking, the greens at Augusta are quite large and rolling, with carefully contrived undulations, the effect of which is magnified as the speed of the surface is increased."

There are lots of other things that make the Masters the singular tournament that it is. The food stands, for example, have only cold sandwiches—egg salad, pimento loaf and bologna—and no hot food. They do not want the blue haze from charcoal confusing the gallery with Lambeau Field or Milwaukee County Stadium. No disturbing cameras are allowed. Nor is autograph seeking.

The tradition is more than Jones and McKenzie and Magnolia Lane. It is the membership of the club, which included Ike Eisenhower and Cliff Roberts and Hord Hardin. Tradition is the par 3 nine-hole tourney early in the week. It is the group of tidy white cabins east of the 10th tee and fairway, for visiting members and their families. It is Raes Creek and Amen Corner. It is the permanent Masters Trophy.

It seems everything about Augusta National and the Masters is perfect. In fact, on my second trip Cheryl was with me and even though we were all by ourselves on the eighth hole, we were whispering to each other! That's respect.

When I was 22 years old, I spent ten weeks at Fort Gordon, Georgia, the US Army's Military Police School outside of Augusta. Despite a lack of money, on a weekend when I had a pass I took a cab from downtown Augusta to the golf course. I spoke to the guard in the guard house at the end of Magnolia Lane, asking for permission to walk in and see the golf course. I explained my circumstances, but he replied, "I'm sorry, son, but I cannot let you in." That was in 1970. Never would I have guessed that a little over twenty years later I would have the chance to walk every corner of the course.

So it happened again this year. Spring officially began in my world when the first player hit the first ball of the Masters to the yellow flag fluttering on the first green. Hallelujah, spring!



Here's the Single Solution to Your Irrigation Control Problems . . . The OSMAC Radio Paging Based System . . . consisting of:

One or more RDR radio data receiver field units attached to your existing or new pedestals and connected to your existing or new field wires. The RDR field unit allows independent scheduling of each station. And since each RDR field unit can control up to 48 stations, it is possible to replace multiple controller sites with one RDR.

A standard IBM compatible computer for easy yet precise, flexible and powerful centralized control, using the OSMAC PC Timer Software.

The Central Control Station. A small, desk-top paging encoder that includes a built in radio frequency tranceiver to provide local-area signalling to the field satellites, radio paging, twoway communications or telephone interconnect.

One or more Portable Radios for remote control of valves, initiating pages, two-way communications, and telephone interconnect.

Optional pagers for signalling staff or other personnel.

An optional centralized rain gauge interface is available.

Reinders

Irrigation Supply

ELM GROVE 13400 Watertown Plank Rd. 414-786-3301 MADISON 4618 A Tompkins Dr. 608-223-0200 APPLETON 900 Randolph Dr. 414-788-0200

Curb Those Golf Carts

with Extruded Concrete Curbing

At last! A practical and appealing solution to cart path traffic control. Our innovative new curbing politely but firmly deters cart drivers from venturing off the path and into sensitive areas such as greens, tees and unsafe terrain.

Extruded on-site from high strength reinforced concrete, our powerful new equipment can lay hundreds of linear feet of curbing per day along new or existing cart paths. Extruded curbs also form attractive islands and boundaries for clubhouse parking lots.

EXTRUDED CONCRETE CURBING:

- Costs less than timber or pre-cast concrete barriers
- Smooth, exposed aggregate or color finishes
- Seamlessly conforms to curves and slopes
- Is virtually maintenance free

Call now for more information and a free estimate!

