

USGA®

Green Section RECORD



1985 Green Section Award

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*Cover Photo:*

Mrs. Violet Youngner accepts the USGA Green Section Award posthumously for her husband Dr. Victor B. Youngner. George M. Bard, Green Section Award Chairman, makes the presentation.

Dr. Victor B. Youngner USGA Green Section 1985 Award Recipient

THE LATE Dr. Victor B. Youngner, who developed Santa Ana bermudagrass and El Toro zoysiagrass during his 29-year career in research and teaching at the University of California, Riverside, was selected for the 1985 USGA Green Section Award.

The Award was presented to Dr. Youngner's widow, Violet, on February 12, at the Golf Course Superintendents Association of America annual banquet before 1,700 guests, at the Sheraton Washington Hotel, Washington, D.C. George M. Bard, of Naples, Florida, Chairman of the Green Section Award Committee and a member of the USGA Executive Committee, presented the award. The ceremonies followed the Green Section's Educational Conference earlier in the day, which attracted over 700 superintendents and club officials, some from as far away as Australia and Singapore.

Dr. Youngner excelled in turfgrass breeding, and in many areas of plant growth and development studies. He worked extensively with salt-tolerant and alkali grasses, and he was a pioneer in investigating *Poa annua* variations and selections. He was an authority on kikuyugrass (*Pennisetum clandestinum*), and he believed this sub-tropical, rank growing grass species might someday develop, through breeding, into a valuable turfgrass. Although he involved himself in studies of the effect of air pollution on grasses, weed control, fertilization and mowing practices, his 1983 research with co-worker Dr. V. Gibeault on the USGA Golf Shoe Study II attracted wide attention and interest.

At the close of his career, Dr. Youngner was most active in a zoysiagrass breeding project and had recently developed several new and very promising varieties. El Toro is one of his creations, and it currently is being patented for release. He was also active in the breeding and commercial development of Guayule, a woody desert shrub of the Southwest and Mexico that has promising properties in rubber production. His relentless work produced 69 technical and 146 semi-technical publications. He co-



Dr. Victor B. Youngner

edited a 1972 book, *Biology and Utilization of Grasses*, with Dr. C. M. McKell.

AMONG HIS many endeavors, Dr. Youngner served as editor of the *California Turfgrass Culture Quarterly*, from 1955 until his death, on April 18, 1984. He wrote frequently for trade publications, including *Golf Course Management* and the *USGA Green Section Record*. He was an advisor to the Metropolitan Water District of Southern California, as well as to the Southern California Turfgrass Council. He appeared

frequently as a speaker at local, state, and national turfgrass conferences. He was a member of the USGA Green Section Committee for 27 years.

Born in Nelson, Minnesota, Victor Bernarr Youngner had his college education interrupted in 1942 by World War II. After serving three years in the Army Air Forces, he earned his Bachelor of Science and Ph.D. degrees at the University of Minnesota and for a number of years worked in plant breeding for commercial seed companies. He joined the faculty of the University of California, Los Angeles, in 1955.

He was a Fellow of the American Society of Agronomy and a member of Sigma Xi and the Gamma Sigma Delta Agricultural Honor Society. He is listed in *Who's Who in the West* and *American Men and Women in Science*.

When she was notified of the Award Committee selection, Mrs. Youngner responded, "This is really a great honor for Vic to be so recognized. And I will go anywhere to accept the Award on his behalf."

In presenting the Green Section Award, the USGA wishes to identify, celebrate, and hold up for emulation individuals, such as Dr. Victor B. Youngner, who exemplify outstanding dedication to golf through their work with turfgrass.

George M. Bard



THE RESEARCH TEAM . . .

The GCSAA and The Green Section

With Vital Commitment to the Future

by JAMES W. TIMMERMAN, President, GCSAA, Orchard Lake Country Club, Michigan,
and JAMES G. PRUSA, Associate Executive Director, GCSAA, Kansas

AT THE BEGINNING of the 1960s, President Kennedy promised to put an American on the moon within 10 years. What followed was the greatest technological advancement in the history of mankind. In less than the 10 years, an American walked on the moon, and the promise was realized.

How was it made possible? Was it accomplished through great speeches or wishful thinking? Hardly. Rather, it was made possible by defining the challenge, the establishment of the goals and objectives needed to resolve the challenge, and the commitment of the resources and spirit necessary to achieve the objectives.

Perhaps there was a great deal of symbolic significance when astronaut Alan B. Shepard, Jr., took out his trusty moon club and struck that famous golf shot on the lunar surface. That club, which is now enshrined in the USGA Museum at Golf House, forever welded the technological achievement of the Apollo program with the game of golf.

Golf today faces serious challenges that, to be resolved, will require a technological thrust similar to the Apollo program. Barely 20 years after Kennedy committed us to set our aim at the moon, the game has launched a similar project. Though perhaps not equal in scope, this project appears to be at least equal in difficulty. Our own race to the moon will determine the future of golf — and consequently, for each of us

who labor within this game, the project will determine our futures.

The challenges are not difficult to identify, to understand, or to define. For many years now, the problems facing golf have become increasingly clear to most golf course superintendents, industrial business people, university scientists, and the leadership of both the USGA and the Golf Course Superintendents Association of America. Each year we've exchanged information that brought to light the developing challenges. The problems have hardly been hidden; after all, many in golf have been aware of and have predicted the escalation of problems for years.

Simply stated, potable water for irrigating fine golf turfgrasses is a rapidly diminishing resource. In addition, even after all the improvements in golf course management, the price of golf still remains too high. Both of these problems affect the game's welfare by tending to drive up the price a golfer must pay to play. At the least, these factors make it difficult for us to reduce the real cost of golf in order to allow people of all ages and economic means to take up the game.

Over the years, golf course superintendents have done an excellent job of holding the annual cost increases of golf course maintenance close to the annual rate of inflation. However, we must now work to reduce, in real dollar terms, the annual cost of golf course

maintenance in order to allow the price of golf to become competitive with the other leisure sports.

Real reduction of golf course maintenance costs is in itself a difficult challenge. Complicated by the accelerating scarcity of potable water for golf course irrigation — which some of us have experienced already — and the worldwide increasing demand for the same water, our ability to reduce the price of golf and create expansion becomes a challenge on a scale the industry has never previously encountered.

THE OBJECTIVES of the Turfgrass Research Project are clear and simple to state: It is our goal to develop new grasses that will use 50 percent less water and require 50 percent less maintenance. Though simple to state, to achieve such goals is anything but simple.

