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Cover Photo:
Mr. Chester Mendenhall (right) accepts the 1990 Green Section Award from Raymond Anderson, vice-chairman of the USGA's Green Section Committee.
Photograph by Bruce Mathews.

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Chester Mendenhall Receives USGA Green Section Award for 1990

Chester Mendenhall

PHOTOGRAPH BY BRUCE MATHEWS

CHESTER MENDENHALL was named the recipient of the 1990 Green Section Award at this year's GCSAA International Golf Course Conference and Show, in Orlando, Florida. He is the eighth golf course superintendent to receive the Green Section Award since its inception in 1962. Mendenhall brings additional honor and distinction to the list of the previous 29 Green Section Award winners. He has had a long and illustrious career in golf, and his professional accomplishments are extensive and varied.

Mendenhall is a unique individual who has devoted his entire life to improving the game of golf through his work as an innovative superintendent. He helped to build the GCSAA into a national organization. He served as a USGA committee member for 36 years, and was instrumental in helping to establish a solid working relationship between the GCSAA and the USGA Green Section.

During the 1930s and 1940s, Mendenhall, on his own time and with his own money, frequently embarked on long trips in his Model T Ford to visit superintendents to promote both the Green Section and the GCSAA. These trips were made to golf courses throughout the Central Plains states. He was an invaluable aid to both organizations.

Mendenhall even made a few golf course consultation visits for the Green Section during this period. At that time, Dr. John Montieth was Director of the Green Section, and was responsible for the USGA's research program at the Arlington Turf Gardens, and later at the Beltsville Research Station. When Dr. Montieth was unable to accommodate all of the requests from golf courses for his services, he regularly called on Chet to assist clubs with their turfgrass management programs in the Great Plains states. Mendenhall performed these services on a volunteer basis and was never compensated for his time.

Mendenhall is a charter member of the GCSAA and served as that organization's 12th president, in 1948. He was instrumental in moving the GCSAA Annual Conference west of the Mississippi River in 1939 and eventually to California in 1949. Prior to that time the GCSAA had been quite regionalized, and he helped make it a truly national organization. He was also a major force in the formation of the Heart of America GCSA chapter, which encompasses Kansas and Missouri.

As a superintendent for more than 45 years, Chester Mendenhall was a leader and an innovator. He was the first superintendent in Kansas City to install a quick coupler irrigation system on fairways, and he was instrumental in the planning and construction of an experimental pie green at Ford Park in Kansas City. (Pie greens were turf plots on golf courses in which each slice of the green was a different experimental turf variety.)

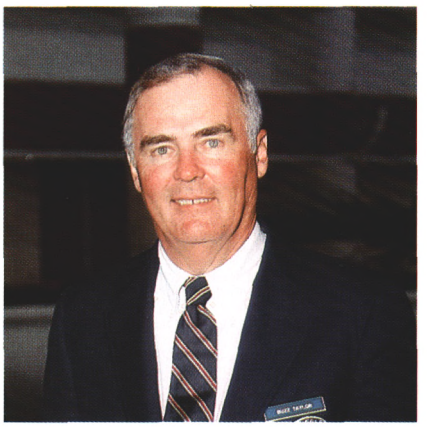
At 70 years of age, Mendenhall retired from the superintendent's profession to begin a new career in golf course design and construction. He worked in this capacity and as a turfgrass consultant until 1983 when, at the age of 85, he finally retired from the business.

Recognized previously by GCSAA with their Distinguished Service Award, the USGA proudly acknowledges Mendenhall's "distinguished service to golf through work with turfgrass" with its 1990 Green Section Award. He is now 93 years old but remains active in the industry, and has missed only a handful of the 61 annual GCSAA Conferences.

1990 GREEN SECTION EDUCATION CONFERENCE

CPR In Golf Course Management: Conservation - Preservation - Regulation

February 26, 1990, Orlando, Florida



F. Morgan Taylor, Jr.

FOR THE NINTH CONSECUTIVE YEAR the annual Green Section Education Conference was held in conjunction with the Golf Course Superintendents Association of America International Turfgrass Conference and Show. This year more than 1000 people attended the Green Section's program on Monday, February 26, at the Orlando Civic Center. F. Morgan Taylor, Jr., of Hobe Sound, Florida, Chairman of the USGA Green Section Committee, introduced the morning's program of 17 speakers who addressed this year's theme, "CPR In Golf Course Management: Conservation - Preservation - Regulation." With environmental concerns becoming increasingly more of an issue on golf courses, the topics in this year's program were especially timely for many in the audience. Following are the full proceedings.

THE BEST TURF TIPS OF 1989 — PART I

One of the most popular annual features of the Education Conference is the Best Turf Tips. This year, ten of the Green Section's agronomists reported on some of the helpful ideas and ingenious innovations they came across while visiting golf course superintendents in every part of the country during 1989. We begin with Part I. Parts II and III appear later in this issue.

Topdressing of a Different Color

by JOHN H. FOY
Director, State of Florida, USGA Green Section

IF YOU HAVE watched the broadcast of a golf tournament recently, you have probably noticed the use of dyed green sand to fill divots in tee and fairway areas. With the 1990 GCSAA Show and Conference taking place more or less in the heart of bermudagrass country, my turf tip for this year involves the use of a different colored sand. A winter green management practice that has become fairly common in the South Florida area is incorporating a small quantity of charcoal into the topdressing sand that is periodically applied to greens during the winter season. While at first this may appear to be strictly a southern management practice, it could be a benefit to others throughout the country.

For many years in South Florida it has been a common practice to apply charcoal or Milorganite to non-overseeded bermuda greens, just prior to the cooler season in an effort to maintain a warmer soil temperature. By maintaining a warmer soil condition for better growth activity, less turf discoloration is experienced during the winter playing season. While Milorganite is fairly easy to apply, to achieve the desired effect a large quantity of it has to be put down, and this results in a negative impact on playability, and in some cases, increased surface algae problems. The big problem of applying straight charcoal to greens is that it is extremely messy and very unpopular with the golfers. While I have not been able to determine who first came up with the idea, a couple of years ago it was found that charcoal could be mixed with topdressing sand, and this resulted in both a convenient method of getting the material out while reducing the messiness of the charcoal treatment. Today, there are several commercial tropdressing suppliers in Florida that provide the option of mixing charcoal into the topdressing sand supplied to the courses.

In observing the use of charcoal topdressing applications, I have noted the occurrence of a very positive growth response the day following the application. The turf has a lusher green color, beyond what one expects from a slight increase in soil temperature. This response has also been observed by others, but a reason for it has really not been determined. The positive impact on turf color is even more pronounced on overseeded greens relative to what is observed with non-overseeded bermuda greens. But a charcoal topdressing application just prior to the occurrence of even record-setting cold temperatures can also make a dramatic difference in bermuda color loss. Thus, both types of winter greens in the South Florida area are having charcoal applied to them on a fairly regular basis at a number of different courses. One other benefit of charcoal topdressings is that it is helpful in masking ball marks.

Generally, 4 to 6 pounds of charcoal per cubic yard is incorporated to darken the topdressing sand. However, I am aware that as much as 40 pounds per yard has been utilized. Because charcoal is commonly used to deactivate a number of pesticides, some concerns have been expressed about possible complications with maintaining desired pest-control programs. When a small quantity of charcoal is applied in 0.125 to 0.3 cubic yards of topdressing per 1,000 square feet, a problem with a reduction in herbicide and fungicide control programs has not been noticed. Certainly, when higher rates of charcoal are incorporated, this provides an easier and neater means of treating misapplications of pesticides.

In other green management programs, the use of a charcoal topdressing material may improve the rate of spring green-up or boost the rate of growth activity in the fall on bentgrass greens in the North. Given the benefits which have been observed to date, some experimentation with it certainly appears to be warranted.

(Below) Topdressing/charcoal mixture being applied to a green. (Bottom right) Topdressing sand mixed with charcoal (foreground).

A Quick-Fill Method For Drainage Installation

by JAMES CONNOLLY
Agronomist, Northeastern Region, USGA Green Section

View of truck-mounted conveyor-belt device used to deliver crushed stone to drainage trenches.

THERE'S nothing more important than good drainage on a golf course, but the installation of subsurface drainage pipe requires several steps and can be a costly procedure.

A time-consuming and labor-intensive step is backfilling the drainage ditch with crushed stone. For years golf course maintenance personnel have used shovels and strong backs to fill drainage trenches by hand, a system that is not so uncommon today.

There are three steps involved in the placement of stone in the ditch. First, the stone is dumped in small piles on plywood sheets adjacent to the trench. Next, a thin layer of stone is placed in the bottom of the ditch. The drain pipe is then placed on top of this layer and the ditch is filled to the surface with more stone.

John Napieracz, superintendent of Stanley Golf Club, in New Britain, Conn., felt there must be a better way, and he came up with a simple but ingenious solution. With the help of assistant superintendent John Mulhearn, he fitted his dump truck with a conveyor belt that places ¾″ crushed stone into the ditch quickly and effectively with minimum damage to nearby turf. The system uses a dump truck, an engine-driven conveyor belt from a Royer soil sifter, rubber shields, and a custom-built frame. The conveyor belt is mounted along the width of the rear end of the dump truck. As the dump bed is raised, the crushed drain rock flows onto the conveyor belt and is then dumped into the ditch. The driver of the truck drives parallel to the ditch, with the end of the conveyor belt positioned directly above the trench. The forward speed determines the depth of the stone placed in the ditch. A series of rear-view mirrors allows the driver to position the conveyor belt over the ditch, and a second worker walks behind the truck to monitor the depth of the stone and insure an even flow of stone out of the dump bed onto the conveyor belt.

Mounting the conveyor belt and engine to the dump truck was not easy. Careful measurements and precise welding were needed to keep the engine chains and linkage from binding. Periodic adjustments and welds were needed after the system was in operation. Gary Egri, a mechanic at Stanley, says a few modifications are needed before the system will be perfect. One of the problems encountered was rock bouncing off the rubber conveyor belt. To correct this, sheets of rubber and plywood were attached in areas where this occurred, and chains and other moving parts were shrouded to protect employees.

Alternatives to the hand shoveling method have been attempted by other superintendents. One individual built plywood forms that funnel the stone into the ditch. This works well but does not eliminate the damage that occurs from heavy trucks traveling back and forth along the ditch as loads of stone are dumped.

Another method used is to straddle the ditch with the dump truck while stone pours out of a small opening in the tailgate directly over the ditch. This works well if the trench is narrow. Wide ditches are subject to collapsing sides from the weight of the dump truck. Another disadvantage to this method is limited visibility for the driver.

With his conveyor belt method, Napieracz estimates that he can cut labor costs by one third while nearly doubling the length of drainage pipe installed in a day. And normally there are a number of ruts to be repaired from heavy machinery traffic, but with this method the ruts in the turf are kept to a minimum. It is frustrating to have a drainage project drag on forever. A dump truck and a conveyor belt have come together to be an efficient money saver at Stanley Golf Club.

Sometimes Mother Nature Needs a Little Help

by STANLEY J. ZONTEK
Director, Mid-Atlantic Region, USGA Green Section

(Above) When Lightning strikes, can Thunder be far behind?

(Right) Tim Connelly (right) and Marvin Lynch (left) address Thunder and Lightning's next victim.

TREES CAUSE serious grass growing problems on golf courses, and their removal is often necessary when this occurs. Unfortunately, tree removal is not simple. Unless the tree is absolutely dead and falling over, people have a difficult time agreeing to remove it. As a result, some turf areas on many golf courses are consistently thin and weak.

A weed is defined as any plant which is growing out of place. A geranium in a bed of pansies is a weed, for example, and would be removed. Similarly, a tree that blocks sunlight or impedes air circulation alongside a green or tee could be considered a weed and should be removed if the situation is bad enough.

Today's golf course superintendent is charged with growing quality golf turf. The problems caused by shade, poor air circulation, tree root competition, and litter removal make this job difficult, if not impossible. It's a fact that the weakest greens, tees, and fairways on practically any golf course are those located in pockets of trees. The link between areas of weak turf and the proximity of many trees is no coincidence. Strong turf near trees is the exception, not the rule.

This situation is well understood by golf course superintendents. Convincing others of the need to thin, prune, or remove these trees, however, is not easy even though the root of the problem is the tree, not a deficiency in the cultural maintenance program.

Herein lies the substance of my turf tip . . . helping Mother Nature improve turf conditions.

The thesis is simple; nobody can complain when the forces of Mother Nature remove trees from a golf course. Therefore, why not harness natural forces like thunder and lightning to help the process along?

A good example of putting Mother Nature to work was developed by Superintendent Tim Kennelly and Green Chairman Marvin Lynch at the Naval Academy Golf Club in Annapolis, Maryland. They named one chainsaw Thunder and another Lightning and proceeded to strike down the trees that were causing serious turf problems on their course.

This tongue-in-cheek turf tip actually has a serious message for many golf courses. Trees, shrubs, overhanging limbs, and underbrush can cause grass growing problems which adversely affect the superintendent's ability to grow healthy turf. A certain amount of tree work is needed on practically every golf course, despite the inevitable resistance from course officials and golfers-at-large.

Consider the following dialogue.

Golfer: "Whatever happened to the trees on the right side of the 10th tee?"