(608) 249-6262 FAX (608) 635-7590

Droster and Daughters

3259 Tipperary Point Road, Poynette, Wisconsin 53955

O.J. Noer Research Foundation Announces New Research Grants

Jim Latham, secretary of the NOER Research Foundation, recently announced four new grants covering a variety of interests in the turfgrass industry. Dr. Wayne Hanna of the Coastal Plain Experiments Station in Tifton, GA received funding to help develop fine textured bermudagrass. Dr. Robert Shearman from Nebraska was funded to lead a study on the impact of cultural practices on putting greens and their microbial communities. Dr. Henry Wilkinson (featured author of an article in this issue of THE GRASS ROOTS) was given a grant to study genetic resistance to patch diseases by bluegrasses and bentgrasses. Finally, Dr. Joe Vargas, Michigan State, was given money to continue his work on anthracnose crown rot of *Poa annua.*

The grants were approved at the annual meeting of Foundation during the GCSAA conference in Orlando. Also, the president of the Foundation, William R. Schmidt, announced that the board of directors was expanded for nine to twelve, with the addition of Wally Fuchs, Turf Products Ltd., West Chicago; Dick Morey, Brantwood Publications, Clearwater, FL; and Jim Latham, Whitney, TX as secretary.

Of course, the WGCSA is a major contributor to the NOER Foundation. Since its inception, the Foundation has provided over \$400,000 for turfgrass research. Additionally, it established a means for the TIF at MSU to purchase rare books for that excellent collection. Funds also come through membership subscriptions, contributions and, especially, Milorganite distributors.

The Poly-S difference: a unique multiple coating system.



Each Poly-S™ particle is manufactured using a computer-controlled, two-tier coating process that allows nutrients to be released steadily and safely by controlled diffusion through the polymer coating. Thus the rate of re-

lease can be regulated over a preprogrammed period of time over a wide variety of weather conditions — providing higher nitrogen analysis than SCU products with less sensitivity to temperature than fertilizers coated with polymer only.

It is the most efficient — and cost-effective turf fertilizer technology ever developed. For more information about Poly-S fertilizers and their performance advantages, con-

tact your Scott Tech Rep. Or call 1-800-543-0006.





Wayne Horman Senior Technical Representative 5019 Timber Lane McFarland, WI 53558 Telephone **608/838-9422**

Bruce R. Schweiger

Technical Representative 1712 N. Harmony Drive Janesville, WI 53545 Telephone **800/373-6613** (or **608/756-3912**)



MECHANICAL SOIL TECHNOLOGY

Contract Aeration Service • Servicing The Entire Midwest

VERTI-DRAIN®

The Ultimate Solution For Compacted Soil David Strang • 442 Pine Street • Galesburg, IL 61401 • Phone (800) 743-2419



Last summer, when Prof. Doug Maxwell was asked to assume leadership for the University of Wisconsin's Turfgrass Disease Diagnostic Laboratory, working with turfgrasses was a new challenge for him. But accepting a new challenge was old hat — something he's done several times since he joined the UW faculty in 1968.

"I've accepted many challenges in my career," Prof. Maxwell remembers. "Just the other day I was thinking about this. Faculty members have to be flexible because we don't know what we might be asked to do.

"I've always felt responsible for serving the state and interests of the University," he continues. "So when the plant pathology department chair asks me to start up a whole new endeavor, I try to do the best I can. Sometimes I worry about doing as good a job as I can when I have so many different responsibilities. But I enjoy the challenge."

Facing challenges is something Doug Maxwell learned to do during his childhood. He was born in central Nebraska in 1941. "I was the only child delivered in a hospital by our local doctor out of 2,000 births," he relates. "All the others were home births, which means my mother had problems, obviously."

Prof. Maxwell lived on a farm until he was in the fifth grade. "My father worked extremely hard," he remembers. "We had two tornadoes and three or four severe hail storms and floods. After eight to ten years, he went broke and we moved into town (Albion, Nebraska) where he sold International farm equipment. Later he bought a Coast to Coast hardware store.

"But my upbringing was really influenced by those first ten years on the farm," Prof. Maxwell continues. "We didn't have electricity. We didn't have indoor plumbing. And we lived through the snowstorms of '48 and '49. They were terrible."