The key change in strategy is an emphasis on basic research.

Frankly, we have a wealth of knowledge on fertilizer studies and applied disease and insect control methods from the applied research conducted on existing turfgrass varieties. What we truly lack is the basic knowledge of the plant mechanisms. So enters a new strategy.

For example, basic research is now being conducted to better understand the processes that go on within the turfgrass plant. These physiological processes have not really been understood. However, with the current combination of

research talent and a more realistic level of funding, significant scientific discoveries are anticipated.

This better understanding of physiological mechanisms that control drought tolerance, heat tolerance, and water utilization within the plant will allow the turfgrass breeders to select and screen new varieties.

Another thrust of the research project is in turfgrass tissue culture, a basic science area closely related to genetic engineering. This is potentially a promising area. Tissue culture is an advanced technique of *in vitro* (in the test tube) propagation of individual turfgrass plants cloned from a single plant meristem cell.

On the cutting edge of today's biotechnology, this research could greatly reduce the breeding time normally necessary for selecting and screening for improved environmental tolerances. This also establishes a foundation of knowledge necessary to create new species of turfgrass for golf.

Major developments in this project will have direct applications in food and fiber crops. Imagine what it might mean to unlock the secrets of how some plant cells are able to utilize energy and water more efficiently. Research in turfgrass

for golf might improve our ability to feed people.

Over the past 18 months, the start-up phase of the USGA/GCSAA Turfgrass Research Project has accomplished a great deal. A detailed plan of attack has been established covering a 10-year period. Specific time objectives have been determined for each phase of the project, project leaders have been selected to head teams of research scientists, committee members have been designated to visit each major project site, and, most importantly, the program is on schedule.

Basically, the project's initial phase calls for the collection of turfgrass germplasm from around the world. After input from the plant physiologists, the plant breeders will screen for stress factors and desirable genetic traits. Eventually the selected strains will be moved out to beta sites for further study under varying climatic conditions and cultural practices.

One noteworthy example of the project's innovative breadth and provisions for differing regional realities: The golf course superintendent's old nemesis, *Poa annua*, is being approached



Dr. James R. Watson (standing), member of the USGA Turfgrass Research Committee, confers with GCSAA President James W. Timmerman on research matters for 1985.

as a friend instead of a foe. *Poa annua* is being studied to see if its strengths can be enhanced while reducing its weaknesses. Perhaps an improved variety of *Poa annua* will be available because of this effort.

IT IS ESTIMATED that 200,000 people are employed in various phases of golf in the United States, and additional family dependents total another 600,000. That's nearly a million people who are directly dependent on golf for their subsistence and welfare. You can double that number to include all those people employed by turf equipment manufacturers, golf equipment manufacturers, advertising agencies and other segments.

There can be little doubt that golf is more than recreation; it obviously provides a living for a significant portion of the population. The combined financial resources of golfers and those who depend on the game could generate the kind of major funding required to support the research that's already underway.

All those clubs, golf course superintendents and others who have contributed to the turfgrass research fund deserve our gratitude. In the past, those in the game have provided the necessary funding for turfgrass research, but the magnitude of the current challenge requires us to shift from measuring funding in hundreds of thousands of dollars to millions of dollars.

Most people recognize that it takes millions to conduct basic scientific research on this scale. After all, one need only look at medical research or efforts in basic agricultural research.

Let there be no doubt that the basic research needed today in turfgrass science is no less complex or expensive than in those other areas. It will take similar amounts of money to achieve the breakthroughs needed to assure the future of golf.

We — primarily golf course superintendents — can choose to do nothing towards tackling these problems and golf will probably survive with some growth. Most golf courses will continue to plug along, and most superintendents

will remain employed. For all practical purposes, however, the game could anticipate a generally stagnant future.

There is another avenue that offers a different future — one of prosperity for golf. We can work together to promote expansion of the game and, to paraphrase Dr. Alister MacKenzie, provide "pleasurable excitement" to millions of new golfers.

For those pragmatists among us interested in the more tangible benefits of our involvement, supporting the USGA/GCSAA Turfgrass Research Project simply translates into new opportunity and increased prosperity. Of course, expansion and opportunity mean more management positions, expanded golf course ownership, and greater income for golf course superintendents. In the most basic tangible terms, it means personal growth and development for each of us.

GCSAA's main role is to improve the management ability of golf course superintendents through continuing education and high professional standards. We also have a responsibility to support fully the subject of turfgrass research program under the auspices of the USGA Research Committee. The degree to which we, as a profession, shall be recognized for the future successes of this turfgrass research project are limited only by the degree to which we dedicate support for the project.

Let us rally our support for this massive research undertaking. Let us become salesmen to our clubs, our fellow superintendents, and our communities — encouraging the broadest possible base of contributors. By the 21st century, we will assure that no one can suggest that this generation of golf course superintendents failed in its responsibility. Our objectives are clear: To develop improved turfgrasses that use 50 percent less water, require 50 percent less maintenance, yet are still green and pleasing to the eye.

We can muster the resources necessary. Let us now commit our spirit and demonstrate our determination — and thus pay honor to the proud tradition of our profession.



Eugene Country Club, Oregon.



Give The Ball A Push

THE JOINT EFFORT of the membership of the Golf Course Superintendents Association of America and the USGA Green Section in raising funds for turfgrass research is one year old. The support of GCSAA superintendents at their own clubs coupled with the larger USGA Capital Campaign have made it possible to place \$388,000 for turfgrass research in 1985! Nineteen projects have been funded by the USGA/GCSAA Research Committee at 13 universities. The basic precept is development of drought-tolerant minimal-maintenance turfgrasses for golf. The projects include plant stress mechanism studies; new grass breeding efforts in *Poa annua*, bentgrass, zoysiagrass, bermudagrass, and native grasses; a

turfgrass research computer data base library; new cultural practices studies, and much more. A description of all projects will be given in the May/June issue of the GREEN SECTION RECORD. Because of this long-range research program, better turfgrasses, with a 50 percent reduction in water requirements and a 50 percent overall lower maintenance cost, will become an achievable goal within the next decade.

Following is a list of golf courses that, through their own gifts to the general USGA Capital Campaign, started the research ball rolling in 1984. Clubs marked with an asterisk (*) followed by their golf course superintendents' names are specifically supporting the joint USGA/GCSAA research effort. These gifts are restricted, at the clubs' requests, to turfgrass research only.

If your club is on this list, we thank you; we are grateful for your concern and contribution to better golfing turf for tomorrow.

