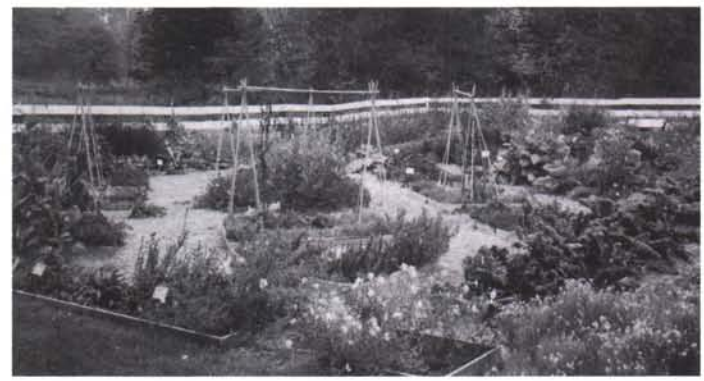
Screened cages prevent insects from cross-pollinating certain crops.

Fields follow the narrow valley behind the farmstead.

The barnyard is even utilized in plant preservation. The barn is used as a meeting place (left), store and seed processing.



Flowers and veggies share space in this late season garden at Seed Savers.

available commercially have been distributed and therefore saved from loss forever. Better yet, old varieties become available to other seed savers. Seeds maintained by isolated gardeners and farmers, some literally since the Mayflower, were being lost simply because there are fewer farmers, fewer ethnic enclaves and even fewer gardeners each year. It seems to me that the SSE started just in the nick of time, saving valuable genetic treasures.

The valley, with the house and barn at its entrance, is where I saw most of the flower and vegetable and herb gardens and the fields. On the upland meadow away from the steep limestone bluff is the historic orchard. In 1900, there were 7,000 varieties of apples in the U.S. Today, half of the 7,000 are extinct and the rest are dying rapidly. Seed Savers is attempting to half this loss through development of the most diverse public orchard in the U.S. They have 700 different apples, most of them 19th century varieties, on display. More are to come.

The preservation gardens are the real site to behold at Heritage Farm. Imagine: more than 18,000 rare vegetables are being maintained. That includes 4,100 tomatoes, 3,600 beans, 1,200 peppers, 1,000 squash, 900 peas, 850 lettuces, 400 melons, 200 garlics, and so on. Each summer up to 2,000 endangered varieties are multiplied for seed, about 10% of each crop on a ten-year rotation. Flowers and herbs are grown in lesser numbers, but members exchange nearly 3,000 varieties of old time flowers and herbs each year, varieties that once bloomed in our ancestors yards and gardens.

The SSE is supported by memberships, a summer convention, catalog sales of seeds and garden gifts. It is an extremely worthy cause, one you can immerse yourself in because it is so close to Wisconsin. Plus, Decorah, Iowa is home to Luther College, the Vesterheim Museum of Norwegian/American history, and is close to Spillville, Iowa, a Chezk village where Antonin Dvorak spent part of a year with his family long ago and where he wrote some of the world's most beautiful classic music. All of this is a short drive from Wisconsin, perfect for a day trip or a weekend vacation.

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Audubon Certification

By Andy Gruse

Monroe Country Club became only the third golf course in Wisconsin to achieve full certification in the Audubon Cooperative Sanctuary Program this past October, a feat which should inspire all who consider the program. If anything, we proved that it doesn't matter what size budget you have to become certified. Most often in trade journals, we see articles proclaiming how great these Audubon Signature Courses are and think how intimidating it is. It was to me. Our budget is about an eighth of some of those courses and it appeared there was no way we could do the things necessary. One course spent more on a wash pad than we spend in a year on everything! Hardly seems fair; however, with a little determination and grit, a lot can get done.

Overview of two areas planted and maintained as a wildflower area.

After all is said and done, getting certified requires merely documenting what most of us already do and that is good, sound I.P.M. practices. The very same that Dr. Watschke preached to my class at Penn State. The very same we've heard Dr. Rossi talk and write about, and the very same we read about in *The Grass Roots* by Dr. Kussow and others. The fact that we're only the third fully certified Audubon course in this state amazes me because I know the quality of superintendents we have and the quality of their courses. This leads me to believe that perhaps we are intimidated by the Kiawah Islands, or perhaps we think it just doesn't fit at our golf course. I felt a little of both at first, particularly the intimidation because of the size of the clubs I had read about. In my mind, surely there was no way MCC could be on the same page as these high profile clubs in anything. But I was wrong. An interesting thing happened during the process. Audubon recognized the fact that not everyone is the same in our industry. They stopped comparing courses that spend 1.2 million per year to us at MCC. And we realized that it doesn't require big bucks to do what we needed to do.