Professor Doug Maxwell

During one of those storms, Prof. Maxwell and his teacher, who was living with his family at the time, left school on horses and headed for home. "We got lost in the blizzard, a real white-out," Prof. Maxwell recalls. "If it hadn't been for the horses, I wouldn't be here today. The horses found our house. It was unbelievable. The teacher never should have started us for home." While he was still on the farm, Prof. Maxwell attended a one-room rural school. "We had eight children in eight grades," he remembers. "I had four students in my grade alone."

After graduating from Albion High School, he attended Nebraska Wesleyan University in Lincoln where he majored in biology, chemistry and physics. "I became fascinated with biology when I was in high school, and I wanted to become a biology teacher," Prof. Maxwell points out.

During his junior year in college, his biology professor arranged for him to participate in a plant pathology research project at Cornell University in New York. "I did that during the summer of 1962, and I decided that research was something that I really wanted to do," he explains. "I was fortunate enough to get a fellowship to go to Cornell University."

So he graduated with highest distinction in 1963 from Nebraska Wesleyan University, and then headed for Cornell. In 1964, he married Martha Dennison, who also was an undergraduate student in the sciences at Nebraska Wesleyan University.



Prof. Maxwell never got a master's degree from Cornell — he went right into the doctorate program and received his PhD from Cornell in 1968. "I worked on the biochemistry of oxalic acid production by a plant pathogenic fungus," he explains. "THE GRASS ROOTS readers should know that I started my career in fungi."

Before finishing his doctorate program, in the spring of 1968 he accepted a job with the College of Agricultural and Life Sciences plant pathology department at the University of Wisconsin-Madison.

Prof. Maxwell chose Wisconsin for two reasons. "I thought the plant pathology department chair here, Arthur Kelman, was one of the nicest persons I knew," he explains. "And I had a chance to teach introductory plant pathology. Teaching attracted me."

And so Prof. Maxwell began his ever-changing career at the UW. Two highlights of that career were receiving the CALS Outstanding Teacher Award in 1975 and being named a Fellow of the American Phytopathological Society in 1991.

"I was originally hired to be a forage grass pathologist, which means that I was to work on diseases of bromegrass, orchardgrass and timothy," Prof. Maxwell points out. "And the colleague with whom I worked most closely at that time was Prof. Gayle Worf.

"It wasn't long after I joined the department that I was asked to assume a new role in plant pathology — assisting Dr. Richard Smith from the agronomy department in breeding red clover for disease resistance," Prof. Maxwell recalls. "And so I worked with him for about eight years.

"And then I started a program on soil-borne plant pathogens that cause diseases of alfalfa," he continues. "I worked on phytophthora root rot of alfalfa."

He was named chair of the plant pathology department in 1980, a position he held until 1991. "I was probably one of the youngest chairs," he points out, adding that he was 39 years old when he began his new duties. "I was interested in administration and felt I could provide some leadership to the department.

"That time was particularly important to the department because we switched from classical plant pathology to molecular plant pathology, which orients research projects toward applications of molecular biology," he explains.

In 1984, while he was still department chair, Prof. Maxwell faced another new challenge. "I was asked to start an international research program in Brazil," he says. "So during the next few years I switched from working on alfalfa to working on diseases of vegetables in the tropics. I primarily worked on dry bean diseases, breeding for disease resistance, until 1988.

"Since 1988 I've worked on what's the equivalent to the AIDS virus in the plant world—the geminiviruses, so named because they have twin particles," Prof. Maxwell explains. "They're extremely serious, devastating, and difficult to control. We work on diagnostic tools, characterization of the diversity of the viruses, and the use of recombinant DNA strategy to develop transgenic plants that are resistant to the virus."

Prof. Maxwell works primarily with beans and tomatoes. Since geminiviruses are a problem in the tropics throughout the world, he has found himself traveling to Taiwan, India, Egypt, Spain, the Dominican Republic, Jamaica, Honduras, Guatemala, Nicaragua, Cost Rica, Colombia, and Brazil.