If your club is not on this year's list, we surely hope it will be there next year. We need you. The kind of turfgrass

research contemplated in this study will cost from \$2 to \$3 million over the next 10 years, and every gift, every possible source of support is needed. The USGA and GCSAA cannot do it alone. Neither can the projects be sustained without annual giving. It will take the support and active encouragement of all who have a stake and an interest in golf's future.

This joint fund-raising effort affords an opportunity for every golf course superintendent to bring greater and lasting recognition to himself at his own club and to his profession nationwide. Mr. Superintendent and Mr. Green Committee Chairman, you will not only help yourself and golf, but contribute also to the improvement of the quality of life in America. It is your chance to give something to golf and, at the same time, leave something worthwhile for the entire world of sports turf. And it doesn't have to cost you one penny.

WHAT WE NEED is for your club to send the USGA Capital Fund Campaign (USGA Golf House, Far Hills,

NJ 07931) a check for the amount developed by \$2 per golfing member at your club. The check should be clearly earmarked for the GCSAA/USGA turf research project. It will not be spent for any other purpose. It should be generated on a continuing basis so that the GCSAA and the USGA, working together, can finance the basic, essential, coordinated, longer-term research projects so desperately needed.

Can we succeed in this search for better grasses? Can we, together, develop minimal-maintenance turfgrasses for golf? We certainly can. Everything of value being done today in turfgrass research can be accelerated by this effort. Take this idea. Ask your board of directors to support this plan. We think it is the best, simplest way to raise the right amount of money needed for meaningful research. There seems no better way to consistently develop the funds essential to a solid, long-range, meaningful program.

Give the ball a push! Let's get it rolling at your club — for better turfgrasses tomorrow.

The Honor Roll

Abeniqui Country Club, NH
 Alamance Country Club, NC
 Algonquin Golf Club, MO
 Alpine Country Club, NJ
 *Andover Country Club, MA
 Antone De. Bettencourt
 Annandale Golf Club, CA
 Arcola Country Club, NJ
 Aronimink Golf Club, PA
 Atlanta Athletic Club, GA
 Atlantic City Country Club, NJ
 Augusta National Golf Club, GA
 Avon Golf Club, CT
 Baltusrol Golf Club, NJ
 Bangor Municipal Golf Club, ME
 Bayou DeSiard Men's Golf Assoc., LA
 *Bedens Brook Club, The, NJ
 James F. Gilligan
 *Bedford Golf & Tennis Club, NY
 Terence Boles
 Bel-Air Country Club, CA
 *Bellerive Country Club, MO
 Oral Redman, Jr.
 Belmont Country Club, MA
 Birmingham Country Club, MI
 Birnam Wood Golf Club, CA
 Black Hall Country Club, CT
 *Blackwood Country Club, Inc., WI
 Monroe S. Miller
 Blacksburg Women's Golf Club, VA

Blind Brook Country Club, NY
 Bloomfield Hills Country Club, MI
 *Bob O'Link Golf Club, IL
 Bruce R. Williams
 Bodega Harbour Golf Club, CA
 Brae Burn Country Club, MA
 Braemar Men's Club Association, CA
 Brandermill Men's Golf Assoc., VA
 Brentwood Country Club, CA
 Broadmoor Golf Club, CO
 Brookfield Country Club, NY
 *Burning Tree Club, MD
 Virgil Robinson
 *Butler National Golf Club, IL
 Oscar L. Miles, CGCS
 California Golf Club of
 San Francisco, CA
 Canoe Brook Country Club, NJ
 *Canton Public Golf Course, CT
 Walter W. Lowell
 Carmel Valley Ranch Golf Club, CA
 Castle Pines Golf Club, Inc., The, CO
 Catawba, NC
 *Chagrin Valley Country Club, OH
 Terry B. Stamp
 Champaign Country Club, IL
 Charlotte Country Club, NC
 *Cherokee Town and Country Club, GA
 Randy Nichols
 Cherry Hills Country Club, CO

Chicago Golf Club, IL
 Claremont Country Club, NH
 Club Managers Association, MA
 Cohasset Golf Club, MA
 *Collison Par 3, LA
 Russell W. Oetker
 Colonial Country Club, TN
 *Columbus Country Club, Inc., OH
 John E. Laake
 Concord Country Club, MA
 Congressional Country Club, Inc., MD
 Cordova Junior Golf, CA
 Corral de Tierra Country Club, CA
 *Country Club of Jackson, MI
 Wm. P. Madigan
 Country Club, The, MA
 Country Club, The, OH
 Creek Club, The, NY
 Crystal Lake Country Club, IL
 *Cypress Point Club, CA
 Manuel Cardoza
 Dallas Athletic Club, TX
 Dallas Country Club, TX
 Deal Golf & Country Club, NJ
 Dedham Country & Polo Club, MA
 Del Paso Country Club, CA
 Denver Country Club, CO
 Desert Forest Golf Club, AZ
 Desert Island Country Club, CA
 Detroit, Country Club of, MI

Diablo Country Club, CA
 Dorset Field Club, Inc., VT
 Druid Hills Golf Club, GA
 Echo Lake Country Club, NJ
 Edgewood Country Club, PA
 Ekwano Country Club, VT
 El Niguel Country Club, CA
 Eldorado Country Club, CA
 Essex Country Club, MA
 Exmoor Country Club, IL
 Fairbanks Golf & Country Club, AK
 Fairfield, Country Club of, CT
 Fairmount Country Club, NJ
 Fairview Country Club, CT
 Farmington Country Club, CT
 *Fox Den Country Club, TN
 Richard W. Edger
 Franklin Hills, MI
 Friendly Hills Country Club, CA
 Friends of College Golf, Inc., CA
 Garland Golf Course, MI
 Gaston Country Club, FL
 Glen Oak Country Club, IL
 Glen Ridge Country Club, NJ
 Gulf Stream Golf Club, FL
 Guyan Golf & Country Club, WV
 Harrisburg Country Club, VA
 Hartford Golf Club, The, CT
 Hazeltine National Golf Club, MN
 Highland Country Club, PA
 Hillcrest Country Club, CA
 Hinsdale Country Club, IL
 *Hole In The Wall Golf Club, Inc., FL
 Louis Edwards
 Hollywood Golf Club, NJ
 Honors Course, Inc., The, TN
 Huntingdon Valley Country Club, PA
 Indian Hill Country Club, IL
 Indian Hills Country Club, GA
 Jackson, Country Club of, MI
 Kent Country Club, MI
 Kissing Camels Golf Club, CO
 Kittansett Club, The, MA
 Knickerbocker Country Club, NY
 Knollwood Club, IL
 La Jolla Country Club, CA
 *Lafayette Elks Club, IN
 Lake Shore Country Club, IL
 Lakeside Golf Club, CA
 Lakewood Country Club, CO
 *Lakewood Country Club, TX
 Jerry C. Allums
 Las Colinas Sports Club, TX
 Laurel Golf Club, MT
 Lochmoor Club, MI
 Longmeadow Country Club, MA
 Los Angeles Country Club, CA
 Lost Tree, OH
 Manasquan River, NJ
 Manufacturer's Golf & Country Club, PA
 Meadowbrook, MI
 Meridian Hills Country Club, IN
 Merion Golf Club, PA
 Metuchen Country Club, NJ
 Mill Creek Country Club, WA
 Mill Quarter Plantation
 Country Club, VA
 *Milwaukee Country Club, WI
 Danny H. Quast
 Montclair Golf Club, NJ
 Montecito Club, CA
 Monterey Peninsula Country Club, CA
 Moss Creek, SC
 Mountain Lake Country Club, NJ
 Mountain Ridge Country Club, NJ