Kennelly/Lynch: "Thunder and Lightning got them."

Golfer: "Too bad."

Kennelly/Lynch: "By the way, have you noticed this is the first time in years that we've had a good stand of grass on that tee?"

Golfer: "Yes, it is. It's a shame about the trees, though. Guess we'll have to plant others to replace them."

The cycle will no doubt continue. However, it is reassuring to know that you do have Thunder and Lightning on your side.

40 MEGABYTES OF DONALD ROSS

by EDWARD H. CONNOR, III
President of Golforms

WHY HAS the process of golf course renovation become the most sensitive subject since Leona Helmsley filed her last Form 1040?

It seems that each time an architect sets foot on an old Donald Ross golf course, he feels this presence peeking over his shoulder. His reputation is on the line against one who is beyond criticism, and the best he can hope for is to emerge with his reputation intact. If he does a superb job of imitating Ross, very few will even notice the improvement. Why risk so much for so little gain?

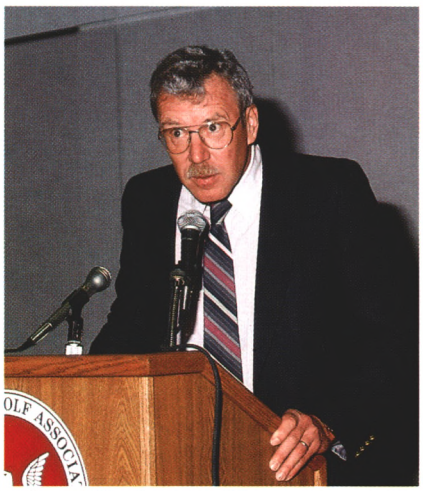
Let's review a list of high-profile renovations of the past few years, beginning with Rees Jones's highly acclaimed work at Brookline (Mass.) for the 1988 U.S. Open Championship, to the more radical treatment given the Country Club of Birmingham (Mich.) by Pete Dye, to "The villains of Oak Hill (N.Y.)," the Fazios. Can't we assume in each case the designer worked in consort with and satisfied the demands of his client?

Besides, what makes a modest piece of earth sculpture so sacrosanct in the first place? Half of the features attributed to Donald Ross today probably were built without Ross's direct involvement, and half the remainder have probably been altered beyond recognition by wind, weather, and the heavy hand of a green committee.

Golf Digest recently published a list of about 50 examples of Donald Ross golf courses in the U.S. that they felt represented the best preserved works of the prolific builder. With minor exceptions, such as the omission of the Sedgefield Club in Greensboro, N.C., the list is fair and comprehensive.

Ross himself admitted he was stretched far too thin during the height of his popularity in the 1920s, and many on the list of 50 were built primarily by Ross's capable assistants Walter Hatch and J. B. McGovern.

His greatest remaining work, Pinehurst No. 2, took more than 30 years of tinkering to produce in its present form. In the early years it contained several undistinguished holes, by his own admission. Obviously, those golf courses which saw less of his time contain some less-distinguished holes as well.


Edward H. Connor, III

Such criticism will undoubtedly be leveled at many of the future classics being constructed today by the Nicklauses, Joneses, Fazios, and Dyes. The plain fact is that no course is ever complete. Each alteration, particularly if done by the original designer, brings the picture a little closer to perfect focus. If we accept the posture that the ecosystem represented by a golf course is never truly static, but rather is in a continual state of flux from the elements and man, then we must agree with the conclusion of architect Desmond Muirhead, who said, ". . . all golf courses are either improving or getting worse . . . or both at the same time."

Pete Dye stated in a 1987 article, "Ross, Tillinghast, and MacKenzie were great architects, and everything possible should be done to preserve their ideals and their actual layouts . . . it may be possible to add length by relocation of teeing areas, but in no event should any changes in the greens or greenside bunkering be attempted. Where such alteration has been tried, it has been to the detriment of the design."

It was precisely in this spirit of preservation that the renovation of the putting surfaces of Pinehurst No. 2 was approached in the spring of 1987.

In 1895, New England merchant James Tufts, seeking a winter refuge from Northeastern winters, settled upon a site in the Sandhills of North Carolina. Attracted by the climate and the $1 per acre price of land, he made an initial purchase of 5,000 acres and laid out a beautiful small New England style village complete with shops and resort hotels designed by Frederic Law Olmstead, whose credits included New York City's Central Park.

Although not a part of the original plan, he discovered the increasing popularity of a game called golf which seemed to be finding favor with his upper-class clients. In 1897, he laid out a nine-hole facility, increasing this to a full 18 holes the following year.

In 1900, he enticed a young Scottish professional, Donald James Ross, to the Sandhills.

Ross had apprenticed under Old Tom Morris at St. Andrews before serving as head professional and greenkeeper at Royal Dornoch, located on the dramatic Scottish coast overlooking the North Sea. Today we know of Donald Ross as the prolific designer whose name is associated with over 600 golf courses in the eastern United States.

Before he began mass producing designs, however, he established a presence at Pinehurst that forever altered the face of American golf course architecture.

Ross immediately set about incorporating proper design strategy and shot value into the existing course at Pinehurst, and proceeded to accommodate the growing interest in golf by laying out and building three more 18-hole courses over the next decade, creating what was

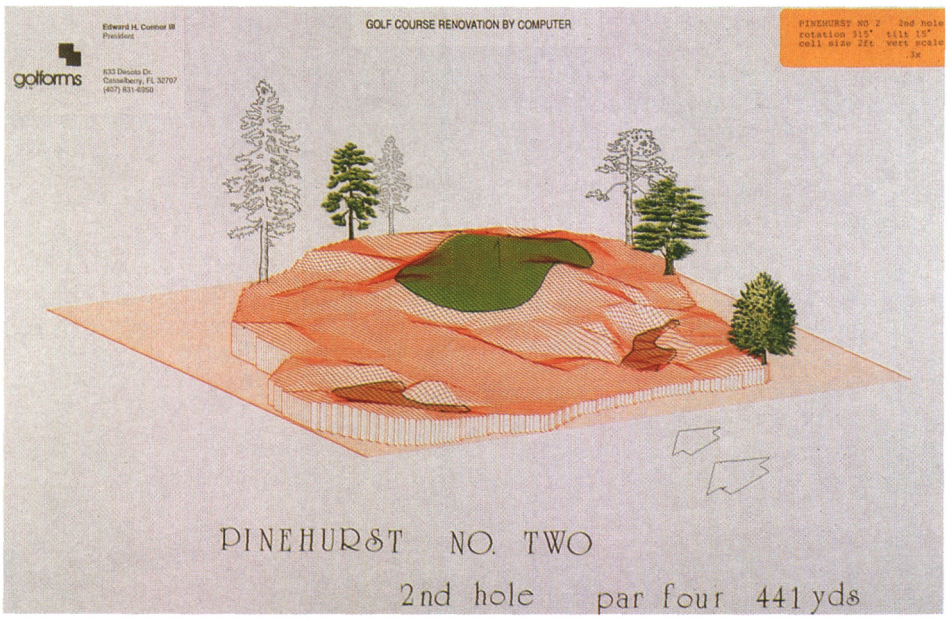
in all likelihood the first 72-hole golf complex in the world.

The second course (No. 2 as it is called today) became his abiding passion. It opened for play in 1907, but Ross never finished tinkering with it, honing and polishing details until his death in 1948.

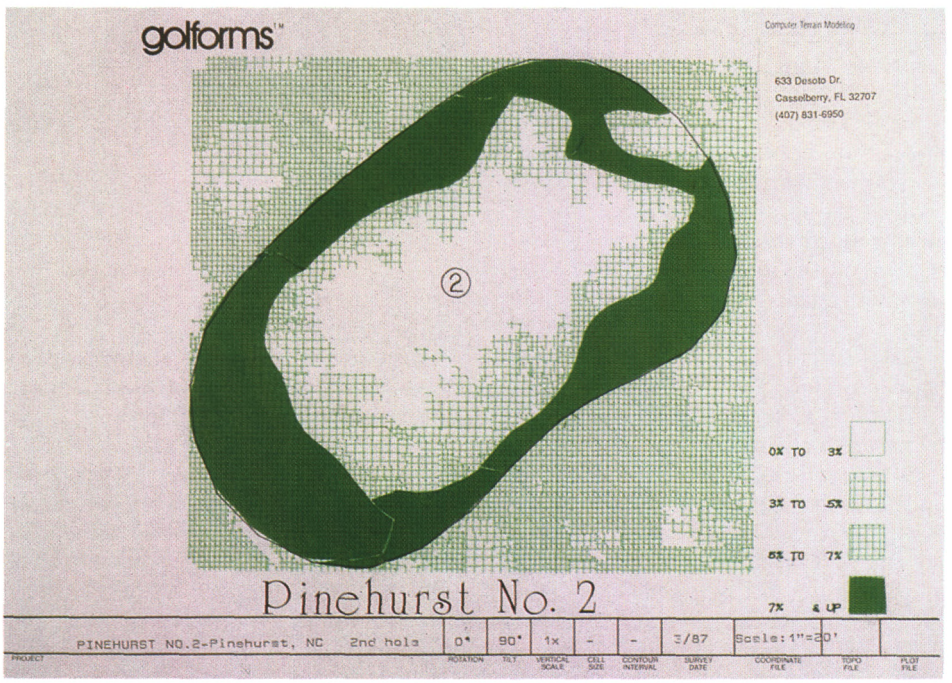
But what is the factor which sets No. 2 apart as a world-class test of golf to today's players? What qualities did Ross weave into this particular 120 acres of Mother Nature's canvas that have made it stand apart over such a long period of time? After all, Pinehurst No. 2 is not a golf course of singular drama or spectacular seacliff vistas like Pebble Beach. Its landing areas are quite receptive, and the rough is not overly severe in nature. Escape from the pines is quite feasible after an errant drive, and the hazards are generally visible and fairly proportioned. The length of the course is not intimidating, either. Originally constructed at a modest 5,600 yards, it has been stretched to near the 7,000-yard mark, but only from the tips of the tees. Instead, the measure of greatness at Pinehurst No. 2 is the approach shots. Donald Ross considered the long iron shots to be the ultimate test of a great player. The humpbacked putting surfaces seem to shed all but the most perfectly struck long or mid iron, leaving a delicate chip "to the hood of an automobile," as one professional was heard to comment.

Detailing is the hallmark of Pinehurst No. 2. There is simply more intentional contouring outside the putting surface at this golf course than almost any other course of this era.

Ross employed a device he called a drag pan, which looked like a flattened sugar scoop with two handles extending off the back. Even toward the end of his career, when mechanized equipment became available, Ross preferred working with the more meticulous pace of the mule-drawn drag pans. By raising or lowering the handles to alter the depth of cut, he sliced small portions of sandy soil here and there to create the humps and hollows for which the course is justly famous. When the pan was full, the handles were lowered all the way and the soil was dragged to where it was to be dumped. At this stage the handles could be raised rapidly to dump the soil into a pile or raised slowly to feather it over a wider area.



Second green at Pinehurst No. 2 showing a 3-D view of a finished computer terrain model.



Plan view of second green at Pinehurst No. 2 showing a slope shading program to highlight cupping area.

The porous nature of the soil, so unsuitable for the nutrient retention demands of regional agriculture, gave Ross the ideal medium to develop the intricate chipping terrain seen time and again collecting errant approach shots. Even after a heavy thundershower these grass pockets collect and absorb runoff as though engineered by a mightier hand. The links-type nature of the terrain, reminiscent of Ross's past home at Royal Dornoch, captures the flavor of a coastal environment far from the shore.

The Pinehurst management assembled a talented team to cope with the challenges presented by the renovation. The current membership had come to accept the existing contours as representative of the course design, with the realization that 60 years of topdressing and exposure to the elements had undoubtedly wrought some visible alterations.

We collectively established an agenda which focused on conversion of the putting surfaces to bentgrass without altering the contouring. Due to the climatic conditions in this part of the transition zone, this meant full-depth USGA specifications for the subsoil profile beneath the fragile "dance floors." We needed to develop a method of establishing uniformity in the USGA layering structure to a degree not yet practiced anywhere, starting with a replica of the original surface in the subgrade after excavation of the old mix.

Setting up the laser and data collector.

Extensive research and field tests over a period of a full year led to a computerized terrain modeling system which captures an "electronic image" of the surface, however irregular in nature, and stores it for permanent reference on a disk. From here the image can be selectively extracted or displayed in a multitude of formats, ranging from topographic to three-dimensional to slope-shaded diagrams. The accuracy of these diagrams is well within the tenth of an inch tolerance we sought, and the numbers on the disk represent a permanent record of the shape of the complex.

After searching though hundreds of sketches and drawings of old golf courses stored in vaults, safes, and archives around the country, at last we had a tool which would remove the subjectivity of interpretation. The imprecise nature of old sketches often leads to more controversy than it solves when it comes to rebuilding.

I have a strong belief that 400 years from now the distinction between the importance of a classic Ross course, or a Jones or Fazio, will be blurred by time. One may be 50 years older than another, but the value of a permanent record of the original shape of all of them will be similar.