(Continued on page 17)





Rohm and Haas makes these outstanding products for Turf

FORE® AND FORE® WSP FUNGICIDES

...proven, contact-protectant turf fungicides offering:

- Consistent, cost-effective control of key turf problems:
 - Pythium Blight
 - Brown Patch
 - Algae
 - Rusts
 - Helminthosporium
- Red Thread
 - Fusance
 Copper Spot
 Mold Fusarium Blight

 - Slime Mold
 - Dollar Spot
- A resistance management tool for tank mixing or for rotating with resistance-prone fungicides
- Exceptional turf safety and tank mix compatibility
- Available in a new water-soluble pouch formula



The foundation of good disease management

Always read and follow the label directions for FORE fungicide. FORE is a registered trademark of Rohm and Haas Company.



For more information contact your Turf Supply Representative at:

Turf Supply Company 2797 Eagandale Boulevard • Eagan, Minnesota 55121 (612) 454-3106 • Fax: (612) 454-7884 • 1-800-551-4857

(Continued from page 15)

"That's very draining on me physically," he says of the international travel. "Until I started working with the turf program, I would be gone a third of the time—more than a week per month. Now I travel primarily in the spring."

His geminivirus research has been sponsored primarily by USAID— United States Agency for International Development, which is a part of the U.S. State Department. "And it's part of a major project called the Bean/Cowpea CRSP Program," Prof. Maxwell adds. "They have supported me for 15 years now."

In 1993, Prof. Maxwell stepped beyond the boundaries of plant pathology to serve as the CALS interim dean in academic student affairs. "At that time we were interested in increasing the involvement of faculty at CALS in undergraduate biology. That was my one big goal there," he explains.

While he was department chair for 10-1/2 years (1980-91), Prof. Maxwell did very little teaching. "My research program was pretty good sized—I had 15 people working in my lab. So I didn't have time for teaching."

But in 1994 he was asked to start teaching the introductory plant pathology course again. "I've done it for two years now and I've had a great time," he says. "And I'm back working with grasses again, but this time a different group of grasses."

That's because, in the summer of 1995, he was asked to assume leadership for the Turfgrass Disease Diagnostic Lab. He also assumed some Extension duties. "Wherever there's a turf event, our group puts on something about disease diagnosis," he points out.

He accepts the challenge with spe-



Dr. Douglas Maxwell at work in his lab.

cific goals in mind: making the TDDL the best it can be; developing better diagnostic methods for turf diseases; and encouraging superintendents to use electronic communications.

"The lab is my biggest issue," Prof. Maxwell says. "We want to make sure that it's operating smoothly, providing rapid and accurate diagnoses and appropriate recommendations. And I would hope that, in the near future, we would be able to help golf course superintendents reduce pesticide applications by helping them make accurate diagnoses.

"I'm also interested in developing better diagnostic methods," he continues. "Diagnosing turfgrasses is much more difficult than diagnosing geminiviruses in the tropics. With geminiviruses, I have a nice technique called polymerase chain reaction, or a way to amplify the nucleic acid from the virus to find out exactly what it is. We don't have similar technologies available for turfgrass.

"Plus, when you're looking at all the problems that can go wrong with turfgrasses, most of them really aren't caused by fungi," he continues. "They're caused by some management problem or environmental situation. So it's much more complex."

When it comes to improving electronic communications among superintendents, Prof. Maxwell's first effort was a workshop with Steve Millet, his graduate student, on "turfing and surfing the net."

"Right now I'm looking at the homepage for the plant health services on the World Wide Web," he adds. "And I communicate with about 10 golf course superintendents with e-mail on a regular basis. I hope to get superintendents more involved in electronic communications."

Prof. Maxwell is impressed with the turf industry. "They're a great group to work with. It's been wonderful," he says. "They provided an opportunity for me to go to Orlando to the national meeting (GCSAA). That was a wonderful experience—not only seeing how large and impressive the group was, but also having a chance to find out about golf course design and learning more about technical things. The exhibits were phenomenal. That was really my big introduction into the turf industry."

He's eager to learn more about turf. "I have three superintendents who are going to be my mentors this summer," Prof. Maxwell explains. "I'm going to visit with them twice a month to discuss their golf course management and disease management situations. (Continued on page 18)





(Continued from page 17)

So I'm on a steep learning curve. Really steep.'