Myopia Hunt Club, MA
 Navasink Country Club, NJ
 New Orleans Country Club, LA
 North Carolina, Country Club of, NC
 North Shore Country Club, IL
 Northmoor Country Club, IL
 *Oak Hill Country Club, NY
 Joseph Michael Hahn
 Oak Park Country Club, IL
 Oak Tree Golf Club, OK
 Oakland Hills Country Club, MI
 Oakmont Country Club, PA
 Odessa Country Club, TX
 Old Westbury Golf and
 Country Club, NY
 Orchard Lake Country Club, MI
 Orinda Country Club, CA
 *Orlando, The Country Club of, FL
 *Oyster Harbors Club, Inc., MA
 Charles I. Gardner
 Palm Beach Country Club, FL
 *Palo Alto Hills Golf & Country Club, CA
 Tim Sedgley
 Pasatiempo Golf Club, CA
 Payson Golf Course, Inc., AZ
 Payson Men's Golf Association, AZ
 Peach Tree Golf & Country Club, CA
 *Pebble Beach Company Golf Dept., CA
 Mike Phillips
 Peninsula Golf & Country Club, CA
 Pepper Pike Club, OH
 *Philadelphia Country Club, PA
 Dennis Watkins
 Pine Lake, MI
 Pine Valley Golf Club, NJ
 *Pinetop Country Club, Inc., AZ
 Plainfield Country Club, NJ
 Plum Hollow, MI
 *Plymouth Country Club, MA
 Ronald Sherman
 Prairie Dunes Country Club, KS
 Preakness Hills Country Club, NJ
 Presidio Army Golf Club, CA
 Princeville Men's Golf Club, HI
 Quail Club, CA
 *Quail Creek Country Club, Inc., FL
 Lloyd T. McKenzie
 Ridgemoor Country Club, IL
 Ridgewood Country Club, NJ
 River Oaks Country Club, TX
 *Riverbend Country Club, TX
 Jesse C. Pittman
 Riverforest, PA
 Riverton Country Club, The, NJ
 Rochester, The Country Club of, NY
 *Rock Spring Club, NJ
 Paul Kuehner
 *Royal Poinciana Golf Club, FL
 W. C. Smallridge
 *Rutland Country Club, VT
 Karl Larson
 Salem Country Club, MA
 Salinas Golf & Country Club, Inc., CA
 Salisbury Country Club, Inc., VA
 San Gabriel Country Club, CA
 San Jose Country Club, CA
 Santa Ana Country Club, CA
 Santa Rosa Golf and Country Club, CA
 *Sapphire Valley, The
 Country Club of, NC
 Saucon Valley Country Club, PA
 Sea Island Company, GA
 Seattle Golf Club, WA
 Seminole Golf Club, FL
 Sequoyah Country Club, CA

Sharon Heights Golf and
 Country Club, CA
 Shoal Creek Country Club, AL
 Silverado Country Club, CA
 *Singletree Golf Club, CO
 Chip Ramsey
 Siwanoy, NY
 *Sleepy Hollow Country Club, The, NY
 Joseph J. Camberato
 Snee Farm Country Club, SC
 *Somerset Country Club, MN
 Garold M. Murphy
 Somerset Hills Country Club, NJ
 South Hills Country Club, PA
 Southern Hills Country Club, OK
 Southview Country Club, MN
 Southward Ho Country Club, NY
 Spokane Country Club, WA
 Spring Lake Golf Club, NJ
 Spring Valley Country Club, SC
 Spring Brook Country Club, NJ
 Springs Club, Inc., The, CA
 St. Andrew's Golf Club, NY
 *St. Charles Golf Course, MO
 Henry C. Vogt, Jr.
 St. David's Golf Club, PA
 Stono River Golf Club, SC
 *Suburban Golf Club, NJ
 Daniel P. McGlynn
 *Summit Hills Country Club, Inc., KY
 Robert Lewis Cahill
 Sunny Brook Country Club, MI
 Tacoma Country & Golf Club, WA
 Tatnuck Country Club, MA
 Thunderbird Country Club, CA
 Towson Golf and Country Club, MD
 Trenton Country Club, NJ
 Tumble Brook Country Club, CT
 Vintage Club, The, CA
 Virginia Country Club, CA
 Virginia, Country Club of, VA
 *Waccabuc Country Club, NY
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 *Wayzata Country Club, MN
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 Wild Dunes Golf Club, SC
 *Wilderness Country Club, FL
 Paul L. Frank
 *Wildwood Golf and Country Club, NJ
 Bernard W. Kowalski
 Willow Oaks Country Club, VA
 Wilmington Country Club, DE
 Wilshire Country Club, CA
 Winchester Country Club, MA
 *Winged Foot Golf Club, Inc., NY
 Joseph Alonzi
 Wolferts Roost Country Club, NY
 Woodbury Country Club, NJ
 Woodhill Country Club, MN
 *Woodland Country Club, NY
 Richard C. Schroeder
 Woodway Country Club, CT
 Wyatenuck Country Club, MA

Golf Keeps America Beautiful

by SHERIDAN MUCH

Executive Director, National Golf Foundation

ON FEBRUARY 22, 1888, John Reid walked onto his front lawn, in Yonkers, New York, and with some friends, using equipment imported from the shop of old Tom Morris, in Scotland, began playing golf.