A brief history of the endeavor follows. The program began for us in 1993 with a committee of interested members and some non-club members, a prerequisite for one of the six categories necessary, Outreach and Education. By noting the existing qualities of the course, expanding naturalized areas, creating a wildflower area, creating birdhouses for bluebirds, tree swallows, house wrens and chickadees, and trying to lure purple martins to the site, (still unsuccessful to this date), the club was relatively quickly certified in two more areas by the spring of 1995: Environmental Planning and Wildlife and Habitat Management. These first three categories required absolutely nothing of the grounds department and no change on management of the course outside of mowing a little less in out of play areas. Monroe may be unique in our dependence on donations and volunteering, but it has been very beneficial to date, particularly with the Audubon program.

I started in January 1995 straight from an assistant for Scott Schaller at South Hills in Fond du Lac. Of course 1995 was potentially the worst year to be a first year superintendent, as well as possibly the best year to be one. Early in February the Audubon committee approached me and presented a file to me and said we need certification in Water Conservation, Water Quality Management, and Integrated Pest Management. I replied with a simple, "what the heck are you talking about?" Along with trying to get a brand new irrigation system working, learning a new

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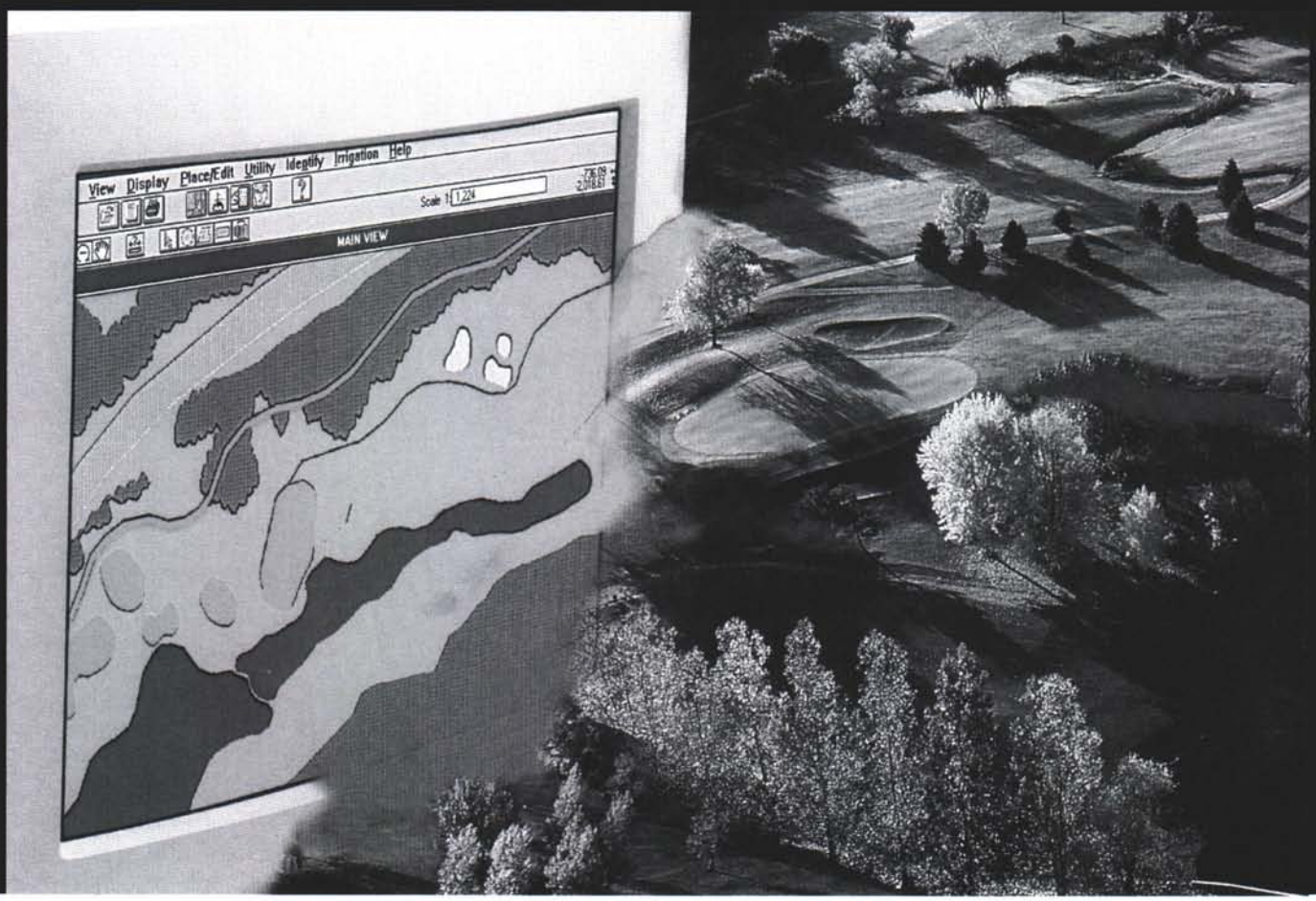