Donald James Ross may be having a huge laugh at our expense right now, at the expenditure of time and money to preserve those humble little mounds of soil he built with mules and sweat in the remote hills of North Carolina. He might be the first to exclaim, "Preservation be damned! You modern designers have to contend with graphite shafts, metal woods, designer dimples, and Greg Norman. Furthermore, what is this instrument called a Stimpmeter, and whoever heard of grass mowed at $^{3}/_{32}$ of an inch?

"Apply your own vigor and talent to keeping the courses in line with the needs of the game. Don't for a minute assume we had all the answers in 1920 to cope with the phenomenal changes in the game and in the science of turfgrass technology.

"After all, it took me 30 years of tinkering to produce the work you now see as Pinehurst No. 2."

On the other hand, remembering his tutelage at Dornoch and St. Andrews, he may well have glowed with pride to see the effort expended on technology to preserve his most cherished labor of love at Pinehurst, a project which today represents one of the best examples of Donald Ross's contributions to the sport.

IT'S A MATTER OF OPINION

Environmental issues and government regulations are making us reconsider old concepts and practices that have long been taken for granted. Following is some food for thought from three speakers who have opinions on how to handle the changes.

Backing Into Professionalization

by STAN METSKER
Superintendent, Country Club of Colorado, Colorado Springs, Colorado

"PROFESSIONALIZATION seeks to clothe a given area with standards of excellence, to establish rules of conduct, to develop a sense of responsibility, to set criteria for recruitment and training, to ensure a measure of protection for members, to establish collective control over the area, and to elevate it to a position of dignity and social standing in society." (Herbert Blumer)

Everyone has heard of the ladder of success. On the top rungs of the ladder are representatives of well-recognized professions, including doctors, lawyers, and professors. On the bottom rungs are farm laborers, bus boys, and watchmen. All professions compete for a high place on the ladder because higher positions bring greater social recognition and, usually, a higher standard of living.

What does it take for a profession to move up the ladder? Edward Gross, author of the book *Work and Society*, lists six criteria for evaluating a profession. These are listed below, along with some editorial remarks about how they relate to our own profession.

1. There needs to be an unstandardized product, like a golf course.

2. There needs to be a degree of personality involvement, like my golf course.

3. There needs to be a wide knowledge of specialized technique, like what we're involved in on a day-to-day basis.

4. There needs to be a sense of obligation to our art. In other words, we need to be dedicated.

5. There needs to be a sense of identity to our colleagues. GCSAA, our professional association, fits that bill.

6. The profession needs to be essential to the welfare of society. This point may be more difficult to deal with.

Stan Metsker

It would be easy to say that a doctor does a lot of curing, and is therefore essential to society. A lawyer might be a little harder to justify, but he does handle an essential service. In our own case, we provide a recreational facility.

When you go to a legislature and try to convince them that you are really important because you are providing this essential service, and you try to get legislation to regulate entry into your profession so that only qualified people participate in it, you get nowhere. So golf course superintendents have never been able to be officially certified or registered like engineers, doctors, or lawyers. As a result, we have been forced to accept a voluntary certification program.

There is another side to this, however. It's called the 'hurt' factor. In other words, doctors and lawyers can do a lot of harm if their activities aren't monitored and regulated. That, in effect, is how governmental agencies are finally looking at us. They have finally recognized that we can be harmful to the environment and to our employees. Regulations are pouring down on us and are really bringing us in the back door to legalization. We now are being recognized as important people. Even though we can't get in the front door to be officially certified or registered, all this attention to our profession might well help us move up the ladder of recognition and success. That's my main point.

In his book *The Sociology of Work*, Theodore Caplow lists four steps a profession goes through on its road to recognition and professionalization.

1. An association is formed to keep out the unqualified.

2. The name is changed, asserting a technological monopoly.

3. The association then asserts social utility, sets up public welfare rationale, and develops rules to eliminate the unqualified and unscrupulous. A Code of Ethics is enforced.

4. There is prolonged political agitation for recognition. Training facilities are directly or indirectly controlled by the professional society. Working relationships with other professional groups are strengthened.

It is clear that GCSAA is well on the road to professionalization for golf course superintendents and recognition for its members. It is not a process that can happen overnight, but the prospects are bright for our profession moving up the ladder of success.

Misdirected Good Intentions Can Spell Trouble: Are You Chemically Dependent?

by JAMES F. MOORE
Director, Mid-Continent Region, USGA Green Section

THE GREATEST challenge ever to our careers, our industry, and our game is racing toward us with the speed and power of a bolt of lightning. That challenge is the concern for the environment. And these thoughts are directed toward representatives of every aspect of the golf industry — club leaders, superintendent, golf professionals, managers, architects, golf course builders, trades people, researchers, and players.

I take great pride in calling myself an optimist. I admire people who, when you ask them how things are going, answer with an emphatic "Good!" Perhaps it is this optimism that leads me to believe that the entire environmental issue (which many of you may see as a threat at this time), will actually benefit our game and industry in the long run.

However, I also believe that we are in for some very tough times at first. While optimism is wonderful, pessimism suggests that many of us will not be up to the challenge. Let me share my perception of the near future that is blended with optimism, pessimism, and what I hope you will agree is a great deal of realism.

In the near future, the number and amount of pesticides available will decrease tremendously. No amount of lobbying will prevent this. Public perception, whether right or wrong, is growing that *all* pesticides are bad, and those who use them are harming the environment. Once this occurs, some superintendents will find the "tools" they have relied on so heavily in the past are no longer available.

Not all superintendents are good turf managers. There are those who are able to keep their courses in good condition because they can apply enough pesticides and spend enough money to compensate for a lack of turf management skills. There are also many who actually cause more problems on their courses than they correct. Some apply chemicals as nonchalantly as they do water.

James F. Moore

Their "preventative program" includes applying products to protect against virtually every known turfgrass pathogen. Imagine what would happen to your health if your physician used this same logic.

Invariably, it is this superintendent who finds his greens suffering one crisis after another. His response is to apply even more chemicals on a curative basis. This superintendent and his course are truly chemically dependent. When allowed to progress far enough, this vicious cycle of events often results in the failure of large areas of turf and eventual replacement of the superintendent.

Because the science of our industry has not yet progressed to the point that we can completely eliminate pesticide use while meeting the demands of the player, even the best turf managers are likely to experience problems when pesticide restrictions are significantly increased. However, their courses will fare much better than most and will serve as a clear indication of the value of a skilled superintendent. His stock will rise significantly. Those of you who fall into this category will gain from the demise of your less-skilled colleagues.

Soon a superintendent will not be able to apply pesticides based only on his perception about when they should be applied. The leadership of golf clubs will determine when and if applications can be made. Their decisions will be based upon reducing the club's liability to the extent possible. The risk of lawsuits will be given much higher priority than the superintendent's assessment of the risk from pythium and brown patch. The first reaction to reduce the club's legal exposure will very likely be to require all pesticide applications to be made when the club is closed. While this may seem a blessing at first, since more superintendents would love to see their courses closed one day each week, it is likely that such a restriction would actually backfire in terms of reducing pesticide use.

Superintendents would find themselves applying pesticides based strictly on the calendar rather than on actual need. If brown patch pops up on Wednesday, how many superintendents will be able to wait until the following Monday to treat? Since most will feel they cannot, the natural reaction will be to treat every Monday to ensure problems do not arise during mid-week.

In the not-too-distant future, the cost of applying pesticides will skyrocket. The products will cost more due to testing expenses, labeling requirements, and lawsuits against the manufacturers. Pesticides and the rinsate will require special handling and storage containers. Insurance akin to malpractice insurance carried by physicians will be required by superintendents. To compensate, clubs will be forced either to increase the maintenance budget or accept a reduction in the overall appearance of the course. Realistically, most clubs will choose a combination of these two options.

The application of fewer pesticides on golf courses will result in courses that are less immaculate than the average golfer has come to expect. While the

(Top) One simple way to reduce chemical dependency is to apply water more accurately.

(Above) Golf courses and the environment can enhance each other with good management.

perceived quality of most courses will suffer, those courses managed by a superintendent who has relied too heavily on pesticides will deteriorate the most. Without the equalizer of unlimited pesticide availability, the varying abilities of turf managers will be highly visible to all.

You may not accept all of these predictions. However, if you accept even one, you must also accept that our industry and the game of golf will be strongly affected. Many will choose to ignore the inevitable until it is too late. You assume the industry associations will handle your public relations, the researchers will develop grasses that don't need pesticides, and the chemical companies will develop chemicals that are so safe they will have Rachel Carson's picture on the label. You will not be up to the challenge and you will not survive.

If you are a superintendent, you might blame your demise on the USGA and the Stimpmeter. The architect can blame the golf course builder who did not follow his plans. The builder can blame the superintendent who can't properly "grow in" the course. The USGA agronomist can blame the architect who made the course too difficult to maintain. What a party we can have. Ironically, the only thing that may keep us all from cutting each other's throats will be shared dislike of the organizations we consider environmental radicals, along with their lawyers.

Or . . .

We can each take steps right now to prepare ourselves. Let's become "survivalists" not by stockpiling guns and ammunition but by reducing our exposure to the threat.

Immediate options are available to each branch of our industry.

To the superintendent: Learn to be a better turf manager. Emphasize your skills in water management, disease identifications, soil cultivation, and fertilization. Review the principles you learned in Turfgrass 101 and simplify your programs as much as possible. A strong, healthy turf is unquestionably your best defense. You have a history of being the greatest and boldest experimenters with new products. It is time to begin to experiment more with doing with less. Use every skill you have to reduce your chemical needs.

To players and club officials: Realize that you will be affected by these changes in the industry. Understand that absolute perfection on the course is no longer a realistic goal. Greater

emphasis should be given to playing quality and the agronomic needs of the turf. Quit judging a superintendent's worth based on the speed of the greens. Realize that nature cares very little about your tournament schedule and that maintenance practices must be given higher priority than they have in the past. Consistent management is vital. Develop long-range plans and quit changing green chairman every year.

To the architect and golf course builder: All those involved with the development of new courses must make major changes. Stop selecting grasses with total disregard of local climate. Just because a turf can be grown (with enough pesticides and a big enough budget) does not mean it should be. Stop cutting corners on green construction. Stop building greens in holes where air movement is non-existent. Pay greater attention to drainage throughout the property.

To the researcher: Give us facts. Prove that what we are presently doing is not harmful, if that is the case. However, of equal and even greater need in my eyes is the identification of what to expect and do under low or no pesticide use. And, of course, the continued development of superior turfgrasses is critical.

To the golf professional: Emphasize playing quality to the golfer. Remind players that golf is a game to be enjoyed, not an exercise in frustration or an opportunity to be critical. Emphasize the positive aspects of your course. With the help of a good pro, even the shortest nine-hole course with the smallest budget can give great enjoyment to the player.

To my colleagues in the USGA: Let us avoid the temptation to offer quick but short-lived fixes to problems. While solid agronomic advice may not be glamorous or offer instant improvement, it is what is needed most of all. We are perhaps in the best position to gather the facts from other groups and disseminate them to the entire golf industry.

To the leadership of the USGA: I hope our organization will use its tremendous influence to educate golfers and make them more receptive to changes that are coming. Equally important will be the continued funding of turfgrass research.

To those who are not a part of golf: Realize that golf is an industry that does care for the environment. Golf courses have tremendous positive effects on both the land and the people who use it. This should not be a case of you versus us. We will stand a better chance of achieving common goals if we work together.

As I said, I am an optimist. I see the significant challenges we face as an opportunity to better our industry, our game, and ourselves. Let's make the power of the lightning bolt work for us instead of against us.

Using Environmental Regulations to Your Advantage

by KEVIN DOWNING, CGCS
Willoughby Golf Club, Stuart, Florida

THE CONSTRUCTION and maintenance of a golf course in conjunction with a housing development is one of the most difficult tasks in golf. As most superintendents know, heightened environmental awareness over the past few years has spawned new and complex regulations. Combine developing a new course with concern about the Florida wetlands and you have a good idea of what has kept me busy as superintendent of the Willoughby Golf Club. It has been a learning experience for all concerned with the project and the land on which it was built. While such challenges are formidable, they can be met when everyone cooperates.

This project involved a number of governmental agencies. We worked with the local water management districts, Treasure Coast Regional Planning, the Department of Natural Resources, and the Department of Environmental Regulations. Prior to planning the development, a number of factors were identified that greatly influenced the project. We had to determine what we could and could not do.

Kevin Downing, CGCS

The 660 acres on which Willoughby was to be built was the last undeveloped tract of land in the city of Stuart. We quickly found out that what appeared to be land that served only to collect trash and abandoned shopping carts was also home to various wildlife. One of these "residents," the Florida Scrub Jay, claimed about 40 acres of what we felt was prime real estate property. When the Scrub Jay became a federally protected bird, he also won the rights to the property which is now a protected habitat. This served as an excellent indication of what was to come.

One of the first steps taken was to perform an entire water-use study involving the golf course, housing areas, and adjacent property. Once the water needs were identified, three different zones were created. In one zone we would be allowed to use effluent. Another would utilize effluent diluted with well water. The final zone would have to use well water alone to prevent adversely affecting the Stuart well fields.

It was determined that 25 percent of the upland vegetation had to be saved.

(Top) Selected areas were planted to wetland species to ensure against nutrient runoff and serve as an architectural feature on the course — hole nine.