They were playing on a rude, make-shift, three-hole layout. In the 97 years since then, we have covered our share of this planet with uncounted acres of concrete and asphalt. We have scarred our landscape with strip-mining and clear-cutting. We have created dust-bowls, polluted rivers and lakes, and set off forest fires, mud slides, oil spills, explosions, and other catastrophes.

We've also been intelligent enough to sprinkle our landscape with some 13,200 golf courses, which today provide us with about 1½ million acres of some of the most beautiful man-made or man-enhanced vistas in the world.

Without a shadow of doubt, Golf Makes America Beautiful.

Herb Graffis, a great friend of mine, created that slogan two years ago. Because he cherishes the game and the contributions to golf made by the United States Golf Association, he suggested it to the Green Section.

Since then, the phrase has been amended slightly to *Golf Keeps America Beautiful*.

Every winter thousands of Americans flock to warm-weather areas, attracted, of course, by sun and sand and sea breezes, but increasingly they are attracted by golf courses.

Nor is the appeal of golf restricted to these havens from winter. Just a few weeks later our burgeoning army of nomadic golfers, now numbering nearly 20 million in America, return with spring to their homes, from Atlanta to Anchorage and from Boise to Bangor.

We are blessed with an abundance and diversity of golf courses. They line



Oakland Hills Country Club, Michigan, where CGCS Ted Woehrle is preparing the course for the 1985 U.S. Open Championship.



our seacoasts and they nestle comfortably in the Rocky Mountains. They interrupt, however incongruously, our spreading cities, and they rest gently upon the sometimes eerie emptiness of the western plains.

Sure, someone might say, you Americans and your architects can create outlandishly beautiful golf courses all over your country because so much land is available and all your people are receptive to this kind of frivolous usage. Wouldn't the landscape you are using nearly always be just as inspiring without your tampering with nature?

PERHAPS. It is true that our ancestors sealed off as golfing preserves for their pleasure such awesomely endowed sites as Pebble Beach, the sand hills of North Carolina, and the highlands of Michigan. One of the most beautiful golf courses I know of rests curiously on the floor of the Snake River Canyon, near Twin Falls, Idaho, 500 feet below the rim. It wanders through rocks probably rarely trod by white men before they came bearing five-irons. This crevice of the American West was beautiful before golf and would be beautiful without golf. And the same is true of many of our golf courses.

But those who glorify our scenery with the green, green grass of golf do not always enjoy the luxury of a pristine property upon which to work their artistry. More and more today our architects and builders and agronomists and turf managers are being asked to make grandeur out of garbage, literally. We are building golf courses on landfills, on flood plains, in swamps, and on rock-piles. Where real estate sales are involved, as they usually are today, we are building them on land where residences would be impractical or impossible. Bill Bengeyfield, the Green Section Director, was for some years the resident gardener of the garbage dump in City of Industry, California, and anyone who has seen that fabulous multi-purpose recreational resort, featuring two splendid golf courses, all built on a huge landfill, has seen the magic of modern golf course design, construction and maintenance.

And they know that Golf Makes (and Keeps) America Beautiful.

As a representative of the National Golf Foundation, I have visited nearly



The venerable Herb Graffis, originator of "Golf Keeps America Beautiful" with the author.

every part of the country. I have seen, for example, how a new municipal golf facility in New England might bring diverse factions of a community together and provide a common recreational interest for citizens of all walks of life. I have seen a nine-hole golf course carved into the fringe of an isolated village in Montana turn a place with one blinking caution light into a mecca for golfers.

In what appears to be a period of affluence for many Americans, when travel is a passion and travel abroad more affordable, I see friends wing off to Europe or the Far East or some islands in between. Many of them may never have seen a sunrise over Savannah or moonlight on the Mississippi. But these promising domestic experiences lose out to the exotic appeal of the other side of the world. Knowing what I know of this land and what they may not, I am sorry for them. If they are golfers, I am particularly sorry. However awesome the Eiffel Tower or captivating a shrine

in Kyoto, I am convinced a concentrated tour of golf courses of any region of our country would be equally rewarding for anyone.

I do not mean to presume that a wandering American golfer will realize the same cultural advantage of a world traveler. I mean merely to suggest that this America, this land kept beautiful in many ways by its golf courses, can delight us all with a remarkable panorama no farther away than the next golf course. We need only to look around us.

SOME YEARS AGO I set out to play all of the golf courses in Oregon, where I lived at the time. My travels with the Foundation made this a possible goal, but I fell short by some 30 of the 140 or so courses in the state. Even so, this dogged pursuit of one 'more and then another golf course took me into strange and wonderful places.

I saw the rainswept, sometimes flooded links of the Oregon coast, and some deep green oases among lava rock

and sagebrush under clear central Oregon skies. I saw many things in between, too, because this state has a diversity of climate and terrain. I saw golf courses designed by celebrated architects and others done by imaginative farmers using farm equipment. If, now and then, what I saw might have annoyed a purist, almost everything enchanted me.

I think we all know in our hearts that they design best who design least . . . and those who would create a monument to themselves in the name of golf are friends neither of nature nor the golfer, and certainly not of those who must maintain those courses.

It is one of the more compelling aspects of golf that each time one sets out to play a different course he is treated to an entirely new experience. By its nature, the arena for this sport,

unlike almost any other, save for such outdoor pursuits as hunting, fishing, and hiking, provides a totally different set of challenges, circumstances, situations and surroundings each time. From every tee, across every water hazard and around every dogleg there is a new sight to behold and almost invariably it is a thing of beauty. It is a place into which we take another dimension of our consciousness and which rarely fails to please the senses.

Peter Dobereiner, an author of golf books, observed, "Golf, after all, is a form of escapism, and it helps if we really can escape from the sight and sound and consciousness of our everyday world."

Those who eagerly escape at every opportunity into the satisfying serenity of one of our 13,000 golf courses will agree that Golf Keeps America Beautiful.

One early spring morning several years ago I was looking across the frosty fairways of a northern course when I spotted a lone figure coming toward me. As he putted out and left the final green, I walked up to him. He turned out to be a spry little man in his 80s who had been out for his morning exercise despite the chill.

"This golf course," he said, "is keeping me alive. I play every day I possibly can."

Today, as I visit golf courses in all parts of the country, I am increasingly aware that more and more older Americans are enjoying the game. I am thankful older Americans enjoy our game with all the gusto of the young.

Even more, I am thankful for those who work on our courses to make certain that Golf Keeps America Beautiful and that Golf Keeps Americans Alive.