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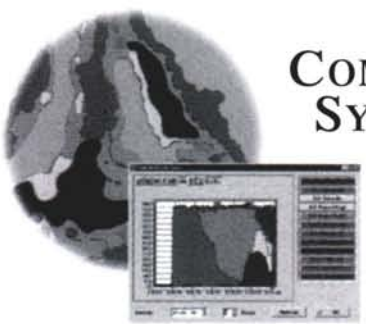

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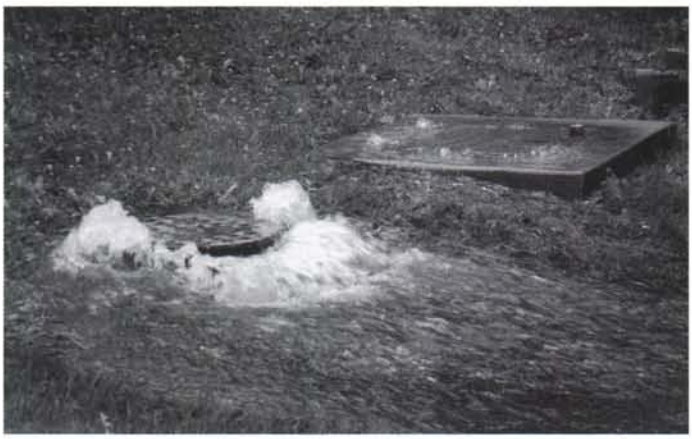

Heavy rains and accompanying runoff and sewerage overflow hurt water quality on the MCC course.

job at a different golf course, and realizing by mid-June that we were not prepared for the summer of 1995 in the least possible way, the Audubon project became an afterthought. Two fairway applications of chlorothalonil that summer didn't give quite the residual effect necessary for decent summer long control that year. Consequently, Audubon objected when I told them I needed to at least double my chemical budget, but more on that later. On the bright side, the conditions were a great cultural control for annual bluegrass and a tremendous selling point for picking clippings off of fairways.

The new irrigation system, setting up "no-spray zones" and buffer areas around water features, and E.T. rates were asked about, as was the rate at which we replenish that what is lost. Reducing some areas from the frequent irrigation patterns and prioritizing the areas which we irrigate regularly was necessary. Describing the water sources and how the pond is replenished was required. Documenting the use of mulches and proper species and cultivars of turfgrasses for our area also played a vital role in achieving certification in Water Conservation. I learned more about what my irrigation system is capable of during this period than ever before. In hindsight, it was probably the best thing I could have done to learn the new LTC system we had installed in the fall of 1994.

Water Quality Management aligns closely with conservation. Our water sources include runoff from half the city, and whenever we have a two inch plus rain (which is often), a lift station on the course pumps excess sewerage into our ponds. Quality isn't a term often used when describing water tests that contain fecal matter. Regardless, we adopted a testing plan that costs a little but tests incoming sources at three spots and outgoing at two spots. Our tests showed the water was better on the way out than when entering the course. The 24-inch bass, pike, and huge bluegills, bullfrogs and snappers along with a Great Blue Heron that gorges himself every morning suggest the water quality is all right. Tests merely confirmed what the true barometer, wildlife, indicated.