(Above) Working with representatives from South Florida Water Management helped save native species while creating a unique golf course and community at Willoughby.

In other words, after the course and houses were completed, 25 percent of the land had to remain as it was prior to the project. It was also established that at least 50 percent of the shorelines of the lakes had to be maintained in 10-foot-wide strips called wetland littoral zones. Finally, like most developments in the area, all drainage water had to be collected on site until it built to a certain level. Only then could it be discharged.

We also had our own requirements that had to be met for the project to be successful. The course and homesites needed to be screened from neighboring highways and shopping centers. What little desirable vegetation we had in terms of trees had to be saved and utilized. The course layout had to be interesting despite an elevation change of just two feet throughout the property.

Only after all these criteria were identified did we begin our search for a golf course architect. We selected the Arthur Hills architectural firm from Toledo, Ohio. It became Hills' challenge to present a golf course that was playable and enjoyable to the golfer and maintainable by the superintendent, and one that abided by government regulations and respected the sensitivities of the community.

It was obvious that in order for all of these goals to be met it would be

necessary for everyone concerned to better understand the entire situation. With this in mind, my boss, Earling Speer, invited everyone involved to meet on the site. Representatives from the water management districts and local and county groups attended. We made a presentation to them identifying what we were trying to accomplish.

As Golf and Landscape Manager for the project, I was charged with coordinating the efforts of the golf course architect and builder, while at the same time ensuring that all work followed government regulations. I found it helpful to get to know the people from the agencies on a personal level. This gave us the opportunity to learn from each other, and it encouraged everyone to try to understand the needs of the others. One of the best ways to develop such a relationship was to spend time with each other "in the field." While they were learning about golf courses, I was learning about native plants. This information proved to be very useful during a subsequent drought when the water level dropped almost four feet. Had we not used the drought-resistant native grass *Spartani backerii* in the wetland littoral zones, complete re-establishment of these areas might have been necessary.

At the same time, I was concerned about maintaining the littoral zones. I felt it would require a tremendous amount of work to keep the littoral zones free of noxious weeds. After a meeting with water management district representatives, it was agreed that as long as the total square footage requirement of the littoral zones was met, the 10-foot band around the lake perimeter was unnecessary. This allowed us to create marsh areas which provided the required amount of littoral zone while serving as hazards on the course. Throughout the project many such efforts were made. Native grasses were used extensively, hundreds of trees were transplanted, Florida palmetto groves were preserved whenever possible, new wetland areas were created, and through it all, a beautiful and challenging golf course emerged.

It is my opinion that Willoughby serves as proof that golf and the environment can coexist even in the most sensitive areas. It can be done if everyone involved is willing to contribute and cooperate with each other. For the golf course superintendent, the challenges of such a project represent an opportunity to learn and share your expertise with your community.

Audubon Cooperative Sanctuaries For Golf Course Management

by RONALD G. DODSON
President, The Audubon Society of New York State

WHAT do New York Audubon and your golf courses have in common? More than you might think.

New York Audubon is one of several state Audubon societies in the United States that have come together to form the Audubon Alliance. Collectively we comprise a network of more than a quarter of a million members. Each state Audubon Society is a separate and distinct organization, and is not affiliated directly with the National Audubon Society. As state focused organizations, we are able to direct our attention to state and local conservation opportunities.

Many state societies have projects that reach far beyond the boundaries of their respective states. This is where the Audubon Alliance comes into play. For example, the Alliance is sponsoring the Belize Audubon Society and the program for Belize. This project is working to conserve one of the last large tropical rain forest areas in the world. The alliance recently sponsored the publication of a critically acclaimed book entitled *Save the Birds* that focuses on the world status of birds and the global loss of significant wildlife habitat. This publication was co-authored by Walter Cronkite and famed artist and conservationist Roger Tory Peterson.

Ronald G. Dodson

Another program spawned by a state Audubon society has national and perhaps international goals. We believe that the true wildlife and habitat managers in the United States are private landowners. Though many people believe that state or federal governmental agencies and their staffs have sole responsibility for wildlife and habitat protection, it is clear that the largest bulk of real property is owned by private individuals or private organizations. Most state resource agencies are understaffed and underfunded and certainly do not have the resources to manage private lands. Instead, they have focused on permit and application review programs that often lead to confrontation. This is why New York Audubon has launched the Cooperative Sanctuary System. The CSS is our way of reaching out to and working in a positive way with private landowners. We are working with all types of operations, including large farms, corporate properties, hydroelectric sites, elementary schools, universities, suburban and urban backyards, and golf courses.

You may wonder why the Audubon Society spends so much time working with birds. To us, birds are a symbol of

Golf courses and wildlife habitat can co-exist beautifully.

earth's wild resources and the quality of the environment. We believe that the human capacity to conserve birds reflects our ability to save the environment.

Worldwide, there are nearly 1,000 bird species in danger of extinction. Here in the United States, three mammals, 63 birds, and no fewer than one in ten plant species are endangered. The distribution of endangered bird species by ecosystem is:

Ocean realm — 6%
Polar regions — 1.5%
Oceanic islands — 38%
Coasts of estuaries — 5%
Lakes, rivers, and marshlands — 15%
Mountain regions — 13%
Seasonal woodlands — 20%
Tropical forests — 43%
Grasslands — 18%
Arid regions — 1%

The principal threats to these birds are:

Wetland drainage — 4%
Pollution — 4%
Habitat destruction — 60%
Hunting — 29%
Incidental take by fisheries — 1%
International trade in rare birds — 9%
Competition from
introduced species — 20%

In North America, nearly 1,000 different types of birds nest and raise their young, with about 645 of these present in the United States. Of those 645, more than half spend one-half to two-thirds of their lives in Central or South America.

It should be quite apparent that most golf courses cannot provide much help for the 1.5 percent of bird species endangered in the polar regions or even the 6 percent endangered in the ocean realm. Nevertheless, many of you are already providing important habitat areas for birds in coastal and estuarine areas, and along lakes, rivers, and in seasonal woodlands.

In many urban and suburban areas, golf courses provide a haven for many wildlife species. As someone who played collegiate golf and who is involved in wildlife conservation, I see a need for the expanding of our Cooperative Sanctuary System to include more golf courses. Many people have expressed concern about the use of chemicals on golf courses and their potential impact on wildlife and the environment. I know that some people visualize golf course managers as Rambo-like figures with hoses draped over their chests, dragging huge tanks of chemical warfare ingredients behind them and blowing away every living

creature in sight. From my experience, however, I know that the manager does not want to spray unnecessary chemical materials. This makes sense from an environmental, personal, and economic point of view.

Aside from the fact that golf courses provide an exciting challenge to a golfer's abilities, they also provide habitat for a variety of wildlife species. Those of us in the Audubon Alliance believe that by working together we can increase the diversity of habitat types, enhance wildlife and the environment, and just possibly save the turf manager some money over the long run. When a landowner or manager registers his property with the Cooperative Sanctuary System, he is *not* giving away any rights to the property. We do not mandate certain activities or insist that he stop doing anything.

The first thing we do is give some recognition to the manager for becoming part of the system and for helping to educate the public to the fact that all green spaces are important. It sends a message to other groups and citizens that much more can be gained by a pro-active relationship with land managers than the traditional reactive and negative approach. The manager at each property registered receives a simple data handbook that has to be completed and returned to New York Audubon. The System Advisory Committee, comprised of land managers, university professors, extension agents, state agency staff and others, reviews the material and makes suggestions. Once this process is completed, the property is certified as a Cooperative Sanctuary. Cooperators are asked to send us information at least once per year involving wildlife and habitat related activities, and this information is entered into our computer data base. The Sanctuary System newsletter is distributed to all cooperators, and we have a recognition program that rewards unique and meaningful efforts.

We are currently working with a number of golf courses in creating and maintaining habitat for cavity-nesting species of wildlife, and enhancing grassland habitats that are rapidly disappearing in places like New York State, where many of our farmlands are returning to woodlands. We have encouraged and expanded integrated pest management programs that utilize organic-based pesticides, insect-eating birds, and other options. We are learning from land managers, and they are learning from us. Some of these projects have included educational programs and nature trails for the public and club members. These activities unquestionably benefit the environment and the public, and provide public relations benefits to the cooperators as well.

Our members stand ready to work with you in this regard. I hope that you will seriously consider becoming part of the Cooperative Sanctuary Program. If we are to see an abundance and diversity of wildlife in America while meeting the expanding demands of the public to participate in the game of golf, joining the Cooperative Sanctuary System could be an important step in building a bridge between golf course managers, the public, and conservation organizations. I am sure many of you have wondered, "Why do these environmental groups fight us all the time? Why are they always negative?" Well, here is New York Audubon Society's position. We are positive that there is a lot to be gained if we work together. We may disagree on a thing or two in the future, but we can agree to disagree without being disagreeable. Cooperation is much better than confrontation.

Rolling Out the Ups and Downs of Green Speed

by JAMES M. LATHAM
Director, Great Lakes Region, USGA Green Section

These gang-rollers, tended by assistant superintendent Bert Bertram, contribute to surface smoothness and increase putting speed from 6 to 12 inches.

THERE COMES A TIME at every golf course when a special event requires special playing conditions. This usually involves increasing green speed and/or firming the surfaces for a tournament and often includes a request (demand) to lower the height of cut on the greensmowers. This yo-yo movement of bedknives causes problems for superintendents, especially when the events are conducted in July or August in bentgrass country.

At Westmoor Country Club, in the greater Milwaukee area, superintendent Jerry Kershasky has found that special events are not necessarily an irregular occurrence, and that male golfers, at least, delight in firm and fast greens. He is well aware that rollers were once widely used to smooth out surface irregularities in golf turf, especially after winter frost heaving, even though the practice is frowned upon because of its compacting effect on silt or clay loam soils.

But what about sand? The greens now have a two-inch-deep cap of high-quality, compaction-resistant sand over the old sandy loam bases. This was developed over a period of 16 years by aeration, core removal, and hole filling, plus light and frequent topdressing with pure sand throughout the growing season. Since the uniform, round sand grains resist compaction, he reasoned that periodic rolling would have little adverse effect on turf health.

The Westmoor device was fashioned by Assistant Superintendent Bert Bertram and was based upon an old set of cast-iron rollers prized by neighboring Merrill Hills Country Club. The rollers are 24-inch-long sections of 18-inch-diameter PVC water main pipe. They are filled with concrete except for an 8-inch hollow pipe surrounding the axle to keep the weight down to about 350 pounds, including its frame. The axle is a ¾-inch steel shaft run between pillow blocks mounted on the 2-inch angle-iron frames. Trailer hitches join the rolling units to make a maneuverable 3-gang roller, easily pulled by most utility vehicles.

Westmoor greens are usually mowed at a bench setting of ⅛" plus, producing Stimpmeter measurements of about 9 feet. The rolling operation adds about 6 to 12 inches to the reading. About half of the added distance is lost in one day, so the greens return to normal putting speeds in two or three days.

This successful speed manipulation program eliminates the necessity of adjusting the heights of cut and the potential damage to the turf on "those special days."

The Fall Harvest

by JAMES T. SNOW
National Director, USGA Green Section

The magnificent trees at the Country Club of Rochester are a course treasure, but course officials realize that some trees must be removed because of their effects on nearby turf.

WHAT'S WORSE than not having enough trees on a golf course? The answer: having too many trees on the course.

Golf course superintendents at older courses in many parts of the country know this. They see the problems caused by shade on greens, tees, and other important turf areas, and they recognize that poor air circulation is a major factor involved in disease activity, drainage problems, compaction, and other forms of turf decline. Tree roots, too, rob the turf of moisture and nutrients and complicate irrigation and drainage programs. Trees too close together make it necessary to use time-consuming small equipment for mowing purposes. And mowing around low-branching species often requires hand mowing work or the use of small riding equipment.

Too many trees can also affect the play of the course. They can encroach on play off the tee, forcing golfers to one side of the tee or the other. Trees can unreasonably block play across the corner of a dogleg, where a sand bunker would be a better choice. Surface roots can be a nuisance for golfers and for maintenance equipment and golf carts. And too many trees can be a factor in slow play.

Golf course superintendents have come to recognize some of the concerns about trees, but the same cannot be said of most golfers, who generally view trees as sacred. One course, however, where the superintendent and club officials agree on the need to control the problems caused by too many trees is the Country Club of Rochester, in New York state. Hundreds of trees have been planted on this old Donald Ross course over the years, many of which were pines planted about 25 to 30 feet apart. As the trees grew, superintendent Bob Feindt recognized that many of them were becoming overcrowded and were affecting their own growth and that of the nearby turf.

Feindt's first hint of a serious problem was encountered on the 7th green, which was surrounded by trees. A

combination of shade and poor air circulation made it very difficult to maintain good quality turf on this green during the summer. On the recommendation of the USGA Green Section, the club agreed to remove several trees. The next season the turf on this green improved, and the club decided to remove several more trees and to follow through with some pruning work.

Upon seeing the significant improvement of the turf on the 7th green, the club began to look at other areas of the course where too many trees might be having a negative impact on turf quality. The superintendent, golf professional, green committee chairman, and several other committee members got together, toured the course, and selected trees for removal or pruning. For example, if an evergreen tree was crowding a good hardwood specimen, the evergreen was marked for removal. The results were great, and the tour of the course for the purpose of tree evaluation became an annual event known as "The Fall Harvest."