Agri-Systems Soil Testing Laboratory Will Continue

MANY INQUIRIES have been made to Green Section regional offices concerning the status of the soil testing laboratory facilities of Agri-Systems of Texas, Inc. Dr. Marvin H. Ferguson developed the soil laboratory and many of its techniques 20 years ago, and with his death, on January 10, 1985, the future of the laboratory has been of great concern to many in the field.

Agri-Systems will continue to be active in testing of soils for USGA Putting Green Construction Specifications. Judith Ferguson Gockel, Dr. Ferguson's daughter, was the manager and chief technician for Agri-Systems for eight years; she will continue the laboratory operations.

In addition to the training received from her father and some formal course work at Texas A&M, Mrs. Gockel has studied soil physics and soil mechanics. She developed and now holds two patents, based on fluid movement and soil structure, widely used in the oil drilling industry today. She and her

husband, a petroleum engineer, operate an engineering and laboratory service for the oil industry.

Plans have been made to upgrade and improve the present soil testing laboratory equipment and to expand the services now offered. Assurances have been made that the same high standards for testing and the same frame of reference will be maintained. The new mailing address is:

Agri-Systems of Texas, Inc.
15511 Baldswelle
Tomball, TX 77375
Attn: Judith Ferguson Gockel
(713) 376-4412

For efficient delivery in the Houston area, use U.S. Mail or United Parcel Service. Rates for the various testing procedures remain unchanged.

Agri-Systems is *NOT* the "USGA Soils Laboratory." Rather, it is a private contractor. It has agreed to conduct the physical soil analysis requirements for USGA Green Section Specification greens.

Six Deadly Sins of Golf Course Superintendents and Green Committees



Jack Trench, Green Committee Chairman at The Springs Club, Rancho Mirage, California, believed a frank exchange of viewpoints concerning the problems and frustrations of the Green Committee and the Superintendent's role in course maintenance operations would be beneficial to all concerned. He developed this panel, and acted as moderator in the following discussions of the "whys" and "hows" of this important relationship.

Time is of the Essence

by ED WALSH

CGCS, Ridgewood Country Club, New Jersey

WHEN ASKING golf course superintendents what they believe is the biggest problem regarding their relationship with their green committee chairmen, most will respond in one word: time.

While some superintendents are fortunate to work with the same person and committee for an extended period, most club by-laws permit an individual to remain chairman of a committee for only two to three years. Most of us consider ourselves fortunate when a chairman wants to continue for a second term. This, I might add, seems to be the exception. With this in mind, I offer the following suggestions to minimize the initial learning period for a new chairman.

First, the biggest asset can and should be your past chairman. He can offer his time to help make the new chairman familiar with the responsibilities of the position and, possibly, with the direction the green operation is taking at your

club. Of course everyone will have different priorities, but experience can be helpful to the new chairman.

Second, most club members have little idea about golf course maintenance. It

is never easy to explain why we must aerify greens when they look just beautiful, or why we must spray fairways during a ladies' member-guest tournament. It is important to give the new chairman a strong sense of organization. Explain why certain operational procedures are necessary to the overall condition of the course. If you work with a long-range plan, by all means provide copies of the plan to the new chairman. Also, past budgets, work records, USGA Green Section reports, and articles written by green committee chairmen of other clubs can be helpful.

Third, make yourself available to the new chairman as soon as you know who he will be. Let him know you want to work with him and, hopefully, continue the progressive, productive direction your department has taken in the past. Any new chairman wants to become part of a winning team, and it is up to you to convince him that is just what he will be!

Ed Walsh





The Panel (left to right) Ed Walsh, Crawford Rainwater, Danny Quast, Joe Luigs, David Green, and Eli Budd.

Keep the Course Properly Marked

by **CRAWFORD RAINWATER**

Green Chairman, Pensacola Country Club, Florida

THE INVITATION to share a few ideas with you is gratefully appreciated. The introduction was most flattering, but probably a shorter introduction might have said, "He was weaned on a Coca-Cola bottle and teathed on a golf ball." Golf has been great to me. It has permitted me to travel widely — as a competitor and as an official. It has permitted me to rub elbows with some of the greatest people in the world. It has taught me the true meaning of competition and sportsmanship. Today, after 60 years as a golfer, I find great satisfaction in assisting with raising funds for turf research and serving as a Rules official.

Our time is limited and there is so much I would like to share with you, but the format dictates that my remarks be brief.

I play over and officiate at a wide variety of courses each year, some of the very finest, well known, and highly

rated, but I seldom find a course that is kept properly marked. In my judgment, you, as a golf course superintendent, must also be a golfer. It is impos-

Crawford Rainwater



sible to understand the wishes and needs of your players unless you are thoroughly familiar with the game. An excellent agronomist cannot fully appreciate, for example, the height of cut, improperly raked bunkers, infrequently moved tee markers, dirty ball washers and towels, or poor choice of hole locations if he is not a golfer. Admittedly, most of you are golfers, but a few excellent grass growers remain who need to understand better the needs and desires of their players.

As chairman of a green committee, I play at least once a month with the golf course superintendent and other members of the committee. You probably won't play your best golf, but you will communicate; you will see things that need attention that you have never noticed before.

Assuming that you play golf, how many of you really have a firsthand knowledge of the Rules of Golf? Frankly,

you cannot properly perform your profession without a thorough knowledge of the Rules. I believe the golf course superintendent must assume responsibility for keeping the course properly marked. Certainly he must cooperate and communicate with the professional at his club, but the final responsibility for marking the course rests with the superintendent.

IT IS IMPOSSIBLE to discuss a golf course or your profession without knowing the Rules. For example, Definitions in the Rules of Golf teach us the proper word is "bunker," not "trap"; "flagstick," not "pin"; "hole placement," not "pin placement"; "four-ball match," not "foursome." None of us agrees fully with the Definitions, but so long as they exist, I feel it is your and my responsibility to use the correct words, both in our conversation and on all printed matter.

As I travel around, sometimes getting prepared for a championship, I am amazed at how few courses keep their boundaries properly marked at all times. Yes, I know from experience that this can be a tremendous task, for I have

driven or set in concrete over 10 miles of stakes on more than one golf course. It is exasperating to arrive at a championship site and find little or no definition of the out-of-bounds. It is frustrating as a player or competitor not to be able to determine out-of-bounds. This kind of indecision delays play.

Personally, I prefer to use properly spaced white PVC pipe set in concrete for boundary stakes, but the pipes are broken from time to time and we must be constantly alert and make necessary additions. Note that I suggest setting out-of-bounds markers in concrete, because under the Rules of Golf they may not be moved.