By the end of 1996, we only had one category to fulfill left, IPM. Staff Ecologist Joellen Zeh said in a recent article in *Golf Course Management* that superintendents wait until the winter, our down time, to turn in all the paperwork. This creates a logjam and explains why it took nearly two more years to complete the process. From March through late December, my time is better spent on the course and with only one other full time year round employee, down time is kind of a misnomer. IPM documentation required getting very stringent about grass clippings, washing off equipment, loading and washing our sprayers, dealing with waste oil, the toxicity of the chemicals I choose. It also included monitoring hot spots, training employees, and properly using cultural methods. ACSP asked me what I do with my leftover spray mixture. I had to laugh. I barely have enough to spray what I need to, nevermind any leftover product!

The use of natural organics versus synthetic fertilizers comes under fire. The Audubon argument essentially is synthetics=bad and organics=good. My argument is, going over budget=bad and keeping job=good. For some odd reason, despite mountains of research, it is generally believed that synthetic fertilizers pollute the ground water and runoff pollutes surface water as well. Attempting to sway someone's opinion on that is like pulling teeth! I think that Audubon aligning themselves with Nature Safe indicates their position on synthetics. The curative versus preventive applications is a point that also gets serious scrutiny. It, in fact, was the stalling point for our certification in IPM. Anybody who has read articles by Ron Dodson knows that ACSP believes that a preventive spray is a wasteful spray. He believes that with properly set threshold levels, one can curatively treat any pest problems and still maintain excellent turf with reduced fungicide usage.

I may open myself up for a lot of criticism here, but I think that is bunk. I argued that point repeatedly with the staff ecologists and a professor they utilize. A healthy turf is more resistant to disease infestations and to me, that means one that doesn't have any active disease. Using an ounce per thousand of a fungicide every 21 to 28 days seems to me to be more environmentally sound than using 4 to 8 ounces every seven to ten days, regardless of any LD50's. It was a battle on that issue from the start. I was told that many of the top level courses that are certified spray only curatively because of their properly set thresholds and are in optimum condition. Finally, they said just try to use a "more curative approach since it is a

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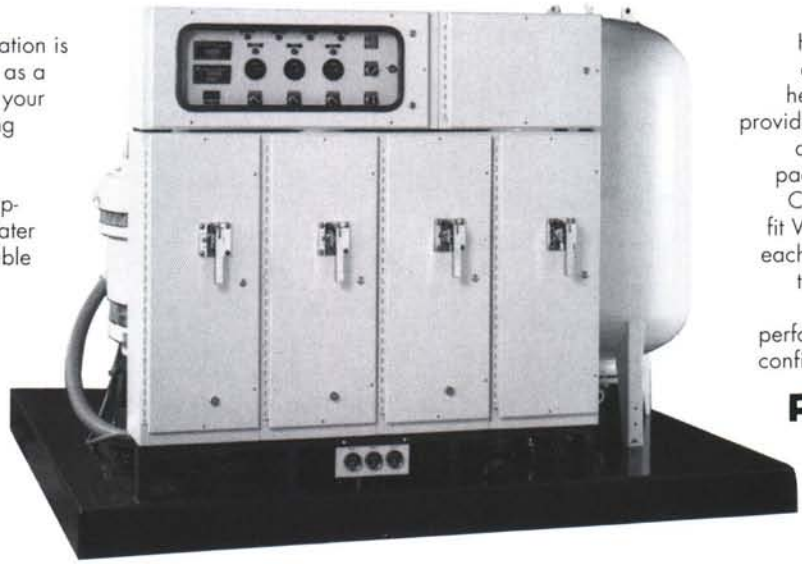