Prof. Maxwell didn't relinquish his other duties when he assumed the turf territory. He splits his time equally among teaching, international agriculture and turfgrass. "Managing my life between my three responsibilities is extremely demanding right now," he adds.

But he does find time to enjoy life outside of his university duties. He and his wife, Martha, live on a 90-acre farm just three miles west of the O.J. Noer Education and Research Facility. Martha produces wool for hand spinning from the natural colored sheep she raises, and Prof. Maxwell helps when he can.

"Martha belongs to a group called the Spindrifters of Mt. Horeb," he relates. "They have a Shepherds' Harvest on our farm the last weekend of April. We have between 300 and 500 people visit our farm to buy wool or watch us shear sheep."

The Maxwells also have border collies on their farm. "Can't have sheep without great border collies. And we have a few coyotes that we'd like to get rid of!" he laughs.

"My wife has also gotten very interested in davlilies, so we have quite a collection," Prof. Maxwell continues. "With my schedule, I'm not home very much. What turns out to be my most precious gift is time. So I gave my wife my labor to plant and weed daylilies with her. That was a good thing."

The Maxwells have two children, both married and living in the Madison area. Their son, Paul, works in maintenance for the Verona school district. And their daughter, Heather Putnam, is a graduate student at the UW in landscape architecture.

"Our daughter and her husband are very much into bicycling, so Martha and I have a tandem bike and we all try to take short trips together at least once or twice a week," Prof. Maxwell points out. He enjoys the tandem bike because it makes it easier to converse.

"We have long conversations when we're biking," he says. "It's really quality togetherness time. We both enjoy it immensely."

Martha travels with her husband occasionally. But her sheep keep her home most of the time.

At 55 years of age, Prof. Maxwell has given some thought toward retirement. "In the university system, it's hard to retire before you've had 30 years of service," he explains. "I'll have my 30 years in pretty soon (1998). I know I'm going to work until I'm 60 or 62. But I don't think you're going to see me here after I'm 62."

What will he do in retirement? "There's such a large segment of our society that needs some help," Prof. Maxwell points out.

"I haven't figured out how to help that segment. But I'm sure that volunteer work-working with those who are less privileged than I've been-will be an important part of my retirement.

"There's no doubt that I enjoy diversity," Prof. Maxwell continues. "My life has been blessed with good health, a wonderful place to work at the University of Wisconsin, and possibilities to do something to help people. And my international program really provides that opportunity. We can help millions of people if we solve this geminivirus problem.

"But right now, I'm also really looking forward to interacting with the people in the turf industry," he concludes.





Surface Aerators

- •Reduce the problem of algae, aquatic weeds and odor.
- Available in a variety of spray patterns and sizes.

ELM GROVE 13400 Watertown Plank Rd. 414-786 -3306 1-800-785-3306



Sub-Surface Aerators •Introduce O, into the pond bottom via Sub-Surface or Diffused Air.

- •Introduce O₂ into the pond. •Perfect for shallow ponds.
 - No visible spray pattern.



Bunker Pumper Removing water from

- bunkers, excavation sites or swimming pools.
- •280 GPM pumping rate.
- •Floating, self priming portable - only 85 lbs!



Ottershield Lake Dye

- ·Transforms muddy water into healthy blue water.
- ·No stained clothes or hands - you never touch Ottershield.
- •Neat, clean, packets.

"Ask For A Free Demonstration"

MADISON 4618 A Tompkins Dr. 608-223-0200

APPLETON 900 Randolph Dr. 414-788-0200

STEVENS POINT 3501 Dixon St. 715-342-3600

A Three Year Plan For The TDDL

By Bob Erdahl

In the March/April 1996 issue of THE GRASS ROOTS, I concluded my article ("Wisconsin TDDL Takes Big Step Forward") by stating that the future of turfgrass disease diagnosis in Wisconsin was up to all of us. Following up on that theme, this article will describe how we can all do our part to insure the long term success of the Turfgrass Disease Diagnostic Lab—TDDL.