At Pensacola Country Club, water hazards and lateral water hazards are marked regularly with yellow and red paint. Maintaining these lines is considered as important as raking the bunkers or mowing the greens. Admittedly there is some expense, but what a joy it is to play a course when you know the status and limits of each water or lateral water hazard. Seldom do I find water hazards marked on golf courses on a constant basis. What is the situation at your course?

What Am I, Chopped Liver?

by **DANNY H. QUAST**

CGCS, Milwaukee Country Club, Wisconsin

IHAVE BEEN fortunate over my 20 years as a superintendent in my dealings with green committee chairmen. This has not only been true in the past, but is true now. From the time I first came to Milwaukee Country Club through 1983, Jack Allis served as green committee chairman. He grew up as a member; his father, Louis Allis, was a charter member of the club. Mr. Allis exemplifies the qualities needed for a chairman. They are: a keen interest in new development, the ability to ask questions, excellent sense of business, decisiveness, and the ability to listen well. He has a great love of the golf course and of golf. He spent a lot of time with Hal Kuehl, the current chairman, and this excellent tradition of concern is bound to continue.

For a golf course to be considered excellent, someone must want it to be.

Danny H. Quast



When I was superintendent at Springfield Country Club, in Springfield, Ohio, Don Six was chairman of golf. He told me at the onset that the only way Springfield Country Club could be a top golf course was by *both* of us wanting it to be. He was right.

It is not easy for a green committee chairman, because he gets pressure from all sides, and there are so many intangibles in turfgrass management. There are no absolutes about diseases, dry weather, wet weather, or constantly changing employees. The golf course can't be put on a fixed budget. Both the superintendent and chairman must look to the future, and by doing so, they will not only save the character of the club but also improve on it.

By taking the long-range view, money can be saved. I feel that this is exemplified by our tree program. At the time I was



The 14th hole at Milwaukee Country Club.

employed, Allis was distressed because Dutch elm disease was killing about 70 trees each year. He was told there was no cure for the disease. He didn't believe it, and we went to work on a comprehensive program of saving the elms, replacing the losses and improving existing trees. Today we have 125 elms, and our losses stand at one per year. We have a tree nursery, and we have fertilized all the trees on the course twice since 1973.

I feel that one of the great obstacles to a successful operation is a chairman or superintendent who believes he has all the answers. This can be costly. It's one of the great stories and lessons that I learned while working with Mr. Allis. I call this the "What Am I, Chopped Liver?" story.

In my second year at Milwaukee, we had a problem with No. 15 green. Mr. Allis asked what it was. I told him what I was sure that it was, and he said, "Get an expert." The first thought that went through my head was, "What am I, chopped liver?"

Mr. Allis already knew what I was about to learn: When problems or major

decisions are to be encountered, seek out professionals in their respective fields. Without question, it evens out the burden of the decision, and increases chances that the right decision will be made. Besides, if things do go wrong, you and your chairman are not out on that proverbial limb. Seek advice from a USGA Green Section agronomist, a golf course architect, a well expert, or any specialist who deals daily with the problem or project in which you happen to be involved. If anyone in this business thinks he knows it all or is an island of information, he is in for a big fall.

OVER THE PAST 20 years I have had strong green committee chairmen or chairmen of committees established for such special projects as golf course remodeling or purchasing a new automatic irrigation system. Quoting from a talk presented by C. McD. England to the West Virginia Golf Course Superintendents Association, "Webster defines a committee as a group of people chosen, as from the members of a legislature or club, to consider some matter or to function in a certain capa-

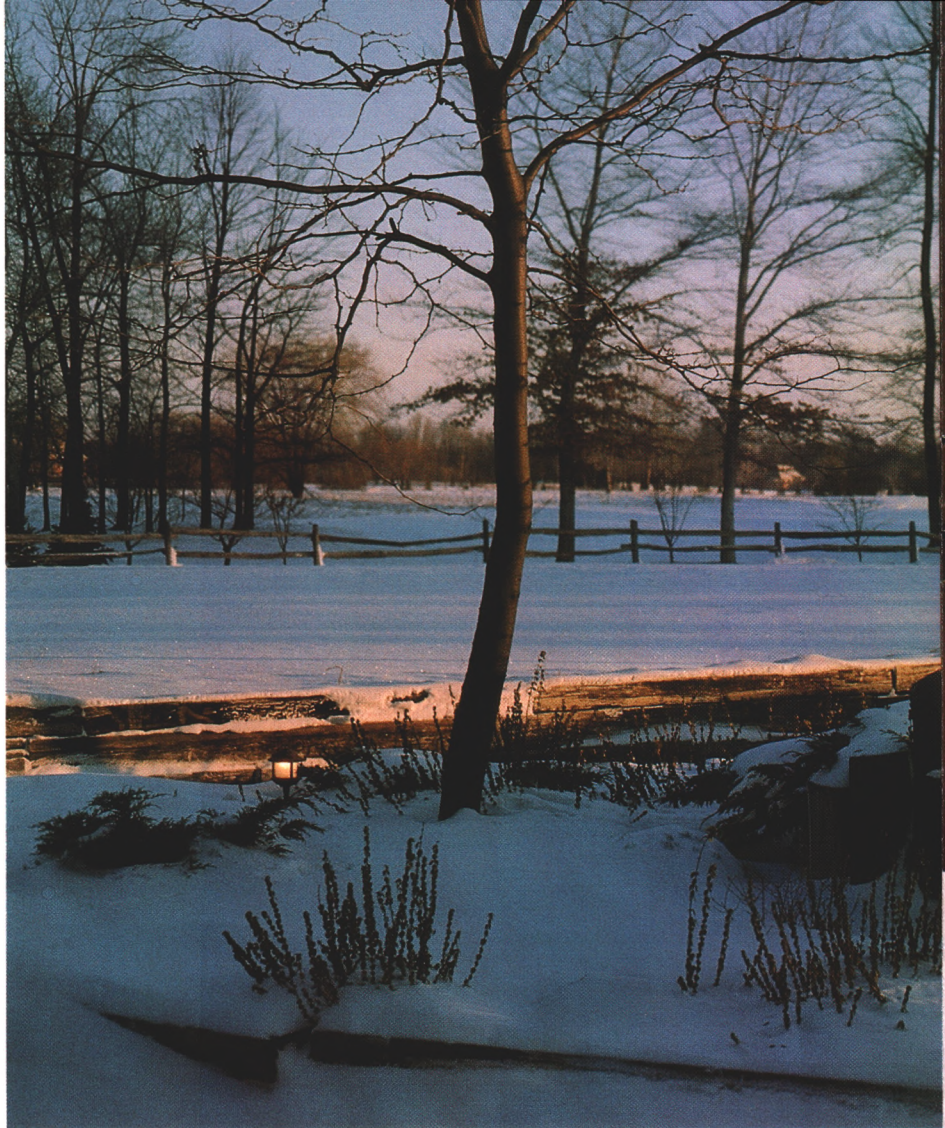
city. There is also another definition that says, 'If you want to insure that nothing gets done, give it to a committee.'"