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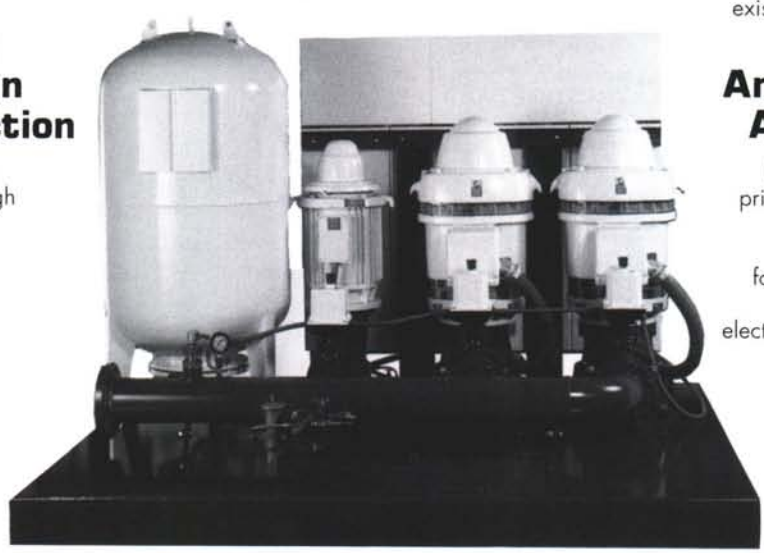

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An area returned to native conditions and seeded to wildflowers; this is the first year.

minimum requirement of the program." Obviously, you can tell how I feel about it, but waiting for anthracnose to strike before I treat it, when everyone in the state knows it is coming doesn't seem logical to me. Plus, I enjoy being employed.

Honestly, I think going through the certification process like we did, particularly the last three categories which I consider the bread and butter of the program, really helped me learn about what I do on the course. It required an intense, introspective look at literally everything we do here and then documenting it. And the fact that it took three years allowed me to really look at how things were working and not working, and to change programs accordingly. Whether being certified improved the course, I don't know. When we started mowing our rough with a rotary mower in 1995, our course was immediately improved. The board told me when I started that they wanted tight fairways and fast greens. The greens were already fast but the fairways were shaggy and thin. We dropped the height which certainly helped the demise of the KBG, especially in 1995. Dropping the height of cut is generally frowned upon by Audubon, and for good reason. But who am I to argue with the person who signs my checks? Like I said before, getting certified is full of compromises for both parties.

On Audubon's behalf, they did listen to me and change their point of view, at least for my course. I can't speak highly enough about Joellen Zeh and Marla Briggs, who since has changed positions within Audubon International. Despite my cynicism and sarcasm, they worked hard with me and for me. Joellen made the final certification official, perhaps to get me out of her hair. But it showed to me that they will bend but not break to help you achieve the final goal.

A lot of work? Well, yes and no. It was a lot of work on the computer and on the phone with Audubon. Work on the course? In our case it wasn't. We did create three additional wildflower areas since I've been here. But two were waste areas created by a pond dredging. It was only logical to spread some seed and let it go. Another was so far out of play that it was pointless to mow it. So we tore it up and spread more seed. None of the new wildflower areas were as intensely planted as the original meadow area planted before I got here, which was written about in *The Grass Roots* a few years back, but they all look the same now. Areas like that created wildlife corridors, eliminated maintenance, added color to break up the green monotony. With the help of the committee and volunteers, very little other work was cast upon the grounds department. Also, almost no additional money was spent on the projects and with the exception of the annual $100 membership fee and the water testing costs; there are almost no recurring expenses.

So will more courses in this state become certified? I think so. Having the golf course name in the same sentence with Audubon creates an internal peace for anti-golfers, bird watchers and environmentalists everywhere. It is a good program and people do respond to it, particularly when they don't have a clue about golf course management. And as we all know, our biggest critics often don't have a clue.

Suggestions? If you haven't already, contact Audubon International, specifically Joellen Zeh and tell her you want to get started. They have enough information and questionnaires to walk you through the entire process very easily. Besides, Wisconsin has a reputation for being a conservation and wildlife oriented state. What better way to show it on a golf course?

Pond dredging seeded to wildflowers two years ago.