Most of the actual tree pruning and removal work is scheduled for the winter months. The trees are removed, the stumps are ground up, the holes are filled with soil, and seed or sod is used to restablish turf. By doing the work during the winter and cleaning up thoroughly, the die-hard tree lovers don't miss the trees. One winter 42 trees were removed, ranging in diameter from 3 inches to 36 inches, and nobody said a negative word about it the following season.

The removal of trees that cause turf problems is really not so unusual on golf courses today; it's the attitude of the club and its officials that is unusual. Here is a club that respects and values its trees, yet it is willing to look at them with a critical eye and remove those that no longer play a positive role on their course. That is an attitude that every club should emulate.

Superintendent Bob Feindt and committee select trees to be removed in their "Fall Harvest."

REDUCING TRAFFIC WEAR

by PAUL H. VERMEULEN
Agronomist, Western Region, USGA Green Section

ONE OF THE MOST common problems seen on golf courses across the entire country is turfgrass wear. This problem is especially evident in areas where golfers are funneled into narrow paths by obstacles, such as bunkers or steep slopes. A special case in point is where large bunkers are placed between a putting green and neighboring cart path, forcing golfers to walk around either end.

When asked to offer a solution, the first suggestion would probably be to remove, or possibly modify, the obstacle and allow sufficient room for players to pass. In a situation where the obstacle or bunker is a unique architectural element, however, an alternative solution must be sought.

One alternative is to install a series of steps constructed from ordinary railroad ties. These steps absorb the impact of foot traffic, yet allow areas in between to support good-quality turfgrass. While it is true that these steps allow stray golfers a free drop under Rule 24, it is worth remembering that a worn path unjustly penalizes the same golfer, and the Green Committee will unlikely decide to mark such areas as "Ground Under Repair."

To be successful with this turf tip, great care must be taken during installation. The key point to consider is the spacing between each step. In short, it must conform to the average pace of a golfer as he or she walks through the area. The average age of the membership and the slope of the terrain are factors to consider in spacing.

The width of the steps should also be considered. They should be wide enough for at least two players to walk comfortably side by side. This tip should also be applied to other areas of the course, such as walkways between tees and cart paths, or in shady areas where it is difficult to maintain quality turfgrass conditions. Remember, however, that in some situations, such as on a severe slope, it might be better to install formal steps or a complete path.

Landscape tie "steps" can help reduce turf injury in highly trafficked walk-off areas.

Can We Cope with Mother Nature and Governmental Regulation?

by MARK ALEN KIENERT, CGCS
Bull's Eye Country Club, Wisconsin Rapids, Wisconsin

LEGEND HAS IT that early lumbermen, while piloting huge log rafts down the Wisconsin River on their journey to sawmills in the upper Midwest, would navigate stream channels at night by aiming at oil-powered lanterns. The cut-glass prisms used to magnify the small candle of light, when viewed from the water, resembled the shape of a bull's eye. One such lantern location, high atop the hill overlooking the river, is the present site of a golf club that took on the namesake of the light pattern that guided those logs to market. Today, the Bull's Eye Country Club is an 18-hole private country club with an adjacent nine-hole public golf course.

The Wisconsin River, dubbed the hardest-working river in the nation because of the large number of hydro-electric generating stations along its banks, was held hostage by the drought of 1988. The headwater region of the river system, consisting of much of northern Wisconsin, suffered through a similar drought in the summer of 1987, leaving the groundwater supply very low. Compounding the problem was dry, hot air blowing across open waters, quickly evaporating large volumes of water and further reducing an already anemic stream.

As the golf course superintendent at Bull's Eye Country Club, I was alerted on June 20, 1988, to the total ban on diverting water from the river by the Wisconsin Department of Natural Resources. The DNR invoked its right to do this under state statute that "protects the public's rights and interests." In short, it was protecting the rights of sport fishermen, game, and wildlife. Recreation came before golf courses. In fact, we weren't even considered on the priority list. The argument that we were a business and served the recreational industry fell on deaf ears. Television pictures of barges stranded up and down the Mississippi River also served as a vivid reminder of the serious nature of the drought. The DNR officials were caught between a rock and a hard spot.

Mark Alen Kienert, CGCS

Approximately one week before the water cutoff, a department official told us it would be a wise idea to start seeking alternative sources of water. Club officials, sensing urgency, authorized money to have well-drilling firms make exploratory searches for a viable source of water. But the cutoff couldn't have come at a worse time. Local farmers, with small seedlings dying in their fields, had tied up most well drillers' time for weeks to come. Even if we could have secured a well, there was no guarantee that a pump would be available.

At first we considered ourselves lucky, since Bull's Eye Country Club had mothballed a pump-station on one of the course ponds in 1980 when a higher-capacity pump station was constructed on the river bank. Water in this pond would last about one week, at best, if irrigation was limited to tees and greens — much less if fairways were kept in the irrigation program.

With the river as its source of recharge, alternatives to recharging the pond were sought. Our first and closest source of water was a fire hydrant located adjacent to the public course. Under a declaration of emergency, an agreement to sell water to the club was signed by the Mayor of the City of Wisconsin Rapids. It seemed as though we were set.

Unfortunately, headlines in that evening's newspaper edition spelled political disaster to the club. "Course Gets OK to Use Hydrant Water for Greens," read one headline. Yet placed directly beneath was an article with the headline, "Sprinkling Ban? City Will Draft Ordinance that Could Lead to Mandatory Ban!" Angry constituents flooded aldermen's telephones with questions as to why a golf course outside the city limits would be sold their water! The temporary permit was rescinded, and we were forced to look for water elsewhere.

We soon learned that a local stone quarry operator had to constantly empty its quarries of water to keep its pits open. With this surplus available to us free of charge, it meant that the only expense to be incurred would be in finding the means to transport the water to the pond on the golf course. An 18-wheel tractor and tanker was leased from a local trucking firm to haul the water the five miles between pond sites. The water came to us one load at a time, 7,000 gallons per trip. The trucking charges came to one cent per gallon, about ten times the cost of the water we had been purchasing from the city.

The greens on the private course were watered by hand-held hoses connected to the irrigation system, as the moth-balled pumps could supply water to those 18 greens. Getting water to the nine greens at the public course was a different story. Ultimately, our spray equipment, outfitted with hand-held hoses, was pressed into service. An old hay wagon, a 1,000-gallon fuel tank, and a series of sump pumps also aided our efforts. This method was barely adequate to keep the putting green turf alive. We soon found ourselves outstripping the ability of the truck to supply water to the pond, so it was decided to eliminate the watering of the tees.

(Right) Water was conveyed to the course by means of this 7,000-gallon stainless steel "pipeline."

(Below left) Fairways cracked and peeled apart under the blistering heat.

(Below right) The drought's devastation as seen from the air. The overlaps and scallops from the sprinkling pattern are readily apparent.

Water conservation methods included hand-watering, raising the height of cut on the greens, increasing the use of wetting agents and anti-transpirents, keeping mowers sharp to minimize mower shock, and watching our fertilizer applications. At best, these measures represented Band-Aid solutions.

Undergoing the physiological process of dormancy, our unirrigated fairway turf turned a straw color. What we were not prepared for, though, was the actual drying and shrinking of the turf. Dense *Poa annua* fairways and areas that served as surface drainage passageways began to shrink and curl as the tissues dried. Unwatered tee surfaces also began to crack and peel apart. Damage was enhanced by a recent aerification. Holes that were not completely filled by post-aerification topdressings hastened the drying action and onset of death. These turfs began to pull apart between the rows of aerification holes.

The death of the turf was confirmed when plugs removed from the affected areas were brought into a greenhouse environment. When little or no regrowth occurred, a complete strategy for renovation was drawn up.

Because golf course contractors were tied up with new course construction, it was apparent that the renovation work would have to be done by our own crew. Fortunately, we were blessed by the willingness of many Wisconsin golf course superintendents to make available their equipment and work crews to bolster our staff. With that in mind, and having a renovation strategy in place, equipment was brought in from all over the state. It boiled down to using whatever I could beg, borrow, or steal.

The actual reconstruction on the Bull's Eye Country Club course started on August 8, 1988. A scheduled application of glyphosate herbicide was cancelled because there was very little green vegetation at that time. All 25 acres of fairway turf received multiple aerifications, and aeroblades were used to slice open the turf to create additional seed channels, break apart the aerification plugs, and pulverize the thatch.

A three-way blend of bentgrass seed was mixed with a fertilizer carrier and was broadcast over the newly prepared seedbed. As soon as seeding was completed, the treated areas were drag-matted and rolled. Severely damaged areas were rototilled with tractor-driven tillers. Rough grades were established by using specialty construction equipment, and finish grades were done by hand. These areas were then seeded and mulched with straw.

Tees represented yet another hurdle. Sod was cut at the soil-thatch interface, and tractors with box scrapers were used to move this dead organic matter to areas where it could be loaded into dump trucks and hauled to the compost pile.

An 80-20 topmix was placed on the tees to compensate for the thatch and soil removed. The surfaces were leveled, soil amendments were added, and overseeding was completed, and the surface was lightly hand raked to insure good soil/seed contact. Rollers were used to firm the surface and to further press the seed into the soil. Due to the extreme

dryness of the soil, a pre-rolling was occasionally done to firm up the seedbed.

All of the renovation and overseeding was done without the benefit of water. Logic told us it was better to do the renovation work now and have all the pieces in place should rainfall resume. To wait until the spring of 1989 or beyond would cost our club more in lost membership revenues than in wasted seed dollars.

Fortunately, Green Chairman William Brazeau managed to arrange political commitments to gain a two-month reprieve of sorts. The Wisconsin DNR approved a temporary, two-month grow-in permit by granting us a pumpback permit. This gave us the ability to use a high-capacity well located 13 miles by road upstream from our course. By piping the water to a wetland adjacent to the river, we could turn on our pumps downstream to irrigate the golf course. In simple terms, the river became a conduit for the water we would be adding upstream. One stipulation we faced in using this technique was that only 80 percent of the total we pumped into the river upstream could be diverted downstream for irrigation purposes. The other 20 percent was presumed lost to evaporation.

Sixty days after being shut off, we were allowed to use our pumps once again. Five days after we began to irrigate, seed germination was noted on both tee and fairway surfaces. Mother Nature blessed us with a couple of brief but very welcome showers to augment our growing efforts, and 21 days after germination, the fairways were cut for the first time.

Through it all, 112 acres were regrassed. This completed all fairways, tees, roughs, approaches, green and tee banks, and collars. However, renovation costs continue to mount. The club is still looking for viable backup options should we be forced to do without our primary irrigation permit, which is based on using surplus water in the river. Our pumpback agreement, which sounded so promising as a permanent solution to our water woes, was disallowed by the Wisconsin DNR.

Rumors persisted that our club would be closed well into June 1989. Our early renovation start, combined with perfect fall growing weather, allowed us to open a few holes at a time. We were able to open 11 holes in the spring, and by Memorial Day, we had the entire course open for play. There were a few rough spots that required attention, as occurs in all such situations, but they were handled quickly on a spot-treatment basis.

Like a scraped knee that is healing slowly yet properly, before we realized it, the wound was no longer evident. The results exceeded my expectations.

The drought of 1988 will not be soon forgotten. Yet after all is said and done, the Bull's Eye Country Club will benefit from the face-lift forced upon it by Mother Nature and governmental regulations.

One of our renovated fairways is well on the way to recovery.

THE USGA TODAY

by B. P. RUSSELL
USGA Executive Committee

THE BEST NEWS I can tell you is that the United States Golf Association is back in the golf business, full time. During the Association's annual meeting, in San Diego, we reached an out-of-court settlement with Karsten Manufacturing Company, makers of Ping Eye-2 clubs. Karsten, as you most likely know, had filed a $100 million lawsuit against the USGA in August.

On the surface, the suit challenged the Association's ruling that Ping Eye-2 clubs failed to conform with the 30-degree method of measuring the width of grooves, but at the core of the legal battle lurked the question of whether the USGA had the authority to act as the game's Rulesmaker — could the USGA continue to establish the Rules of the game and regulate equipment so that skill would remain more important than technology.

B. P. Russell

Yes. Yes we can.

So it is with a renewed vote of confidence that we head into a new decade. Questions concerning equipment are still with us, however, and if we can say that the issue of the Ping Eye-2 clubs is behind us, then the hot topic is being able to distinguish between conforming and non-conforming putting grips.

Admittedly, the average golfer is in for a struggle trying to figure out why, for example, one Tiger Shark putting grip conforms and an older version does not. The difference, in this case, is a slight narrowing at the top of the grip

The museum at Golf House, in Far Hills, New Jersey, expects more than 20,000 visitors in 1990.

The development of drought-tolerant and pest-resistant grasses is receiving special attention in the Green Section's research program.

to avoid its being classified as having a "bulge."

Every one of the USGA's nearly 7,000 member clubs has been sent one or more posters describing which grips conform and which don't, because we feel it's important. If someone uses a putter with a non-conforming grip in a USGA championship, he will be disqualified. We must educate our championship committeemen to head off potential problems. The next time we head for the first tee, our conversations should focus on the weather, the difficulty of the first hole, and our Handicap Indexes.