Before proceeding with any further discussion on the future of the TDDL, however, it is necessary to first correct an oversight that I made in my last article. In my comments about the history of the Plant Pathogen Detection Clinic in the Department of Plant Pathology at the University of Wisconsin-Madison, I was remiss in not mentioning the very important contributions made to the clinic by:

> Mary Francis Heimann Chuck Koval Phil Pelletteri

These dedicated individuals have played key roles in the operation of the clinic since its inception in the mid-1970's. Their years of hard work formed the foundation from which we can now go forward and build the TDDL.

As I outlined in my last article, the 1996 TDDL is a partnership between the Wisconsin Turfgrass Association (WTA) and the University of Wisconsin-Madison/UW-Extension. The \$45,500 needed to pay the staff of the TDDL and purchase the equipment and supplies necessary to run the lab in 1996 will come from:

• WTA \$23,000 \$1,000 donations from 18 golf courses and 5 businesses.

• UW-Madison/UW-Extension \$19,000.

• TDDL Revenue \$3,500.

How long will this partnership last? With the current budget shrinking that is taking place in Madison, the \$19,000 from UW-Madison/UW-Extension may not be available in the future. Thus, the partnership may be only one year long and the responsibility for future funding of the TDDL will fall solely upon the WTA.

Given this very probable scenario, the WTA Board of Directors has undertaken a 3 year fund raising campaign to insure the continued existence of the TDDL through 1999.

The goals of the fund raising campaign are three-fold:

- 1. Obviously, the number one goal is to raise enough money to make the TDDL financially independent.
- A second important goal is to create a broader base of support for all of the programs of the WTA.
- 3. The third and more subtle goal is to draw more people to the O.J. Noer Turfgrass Research & Education Facility.

To meet these goals, the WTA needs to draw support from all segments of the turfgrass industry in Wisconsin. This includes golf courses, sod farms, lawn care companies, public institutions, landscape companies and the distributors of turfgrass maintenance supplies. Who will provide the most support? Golf Courses! And who will make the decision to provide that support? The golf course superintendent, of course!

That's right, this article has just turned into an unabashed effort to twist your arms into supporting the 3 year fund raising campaign for the TDDL. And that doesn't bother me a bit—because golf course superintendents stand to gain the most from the TDDL. After all: Who gets the weird patches that show up on the 7th green overnight? We do. Who needs to have a diagnosis ASAP? We do. Who needs to know whether to spray a contact or a systemic? We do. Who needs to solve the problem in order to save their own necks? We do. And finally, who is in the best position to send a big check to the TDDL? We are!

(Continued on page 21)



AND DO ALL YOUR ROUTINE SERVICING QUICKLY, SAFELY, AND MORE THOROUGHLY!

Trion offers the only turf equipment lift designed to efficiently meet the daily maintenance needs of your turfgrass operation! No other lift compares! Call today to request

our FREE VIDEO and see the Trion difference yourself!



There Are A Few Things The Sand Pro Can't Do

What the Sand Pro 5000 can do is increase bunker playablility regardless drive keeps the grit out while separate fans for hydraulic and

of design or sand type. With the most attachments on the market, and adjustable down-pressure, it lets you really fine-tune your bunkers. Double air filtration and enclosed hydraulic



engine cooling prevent overheating.

And the 16 H. P. twin cylinder engine offers 3WD and optional on-demand 2WD.

For operator comfort and control Toro included a sound treatment package. And the rear mounted engine makes the operator feel like he's sitting on the machine, not straddling it.

> It all adds' up to better looking, better playing bunkers. No, the Sand Pro can't build castles, but it sure makes its home in the sand.



Helping you put quality into play.™



 TURF EQUIPMENT

 13400 WATERTOWN PLANK ROAD, ELM GROVE WI 53122-0825

 PHONES: LOCAL (414) 786-3301
 800 782-3300

 Branch Offices Appleton (414) 788-0200
 Madison (608) 223-0200