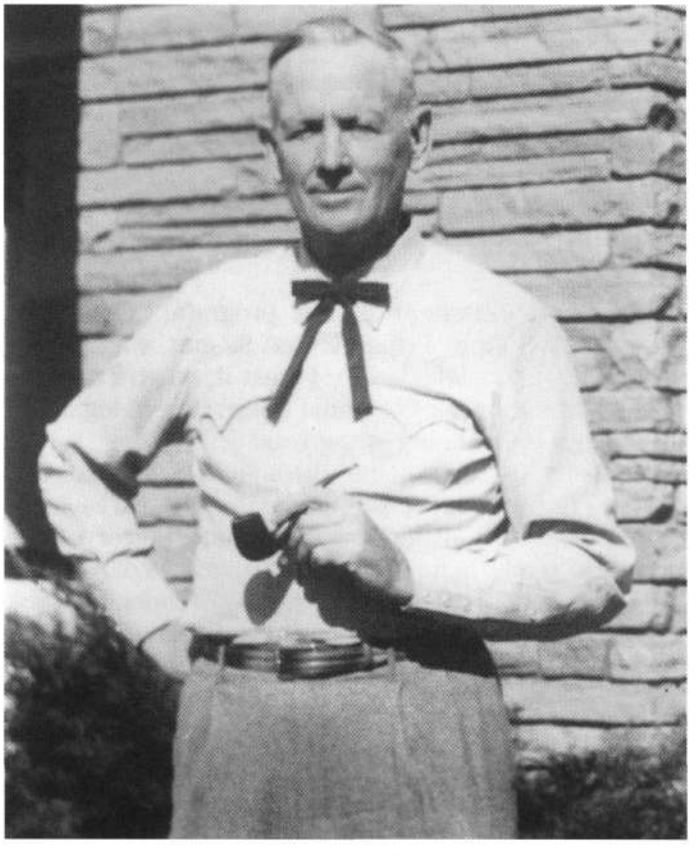
The UW Turf Legacy

By Steve Millett, *Department of Plant Pathology, University of Wisconsin–Madison*

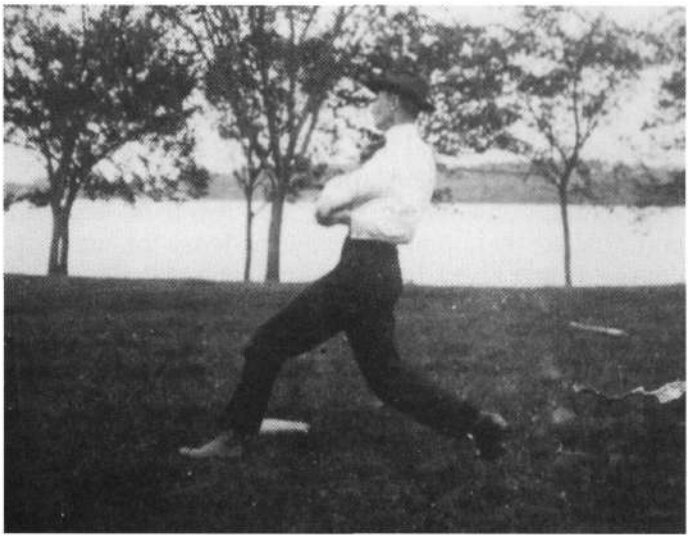
At this juncture in history, we continue to evolve from passive observers of the mysteries of turfgrass into masters of controlling turfgrass. Today we are on the cusp of being able to create and manipulate new turfgrass selections that will eventually reshape the turfworld around us. The turf researchers and teachers at the University of Wisconsin-Madison are playing an important role in this revolution. Research being conducted today at the UW is a culmination of a huge team effort, made both in the past as well as the present. An effort not from one individual, but from a whole program that includes the leadership and guidance of the turfgrass industry. The turfies in Wisconsin and throughout the world have benefitted from the many efforts of turfgrass scientists at the University of Wisconsin-Madison. There are many researchers, teachers and administrators who have passionately devoted their energies to the advancement of turfgrass science. However, there are three early pioneers who stand head and shoulders above the rest. They are John Monteith Jr., Arnold Sixten Dahl and Oyvind Juul Noer. These three leaders left us a turf legacy that continues to serve as a foundation for a far-reaching revolution within the turfgrass scientific community.

The American Heritage dictionary defines legacy as something handed on from those who have come before.