Slope and Handicap Indexes are probably the two fastest-growing innovations we've introduced to the game. Within the next year, all golf courses must have a slope rating in order to issue USGA Handicaps. When the change from Handicaps to Handicap Indexes is complete, individual competition between golfers will be fairer. The number of strokes you will receive will take into account whether you are playing on a difficult course or a shorter, easier course.

Slope ratings range from a low of 55 to a high of 155. Medinah Country Club, near Chicago, where we'll play the U.S. Open this year, is rated at 142, for example. Medinah is also one of more than 700 clubs that subscribe to the GHIN (Golf Handicapping and Information Network) System's Electronic Option. Golfers there are among the more than 900,000 nationwide whose handicaps are calculated through the USGA electronic computer service.

Now let's step out of the technological aspects of what the USGA has become involved with and let me talk a bit about our 1990 championship season.

Can Curtis Strange win a third U.S. Open? Can our women regain the Curtis Cup? (No, the Curtis Cup is not named for Curtis Strange.)

We've scheduled four of our events close by Golf House, the USGA's home, in New Jersey. The Curtis Cup is one of them, and some of us feel it might be the most important. I don't suppose there's any need to remind you that this is a match between women amateurs representing Great Britain and Ireland on the one side, and the United States on the other. Over the last few years it has become symbolic of the changing situation in golf throughout the world. After many years of hardly anything but success, we've lost the last two Matches, the first in 1986, which, incidentally, was the first time our women had lost in this country, and then again two years ago in Sandwich, England.

We've put together what we consider a very strong team for this year's Match. We'll play the Match July 28 and 29, and we're looking to end this string of losses.

The Women's Committee names the team shortly after the Annual Meeting. I won't name everyone, but Vicki Goetz is on it — she won the Women's Amateur last year at the ripe old age of 16. She's 17 now, and she'll be one of the youngest ever to play Curtis Cup Golf.

Among the other seven playing members are three more USGA champions from 1989 — Anne Sander, who won the Senior Women's Amateur; Robin Weiss, who won the Women's Mid-Amateur; and Brandie Burton, who won the Girls' Junior.

Brandie Burton was the winner of the 1989 Girls' Junior Championship, one of 13 national championships conducted annually by the USGA.

I should point out here that Mrs. Sander will be playing on her eighth Curtis Cup Team, more than any American woman ever. She's 52, and she'll be playing Curtis Cup golf in her fifth decade. She played her first Match in 1958, and she's been on a team in every subsequent decade.

We'll play three of our national championships in New Jersey this year. Orville Moody will defend his Senior Open Championship at Ridgewood, in July; Vicki Goetz will defend her Women's Amateur Championship at Canoe Brook, in August; and shortly after that we'll have a new Girls' Junior champion, at Manasquan River. Brandie Burton, who won last year, is over age and not eligible. Of course, Vicki Goetz still is. And another, the Women's Mid-Amateur, will be right next door, in Pennsylvania.

Championships, of course, are at the center of what we're here for, and our championships have never been better. More than half of our 13 championships had more entries than ever before last year — more than 27,000. The Open drew 5,786 entrants, and the Amateur 4,603. We expect more this year.

Television continues to be important to us. We've signed a new contract with ABC to televise several of our championships annually. They'll show the Open, the Senior Open, and the Women's Open, and ESPN will show the Amateur on cable. We've also arranged for ESPN to show the Curtis Cup as well.

Later this year, the USGA will send teams to New Zealand for the World Amateur Team Championships for both men and women. At home in Far Hills, the USGA is flourishing in every respect. Huddled around the coffee pot, you can hear longtime employees say, "I remember when there were only 30 of us over there in Golf House." Now the USGA employs a full- and part-time staff of more than 150. We built an Administration Building in the mid-1980s, at a cost of $6 million, and we've paid for it in full.

Next door to the Administration Building, Golf House is gearing up for another tourist season. This one could draw more than the nearly 20,000 visitors of a year ago. The four championships in New Jersey could bring a lot of golfers to Far Hills.

We've had some interesting additions to the Golf House collection. Remember the four holes-in-one at the Open last year? Well, we have the golf balls. We've also added a portrait of Mickey Wright, who won four U.S. Women's Opens from 1958 through 1964. There also is an exhibit entitled "In Search of the Perfect Course," which will be on display until June.

More good numbers are being reported from our Associates and Member Clubs. We recently added our 300,000th Associate. Remember, this program began just 14 years ago, when Arnold Palmer enrolled President Gerald Ford as the first USGA Associate.

Our growth in membership has been spectacular too. As we began the last decade of the 20th century, our membership rolls have expanded to more than 6,800 member clubs and courses, an increase of more than 1,250 in just 18 months. Surprisingly, less than half of this total came from private clubs.

Once in the partnership, member clubs and courses are eligible for helpful advice on everything from running a tournament to grooming a new putting green. Answers to how to run a tournament are provided in pamphlet form, but when it comes to providing course care, the USGA Green Section swings into action.

Last year, the handful of people who comprise the Green Section made more course visits than ever before — nearly 1,500 in all.

The Green Section does more than visit courses and offer advice; it is heavily committed to research, placing particular emphasis on identifying and developing low-maintenance grasses. The goal here is to find and develop grasses that would reduce maintenance costs by 50 percent by 1992, based on dollar values of 1982, when the 10-year program was initiated. Toward that end, the USGA will have spent $3 million in that time.

Two new strains of grasses are in circulation now, and several more are expected in the 1990s.

It's the Little Things that Count

by DENNIS LYON, CGCS
Immediate Past President, GCSAA

THE MAINTENANCE and management of that tract of land known as a golf course requires an intriguing blend of art and science. The scientific aspects of the profession are obvious. Golf course superintendents, by necessity, must have an aptitude for science. We are concerned with such things as pH, evapotranspiration, cation exchange capacity, percolation, allelopathy, volatilization, synergism, etc. However, the scientific aspect of the business is not the subject here. Rather, we are concerned with the "art" of professional golf course maintenance and management.

Besides growing good turfgrass, what is involved in the art of golf course maintenance? It is my opinion that good turf, good golf, and a good time on the links involve more than a superintendent's scientific expertise. The scenario also requires the superintendent's artistic understanding of the dynamic blend between the game, its beloved playing field, and the golfer.

There are many ways to approach the art of golf course management, and I shall touch on only a small part of the artisan approach to golf course maintenance, call it the "little things." In reality, it truly is the little things that count. It is all the pieces which mesh together in near perfect harmony to produce a great golf experience.

During my 18 years in this business, there is one observation I have seen repeated many times: Golfers are simultaneously understanding yet cynical, and forgiving yet critical beyond description.

I have, for example, during the process of construction and renovation, relegated a golf course to a near unplayable status without complaint. At Aurora Hills (Colo.) Golf Course, in 1985, I had a contractor install eight miles of drainage to a depth of between four and eight feet throughout the course. The course was never closed. I have converted manual irrigation systems to automatic, with pipe and trenches everywhere, and only received comments of encouragement from the golfers. I've built greens, dug ponds, buried equipment, turned fairways into mud, and every other disruptive activity imaginable with hardly a whimper of dissatisfaction from the golfers. As long as they understood in advance why we were doing the work and what they could expect on the course when they played, the golfers understood.

However, let the tissue run out in the ladies' restroom, or provide ball washers with no water, or leave litter in the parking lot, or forget to mow a green, or place the pin in a seven-putt location, and the phone rings off the wall. Why? If the golfer feels or perceives the superintendent is working to improve the course, there's no problem. If, however, the golfer perceives that the superintendent is not paying attention to details and taking care of the little

Dennis Lyon

Golfers appreciate this effort to communicate with an informational sign.

Sand bunker with an appendage. How does this situation impact the Rules of Golf?

things, he becomes irate. To ignore the little things, even while concentrating on the "big picture" agronomic aspects of turf management, is to communicate to the golfer that the superintendent is not a good manager or else he/she simply does not care about the golfer.

What are these little things that mean so much? The following is a short list of items which come to mind:

1. A clean golf car.
2. A properly marked golf course.
3. Putting cups at the proper depth without a mound one inch all around.
4. No bird baths in the bunkers.
5. Bunker rakes which aren't broken and have painted handles.
6. Clean tee towels.
7. A friendly wave from a maintenance employee.
8. Soap and water in the ball washers.
9. Green flags that are not at half mast.
10. Maintenance employees who are clean and neat.
11. A clean maintenance area, rather than some place that looks like a cross between a junk yard and a landfill.
12. Clippings removed from tees.
13. Clean restrooms.
14. No cigarette butts around tee boxes.
15. Properly adjusted mowers.
16. Drinking water on the course.
17. Ground-under-repair areas marked accordingly.
18. Advance notice of maintenance activities.
19. Maintenance employees who know when to mow and when to move out of the way.
20. Edges of bunkers clearly defined.

This list of 20 is just a start. Every golfer can come up with a different list. The message is, Don't get caught not being able to "see the golf course for the grass." Great golf turf only gets you in the race; it's the little things in addition to great turf that guarantee the prize.

In keeping with the rule of semantics, that *everything* can never be said about *anything*, I would like to stress one final point about the little things. This point is about the little things in life. I shall refer to these little things as the building blocks of a lifetime. The day will come for each of us to reflect on our life's accomplishments. There is no question that we all desire to look back and feel we did a good job, that we made a contribution to the game and to our profession. Thousands of golfers will have transversed our turf and gone home satisfied, anxiously planning to return another day. But what about the superintendent as greenkeeper, equipment manager, agronomist, administrator, supervisor, et al? We are not one-dimensional. What about the superintendent as husband, father, boy scout leader, coach, PTA member, and so on?

To me, it seems we sometimes expect so much of ourselves in our jobs that we can lose sight of what life is all about. Sometimes club members expect to see the superintendent every Saturday and every Sunday morning. Sometimes superintendents can never leave the golf course in the summer; not for a week, a weekend, or even a full day. Are we truly so important that we can't train an assistant or crew member to identify

(Above) Beautifully mowed fairways at Boulder Country Club.

(Left) Ball washer with a handle missing. Does this send a message about the superintendent's attention to the "little things"?

pythium, or that we can't tell the green chairman we are taking the kids to the mountains or beach for a week?

The stark reality of life's priorities became apparent to me three years ago, when the car in which my son, a high school junior, had always gone to lunch in, was involved in an accident. He was not in that car on this particular day, but the two girls who were had to be freed from the wreckage by the Jaws of Life and transported to a hospital by helicopter.

Yes, it really is the little things that count. Mine came in packages of 9 pounds 1 ounce, 6 pounds 13 ounces, 7 pounds 15 ounces, and 8 pounds 3 ounces.

Author's Profile: Dennis Lyon is Immediate Past President of GCSAA. He is Superintendent of Golf for the four golf courses of the City of Aurora, Colorado. A devoted family man with four children, Dennis has always been a strong proponent of keeping life in perspective.

SANDING AND SWEEPING

by DAVID A. OATIS
Director, Northeastern Region, USGA Green Section

A view of the brush attachment that replaces the cutting blade on the reel.

TOPDRESSING IS ONE of the oldest known golf course maintenance practices. It has long been known to be extremely beneficial to putting green management. Its virtues are well documented in research and have been extolled in scores of articles through the years. But despite the fact that topdressing greens is an essential management program, simple logistics often make it difficult for superintendents to follow through with the practice as often as they wish. Golfers, as well as golf course mechanics, often gnash their teeth at the mere mention of topdressing.

Debris left on a green after topdressing has been dragged in can play havoc with a putt. (It is a well-known fact that golf balls can only be knocked off line by debris or aerification holes; they are never knocked on line.) The debris left behind can range from a few grains of sand to many small pebbles, depending on the quality of the material. This residue is very difficult to clean up, and failing to remove the debris prior to mowing can do tremendous damage to delicate mowing equipment in very short order.

The remedy may be as simple as backlapping the cutting units, but it might also be as extensive as the complete regrinding of the reel and the replacement of the bedknife. In any event, the damage done is time consuming and frequently expensive to repair.