John Monteith Jr. was born on December 24, 1893, in Chatham, New Jersey. He received a Bachelor of Science degree and a Masters of Science degree from Rutgers College in 1916 and 1917 respectively. He then worked for the federal Horticultural Board as an assistant in plant disinfestation before serving in the Army at the end of World War I from 1917 to 1919. After his service in the Army, he came to the Department of Plant Pathology at the UW for his Ph.D. His thesis was entitled, "Relation of soil temperature and soil moisture to infection by Plasmodiophora brassicae." In 1923, Mr. Monteith became Dr. Monteith and left to work for the newly created United States Golf Association's Green Section. This work kept him very busy, but he occasionally came back to Wisconsin for visits. On February 10-14, 1930, Monteith returned to Madison to speak at a Greenskeeper Short Course. There he lectured about turfgrass diseases and shared the spotlight with his friend, Arnold S. Dahl, who was finishing up his Ph.D. in the Department of Plant Pathology. This would not be the last time these two would work together.



John Monteith, Jr. with a cool tie and pipe. UW Plant Pathology, Ph.D. 1923.



John Monteith Jr. playing baseball at Plant Pathology Dept. picnic.

Arnold S. Dahl, Ph.D. Plant Pathology 1931, University of Wisconsin.

Arnold Sixten Dahl was born on December 23, 1899 in Superior, Wisconsin. (It is interesting to note that Monteith and Dahl almost shared the same birthday.) Dahl received his B.S. in 1924, his M.S. in 1925 and his Ph.D. in 1931 from the Department of Plant Pathology at the UW. His Ph.D. thesis was entitled, "Snow mold of turf grasses." Before he actually received his degree, he left Wisconsin to work as a plant pathologist for the USGA Green Section under the direction of Monteith. Dahl also taught at Des Moines University and Kansas City University. A letter of recommendation from L. R. Jones describes Dahl's qualifications and his character: "He made a uniformly good record as an undergraduate and proved himself an excellent student as a candidate for his advanced degree last year. I am confident, therefore, that he is well prepared to meet the responsibilities of instructional work in your department of biological sciences. I am also pleased to bear witness to my full confidence in Dahl's high character and personal integrity as a Christian man. He would, I am sure, undertake to meet such duties as indicated by your position with conscientious devotion as well as scholarly ability. I may add also that Dahl is a fine modest young man of good physical appearance and pleasing personality, with those qualities which are sure to make him liked by his faculty associates as well as in his relations with students."

While at the Green Section of the USGA, Monteith and Dahl teamed up to write many publications. By far, their best work was "Turf Diseases and Their Control." In Houston Couch's "Diseases of Turfgrasses" (1995) he describes this work as a classic. Couch writes, "The first comprehensive publication on the nature and control of turfgrass diseases was published in 1932. It was released as an entry in the Bulletin of the United States Golf Association under the title "Turf Diseases and Their Control." The authors, John Monteith Jr. and Arnold S. Dahl, were the principal researchers in the field of turfgrass pathology in the late 1920s and early 1930s. This publication stands as a classic, both for the thorough manner in which it integrates the principles and concepts of plant pathology with those of the practice of turfgrass culture, and the completeness of detail in its descriptions of the nature of many of the more important diseases of turfgrasses. It covered diseases incited by both biotic and abiotic entities. Control was approached from the standpoint of the use of resistant varieties, the use of cultural practices such as fertilization and irrigation, and the application of fungicides."

In my humble opinion, Monteith and Dahl's bulletin was the first publication that addressed disease management from an "integrated" point of view and should be considered the beginning of integrated disease management. At the back of the bulletin is a quote by Elbert Hubbard that sums up the intent of this literary effort: "If I supply you a thought you may remember it and you may not. But if I can make you think a thought for yourself, I have indeed added to your stature." Monteith and Dahl have indeed added to our stature.

The third great mind of the UW turf legacy is Oyvind Juul Noer. There are numerous accounts of the life and times of O. J. Noer. One such source of information can be found on the web at http://www.lib.msu.edu/tgif/noer.htm. This site tells O.J.'s story, "from his beginnings as a graduating soil scientist from the Department of Soil Science, University of Wisconsin-Madison, O. J. Noer went on to become the State Soil Chemist in 1914, and is credited with helping to establish the first soil testing laboratory in the country. During and after the First World War, he served overseas as captain in the Chemical Warfare Service. From 1922-24 he was in charge of all investigational and experimental work in conjunction with determining the agricultural value of Milorganite under a fellowship grant at the College of Agriculture, University of Wisconsin. Later, as head of the Milwaukee Sewerage Commission Turf Service Bureau from 1926-1960, O. J. Noer visited/inspected perhaps 80% of the golf courses in North America advising on turf maintenance problems. Noer made

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