Many superintendents use clean-up units, which are simply old cutting heads kept just for this purpose, to mow the greens after topdressing. Using old cutting units definitely helps, but some

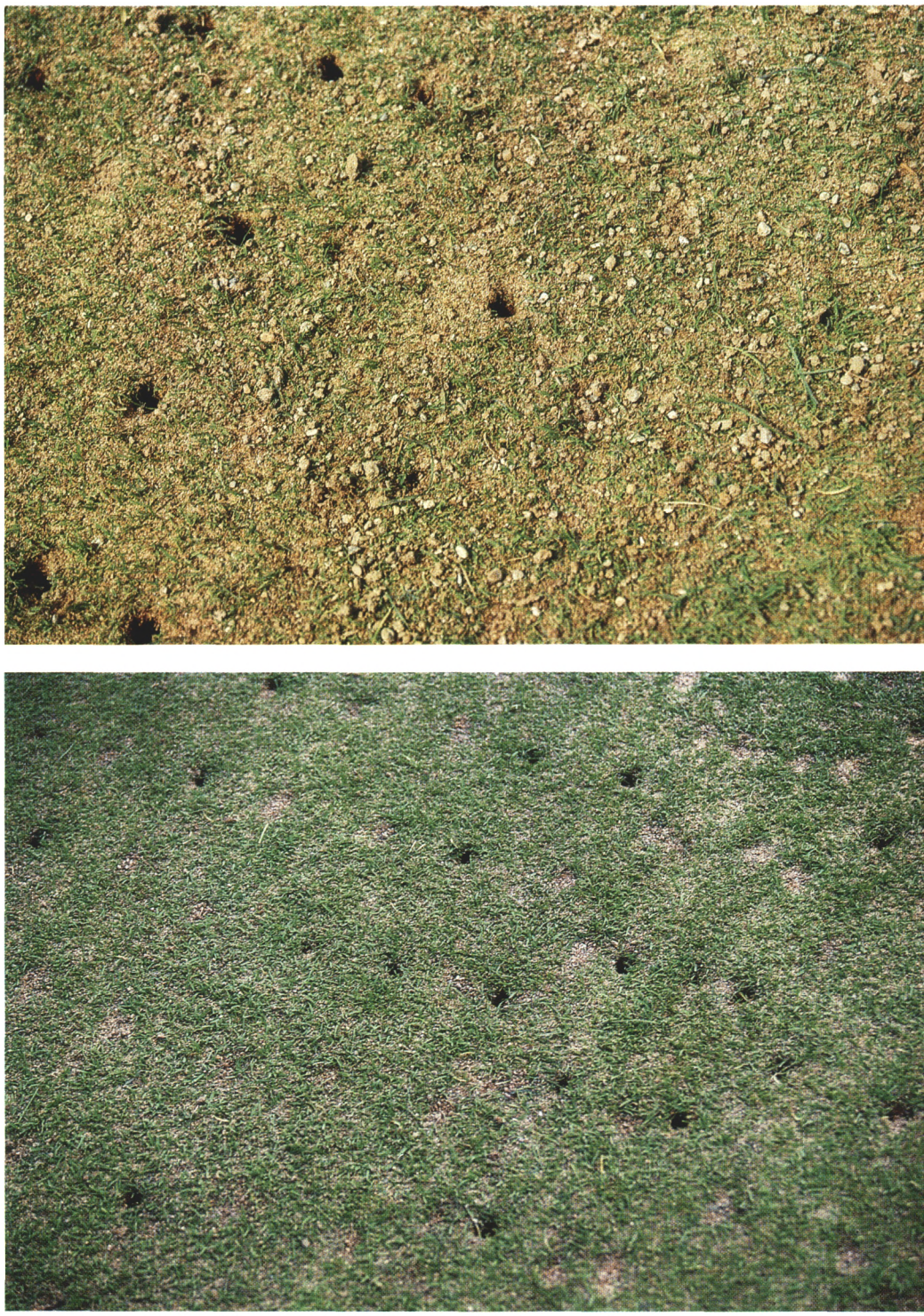
debris is generally left behind even after they have been used several times. Other superintendents have resorted to using hand brooms to manually sweep the debris off the greens, but this is a labor-intensive task, and it is precisely what prompted golf course superintendent Tom Streiff, at Weatherwax Golf Course, in Middletown, Ohio, to devise a better method. Whether you subscribe to the theories about frequent, light topdressing or not, I think the following idea may be of help.

Take an old reel and cut out the blades with a cutting torch, leaving the spiders intact. Then weld four of the small grooming brush holders parallel to the reel shaft. Several manufacturers make these brush assemblies, and they all seem to work well. After they are welded in place, simply slide the brushes into the holders and the mowing unit will have been converted into a sweeping unit.

The unit is best operated with an old bedknife, and it should be adjusted so that the brushes strike the bedknife lightly. Brand-new brushes tend to hit the mower shields, so slightly used ones will actually do a better job.

The height of the bedknife on the new sweeping unit should be set just as you would set the height of a mower. Setting the unit at a normal greens cutting height or higher will facilitate the removal of the larger particles of sand and debris while leaving the bulk of the topdressing behind. By setting the sweeping unit lower, more material can be removed. This might be necessary after an excessive amount of material is applied. We all know how difficult it is to gauge the proper amount of topdressing to put down after aerifying, and a device such as this will allow a larger margin for error.

Without doubt, these sweeping units can help superintendents save on labor costs and improve topdressing efficiency, but more importantly, they may enable superintendents to topdress more frequently and more effectively and thus improve putting green quality for golf.



Before (top) and after (above) shots showing the effectiveness of the sweeper.

IMPROVING YOUR E.Q.

by TIM MORAGHAN
Agronomist for Championships, USGA Green Section

THERE WAS A TIME when an individual's ability to succeed at a chosen endeavor was in part governed by that hard-to-define term the intelligence quotient. Nowadays, dealing effectively with your golf course maintenance staff depends on your ability to develop their "E.Q." (ear quotient), or how well they listen and react. Too much valuable time can be wasted repeating simple requests and directions. Therefore, your success as a golf course superintendent is based upon your ability to communicate and listen effectively.

A superintendent's efforts to streamline maintenance operations can be a breeding ground for creativity. Such has been the case for Joe Hahn, of Oak Hill Country Club, in Rochester, N.Y., and Charles Joachim, of Champions Golf Club, in Houston, Texas. Each had concerns with creating effective communications channels between themselves and their employees. Each found himself responsible for the management of an expansive 36-hole golf course, a sizeable staff, a course renovation program, and an upcoming golf championship.

Joe Hahn, superintendent at Oak Hill Country Club (N.Y.), showing an employee the best route to take on a pocket-sized map of the course.

When words fail, that's when visual aids are the solution. In playing host to the 1989 U.S. Open, a major concern of Hahn's was to protect sensitive areas of the course from vehicular traffic, particularly the roughs. Many of these important rough areas were shaded and received a high rate of traffic from golf carts and maintenance personnel. Controlling the golf cart traffic was not so tough, but his maintenance staff presented a different set of problems. Hahn's solution was to take a map of the golf course and reduce it to a pocket-size version that could be mounted on the equipment or carried around by each crew member.

The features of the map were enhanced by using different colors. Red was used to indicate areas to be avoided, and green denoted areas safe for travel. Also, Hahn added the location of specific haul roads, the entrance and exit from the club grounds, and the position of the maintenance facility. With all this valuable information presented in a neat, compact form, Hahn didn't have to spend his valuable time repeating directions. These small and efficient maps were inexpensive to produce and were a valuable asset to newly hired personnel.

Joachim's communication problems at Champions Golf Club were similar to Oak Hill's, but were complicated by a complete course renovation project and a Hispanic labor force. His objectives included decreasing the number of times directions had to be repeated to employees trying to locate work areas, minimizing the time it took to cross the course, and helping his new employees learn their way around 36 holes of golf. He decided that an aerial photograph, which would show all of the important features of the course, would help him meet his objectives. He found a company that would fly low over the course, take a series of pictures, splice the shots together, and enlarge the photo to a scale of one inch to 100 feet. The results were two six-foot by eight-foot black-and-white photos of the course that are now mounted on the wall of the lunchroom.

The finished product is framed, mounted, and protected by a Plexiglas cover. Also, by using a Plexiglas cover, irrigation lines, heads, valves, control boxes, and all access points to and from the highways and the location of the shop can be added. The map is large and easy to read, and it is easy to locate any feature on the golf course. By mounting the map in the lunchroom, it is in plain sight for everyone to view when assignments are handed out. The total cost of this project was $1,000, a mighty small price to pay to improve Champion's "E.Q."

A Supplemental Building for Reel and Bedknife Grinding

by PATRICK M. O'BRIEN
Director, Southeastern Region, USGA Green Section

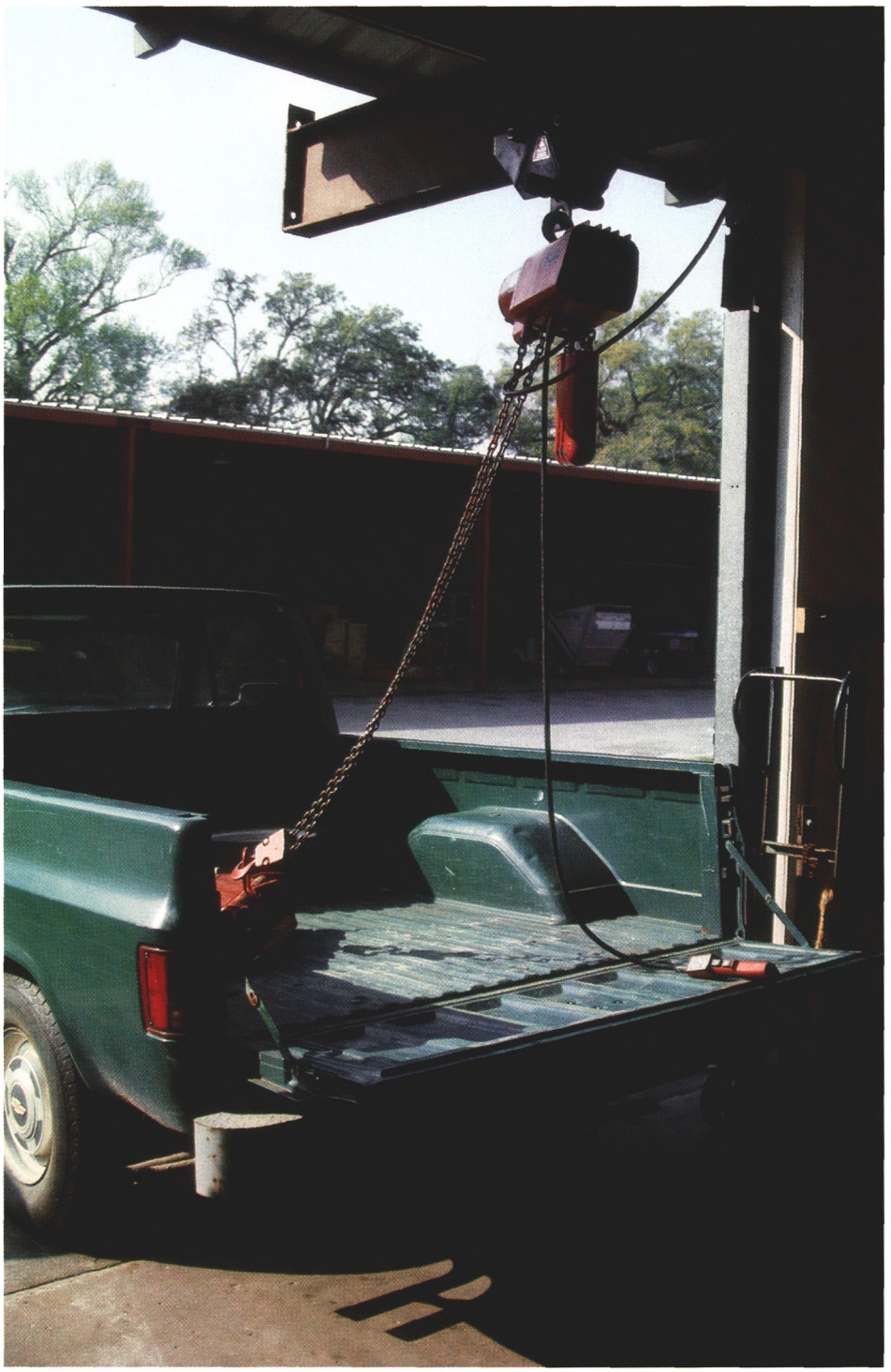
MOWERS REQUIRE more frequent maintenance than any other piece of equipment on a golf course. Most golf courses have a service shop inside the maintenance building. In many cases, the noise from these maintenance operations affects other projects in the building, but there is no way for other employees or guests to avoid this noise other than by leaving the building. Obviously, it can be very disruptive to have this distraction in the maintenance building.

The Sea Island Golf Club, in Georgia, found a solution to this problem. A 400-square-foot aluminum building was constructed adjacent to the existing maintenance facility with a tin roof and concrete floor. Tom Burton, the golf course superintendent, designated the structure the Reel and Grinding Building.

The key feature of the building is a ceiling-mounted 2-ton electric hoist on a prefabricated 20-foot by 16-foot steel beam. The hoist can be transferred from one end of the building to the other on the steel beam. The mowers are driven to the entrance of the building and the movable electric hoist allows the mechanic to transfer the reels directly from the nearby mower to the work-bench or grinding equipment. The reels are easily lifted back to the mower after servicing via the electric hoist. Lifting is a one-person operation with this device. An electric hoist added about $1,200 to the new building's total cost.

In the Sea Island project, a work-bench, tool cabinet and desk were built for the mechanic. An air compressor and water source are other nice features to help keep the equipment and building clean. Ceiling-mounted fluorescent lights provide the best light.

The Reel and Grinding Building has helped Sea Island. For new golf courses or older maintenance buildings where noise from the service area is a problem, consider erecting such a building. If noise isn't a factor, installing an electric hoist might help to improve the existing shop.



The movable electric hoist at Sea Island Golf Club can be conveniently used to remove mowers and reels directly from a pickup truck.

SAND FROM HEAVEN

by LARRY W. GILHULY
Director, Western Region, USGA Green Section

WHEN IT COMES to construction projects on golf courses, it is safe to say that most golfers want the work done as quickly as possible but with the least amount of disruption to play. Since the best time for construction is often the busiest time of year for golf, many construction programs are relegated to off-season periods when other factors can complicate the work that needs to be done.

This was the problem faced by the grounds crew and the membership at Shaughnessy Golf & Country Club, in Vancouver, British Columbia. Superintendent Brian Houston and the golf course architect were asked to completely reconstruct or add 17 bunkers during 1989. To disrupt play as little as possible, the decision was made to begin the project in early October, despite the good chance of inclement weather. The superintendent and the membership faced the dilemma of tearing up the golf course to complete the project or developing innovative methods to cause less disruption to existing turf areas. Fortunately, they found an idea that caused little disruption to the turf.

Once the decision was made to add new bunkers and expand existing ones, the addition of soil, rough grading, and resodding around the bunkers was tackled and completed by late October. A stretch of beautiful fall weather allowed the completion of this portion of the project. Unfortunately, heavy rainfall occurred before the new sand could be placed in the bunkers, and there appeared to be no way to add the sand without causing severe rutting and other turf problems. At this point, a suggestion was put forth to investigate the use of a local fire control helicopter for carrying loads of sand from the stockpile to the bunkers, thereby avoiding heavy truck traffic on the course.

Since the rainy season was a slow time for the fire department, and the price for using the helicopter was reasonable, it was decided to go ahead with this plan. Houston proceeded to install approximately 400 cubic yards of sand in 17 bunkers in 9 hours and 20 minutes. Due to the type of bucket used in the filling process, very little shoveling of bunker sand was necessary. Essentially, the labor for this operation involved loading the bucket, hand raking the sand after it was installed, and using a vibratory compactor to firm the new material.

How did the membership accept this operation? Naturally, the membership was delighted that there was no disruption to the turf and that the bunkers were instantly compacted and playable the next day!

If you should happen to face a similar dilemma in your section of the country, this may well be a viable method. It certainly saves both the superintendent and the club the aggravation of disrupting the course and may prove to save some "pennies from heaven" as well.

SAND FROM HEAVEN

Total sand received: 516 tons = 1,032,000 lbs.

1 cu. ft. = 75 lbs.
1 cu. yd. = 2025 lbs.
1,032,000 divided by 2025 = 509.63 cu. yds.

Material left in stock

36 ft. × 16 ft.× 4 ft. = 2304 cu. ft. divided by 27 = 85 cu. yds.
plus 25 cu. yds. in yard = Total of 110 cu. yds.

TOTAL SAND USED = 399.63 cu. yds.

Two concrete buckets used

1st bucket — 1.25 cu. yds. — 2531 lbs.
2nd bucket — 2 cu. yds. — 4050 lbs.
Average load — 1.63 cu. yds.
Average trip — every 2.25 minutes

Used approximately 400 cu. yds. (405 tons) in 17 bunkers

400 cu. yds. divided by 1.63 average load cu. yds. = 245 loads
at 2.25 minutes per trip = 9 hours 20 minutes working time

Used — Frontier Helicopters Ltd.

Size — Bell 205-A1

Carrying capacity — 4,000 lbs.

TOTAL COST — $9,800.00 or $24.50 per cu. yd.

Sand weight wet — 75 lbs. per cu. ft.
— 1 cu. yd. = 75 × 27 = 2.025 lbs.

Sand weight dry — 84.5 lbs. per cu. ft. 11% Increase
— 1 cu. yd. = 84.5 × 27 = 2,281.5 lbs.

Sometimes problems require unconventional answers. Here the helicopter takes a load of sand from the stockpile . . .

. . . and delivers it to the bunker.

NEWS NOTES FOR SPRING

Bill Bengeyfield

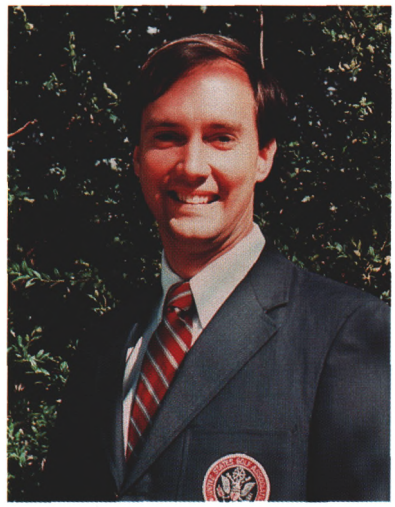
Bill Bengeyfield Retires After 34 Years With Green Section

William H. Bengeyfield, National Director of the Green Section since 1982, has retired after 34 years with the Green Section staff. Bill joined the USGA as an agronomist and director of the Green Section's Western Region in 1954, at a time when the Turf Advisory Service was just becoming established in many parts of the country. He served the USGA in that capacity for 25 years, and during that time made thousands of TAS visits at courses throughout the western United States. His influence in promoting sound golf course management practices spread far beyond his regional boundaries, though, for Bill spoke at hundreds of meetings and conferences and wrote extensively for golf and trade publications.

Bill left the Green Section in 1978 to become Director of Golf Courses and Park Maintenance at Industry Hills Golf Course in Industry Hills, California, a move that allowed him to practice what he had been preaching for the previous 25 years. He returned to the Green Section staff in 1981, and became National Director in 1982. In addition to supervising activities of the agronomists in the regional Green Section offices, Bill served as Chairman of the USGA Turfgrass Research Committee. Since its inception in 1982, the committee has distributed nearly $3.5 million to universities and research institutions throughout the country to develop turfgrasses that use less water, are more resistant to pests and diseases, and are less costly to maintain. Bill Bengeyfield has been instrumental in establishing the foundation of this research program, which will profoundly affect the way we maintain our golf courses well into the next century.

One of Bill's great interests during his years with the Green Section was the GREEN SECTION RECORD. He served as its editor from 1967 to 1978 and again from 1982 to 1990. His sound editorial perspective and his convincing writing style made the GREEN SECTION RECORD an invaluable reference for golf course superintendents and course officials throughout the United States and the world.

The departure of Bill Bengeyfield from the Green Section staff marks the end of an era. In his 34 years serving the game of golf and the turfgrass industry, Bill made a difference. His friends and associates wish him health, happiness, and pleasant pursuit of the little round white ball in retirement.



Jim Snow

Jim Snow Appointed National Director

James T. Snow, formerly Northeastern Region Director for the USGA Green Section, has recently been named National Director. He replaces Bill Bengeyfield, who retired after 34 years on the Green Section staff. Jim is a native of Trumansburg, New York, and received his B.S. and M.S. degrees from nearby Cornell University. He joined the Green Section staff in 1976, serving as an agronomist in the Northeastern Region for six years. In 1982 he became Director of the Northeastern Region, a position he held until his recent promotion. Jim has also served as co-editor of the GREEN SECTION RECORD for several years, and he will take over as editor in his new position.

As National Director, Snow will be responsible for all Green Section activities, including those of the Turf Advisory Service, the GREEN SECTION RECORD, and the USGA Turfgrass Research Committee.

Bob Brame Appointed to Green Section Staff

Robert A. Brame of Carmel, Indiana, has been named as the new agronomist for the Green Section's Mid-Atlantic office. He replaces David Oatis, who has relocated to New Jersey as Director, Northeastern Region. Bob will assist Stanley Zontek, Mid-Atlantic Region Director, in providing Turf Advisory Service visits to golf courses in Pennsylvania, Ohio, Maryland, Delaware, Virginia, West Virginia, and Kentucky.

Bob comes to his new position from the Broadmoor Country Club in Indianapolis, Indiana, where he was the golf course superintendent since 1980. Prior to that he served as superintendent at several other courses, including the Guadalajara Country Club in Guadalajara, Mexico. He has spent more than 22 years as a worker and supervisor on golf courses, bringing broad experience to his new role as a consulting agronomist with the Green Section.

A native of Evansville, Indiana, Bob received his B.S. in turfgrass science from Purdue University, where he also did some graduate work. He participated in golf at the college level for two years, and now plays to a 5 handicap.

Bob will soon be relocating to the West Chester, Pennsylvania, area with his wife Rhonda, son Scott, and daughter Jennifer to assume his new duties with the Green Section. We are delighted to welcome to the Green Section staff an individual with Bob's background and experience.

John Foy

Dave Oatis

John Foy and Dave Oatis Are Promoted

The Green Section is pleased to announce the promotion of two of its regional agronomists to positions as Regional Directors for their respective areas.

John H. Foy has recently been appointed to the newly created position of Director, State of Florida. Because of John's great success in building up participation in the Green Section's Turf Advisory Service and because of the state's leading role in golf activity, Florida has now been designated a separate region with respect to Green Section activities.

John Foy is a graduate of the University of Georgia, where he received B.S. and M.S. degrees. After several years as a sales representative, John joined the Green Section in 1985 as an agronomist in the Southeastern Region. Since then he has more than doubled the use of the Turf Advisory Service in Florida, with nearly 160 courses taking advantage of the TAS in 1989. John has set high standards with respect to his advisory work, and the Green Section is proud to acknowledge his contributions with this appointment. John will continue to be located in Hobe Sound, Florida.

David A. Oatis has been named Director of the Green Section's Northeastern Region. He replaces Jim Snow, who takes on new responsibilities as National Director. Dave joined the Green Section staff in 1988 as an agronomist in the Mid-Atlantic Region, where he made Turf Advisory Service visits in Pennsylvania, Ohio, and several other states. Dave is a native of Indiana but received his education from the California Polytechnic Institute. Prior to joining the Green Section he was the golf course superintendent at the Rio Hondo Country Club in Downey, California, for three years.

Dave is a personable, experienced agronomist whose broad background will serve him well in the Northeast. He and wife Cindy will soon be moving their household and month-old daughter Rachel to New Jersey, where Dave will be located at Golf House.

Mike Kenna

Mike Kenna Named Director of Green Section Research

Dr. Michael P. Kenna has recently been appointed Director of Green Section Research, a new position on the Green Section staff. The position was created out of a need to extend greater administrative support to the USGA's growing turfgrass and environmental research program, which is distributing nearly $750,000 for research grants in 1990 alone.

Dr. Kenna brings an impressive academic background to his new post. He did his undergraduate work at the California Polytechnic Institute, and received his M.S. and Ph.D. degrees from Oklahoma State University. His graduate studies involved turfgrass breeding, and bermudagrass improvement work in particular.

After graduate school, Mike assisted Dr. Milt Engelke with the zoysiagrass breeding work at Texas A&M University, supported by a grant from the USGA research program. In 1985 he joined the faculty at Oklahoma State University as assistant professor, responsible for turfgrass research activities and a statewide extension program. He was selected for the Young Scientist position on the USGA Research Committee in 1988, and was invited to remain on the committee as a permanent member after his one-year term had expired. His academic background and familiarity with the workings of the Research Committee make him particularly well suited for his new position.

Mike is a native of San Diego, California, but in his Green Section post will remain in Stillwater, Oklahoma, with his wife Susan and son Patrick. Mike is a weekend golfer and sports a 12 handicap.

Robert C. Vavrek, Jr., Joins Green Section Staff

Robert C. Vavrek, Jr., has been appointed to the Green Section staff to serve as agronomist in both the Great Lakes and Mid-Continent Regions. A native of Ohio, he holds a bachelor of science degree in biology from Marietta College and a master of science in turfgrass entomology from Ohio State University. Bob is completing the requirements for a doctorate in turfgrass science at Cornell University with a dissertation on the influence of calcium on thatch formation.

His work at Cornell and Ohio State provided experience in diagnosing disease, insect and weed problems, as well as nutritional deficiencies in golf turf. He also has extensive laboratory experience in the physical analysis of mixtures to be used in putting green construction.

Bob will reside in the Milwaukee area, but will use his agronomic expertise in both the Great Lakes and Mid-Continent Regions to provide more timely Turf Advisory Service to subscribers throughout the midsection of the United States.

TURF TWISTERS

THE GREEN SECTION DOES NOT APPROVE

Question: A local supplier is selling a product he says is "approved by the USGA Green Section." Does the Green Section formally approve of commercial products? (California)

Answer: Absolutely not! The Green Section neither approves nor disapproves of any commercial product. If you see literature or hear from sales representatives that the Green Section has "approved" of any such product, please contact the USGA or your regional Green Section office.

KEEPING CHAMPIONSHIP CONDITIONS

Question: My Green Chairman has requested that our greens should be kept in U.S. Open condition throughout the year. I'm concerned that such a policy could lead to turf problems. What do you think? (New Jersey)

Answer: You are absolutely right. It would be foolhardy to try to maintain extremely fast, firm greens throughout the season. Courses playing host to the Open or other major events try to have their greens peak for that one week, and without exception they back off the intensive management program as soon as the event is over. It's fine to peak your greens for a couple of special club events during the year, weather permitting, but trying to maintain consistently very fast greens usually results in severe disease problems or turf failure.

WHEN TRYING TO MINIMIZE LIABILITY

Question: We make a concerted effort to follow all regulations when using pesticides. Nevertheless, as the golf course superintendent at my club I am concerned about liability. Any suggestions?

Answer: First of all, check with your club to be sure you are covered under their insurance. Also, make it a practice always to have two individuals present whenever pesticides are mixed and used. Both should sign off on the appropriate forms concerning the mixing and application. Finally, be sure all of your pesticide equipment is maintained in "new" condition. Document all repair and calibration efforts as well as actual use.