At golf clubs it is hard to get a group of members together because of demands on their time. The chairman, therefore, bears the major responsibility, committee or not. His job is important because he decides for the members the kind of golf course they will have. As superintendents, we must not forget that this chairman joined the club for enjoyment. It's supposed to be a place to come and relax, not a place for more headaches and worry. As superintendents, we must make his job as easy as we can. We can do this by preparing budgets, keeping daily logs, being available to meet with him at his convenience. We must handle and solve problems as they arise.

When a problem requires his time, we should outline it so that a decision can be made without lengthy research on his part.

A superintendent should keep a list of topics that need to be discussed at meetings so that nothing is overlooked. Save the topics for such meetings; don't bother the chairman while he's out there playing golf.

In conclusion, the chairman and superintendent must look to the future with a common goal of constant betterment of the golf course. Together they must seek out help from the outside to insure that major problems or projects are done as effectively and efficiently as possible. As superintendents we must run the golf course operation as a business. We must keep records not only dealing with finances, but also with the total operation so that up-to-date information is available. The computer will play a big part in our future business. The biggest factor to success, however, is our pride and desire to have the best. This is a goal that a chairman and superintendent must share with equal enthusiasm.



The More Information We Pass On — The Less We Have to Communicate!

by JOE LUIGS

President, Crooked Stick Country Club, Indiana

THE GREEN COMMITTEE at Crooked Stick decided long ago that our superintendent would commit a deadly sin if he didn't keep the general membership informed about his operation.

Information does not mean communication. We hear a lot about the need for communication between the superintendent and the membership. I believe communication between the superintendent and the green committee is necessary, but communication has always indicated to me a give and take. As a green committee, I think we are

in the business of giving, but none of us are terribly interested in the taking. The only taking we are concerned about involves those suggestions that appear in our green committee suggestion box.

Dan Pierson is our green superintendent, and he does his job so well that the green committee and chairman appear to be doing a much more competent job than is really the case. We do not interfere with Dan's agronomic practices, nor do we interfere with the use of his allotted budget. In fact, unless Dan specifically asks for help, the green committee and I are not involved in his



budgeting. In my opinion, should it be necessary to be involved in either day-to-day golf course practices or the scrutinizing of Dan's budget, it would be time to replace the superintendent.

We have no agronomists in our membership. We have no one in our membership who has the knowledge to purchase the chemicals, inventory material, or keep abreast of the state of the art in equipment. So as the supposed supervisors of the golf course operation, our job is really very simple; we should always be available should Dan need us for emergency financial help, or for simple reassurance if he is anxious about an agronomic experiment, or if he just needs someone to talk to about the playability of the golf course. Other than that, we should obtain as much money as possible from our membership for Dan to manage the golf course. Then we should stay out of his way.

Most of the time the chairman and the green committee act as a buffer for Dan, to run interference between him and the membership. I am his public relations manager. I help him inform the membership.

So while we are not involved in the communication business, we are involved in the information business, and we simply try to overwhelm our membership with information, information of all varieties. As our golf season begins in the spring, we call a special membership meeting. At that meeting Dan and I have the floor for as long as is necessary to present information about the coming season. In the past we have talked about mowing fairways with the new triplex units, and Dan has explained to the membership both the agronomic and the monetary realities of conducting such programs. We have also presented long-range construction plans so that

when the members see the beginning of such construction, they will have already been informed.

This year, unfortunately, we will consider the probability that contaminated C-15 Toronto bentgrass is present in most of our greens. The topic of C-15 bacterial wilt will be presented in depth. We'll describe the consequences of such wilt disease and the subsequent steps to bring the golf course back to life after the infestation. We believe that if we have to ask the membership for several tens of thousands of dollars and interrupt play in order to revive our greens, it should be so noted by the membership well in advance of the act itself. We believe this kind of preparation could have saved the jobs of many superintendents in the past few years in the Midwest.

OUR NEXT ITEM of information distribution is the publication of the USGA Turf Advisory Service report and its subsequent presentation to our Board of Directors and conspicuous posting in the clubhouse for everyone to read. This information has always been generally positive at our club and simply reinforces, by an objective personality, that the committee's directives and Dan's agronomic practices are both modern and effective.

We are also experimenting with a daily information board. Material is conspicuously posted outside our golf shop and is updated daily. A member of our green crew, whose responsibility it is to mow the adjacent practice putting green, is also responsible for then taking Stimpmeter readings on the green and posting that result on the information board. Dan's assistant, responsible for daily contact with the weather bureau, posts the current forecast on the information board. This information also helps the crew member whose responsibilities include the daily setup of the golf course. At our golf course the wind conditions can affect play by as much as three to five strokes if the setup is improper.

Our golf course can be set up for member play at a minimum of 6,200 yards to perhaps a maximum championship play of 7,300 yards. This variation is taken into account by the assistant who sets up the golf course. We ask him to be so aware of the setup that he is responsible for the approximate measurement of each hole as he sets the holes and the tees. He must then

post this information on the message board. We like the course to measure approximately 6,400 yards from the members' tees and between 6,900 and 7,000 yards from the championship tees. Our tees and greens are so generous that a sloppy setup can create a much too difficult or a much too easy golf course. We accomplish two goals with this information: first, that the golf course is indeed set up properly, and, second, that the member knows how much to bite off when he goes to the first tee.

Under the "other information" section of the message board, we will have variations such as construction taking place on the golf course, for example, a broken irrigation line or perhaps an entire hole closed for play. We have decided it is not the golf shop's responsibility to disseminate this information to the membership. Of course, routine information, such as where carts are to be taken because of wilt conditions or drainage problems, and soggy areas on the golf course, also are noted on the message board.

We also have very strong ideas about what the golf course should look like and what kind of barriers we do not

allow. We refuse to rope off areas, chain them off, or paint white lines on the golf course. Using a series of attractive signs and a series of barriers made of telephone poles and elephant rope, the path is directed properly. We have found that both methods are complimentary to our golf course and helpful to the member who sometimes gets lost on his cart. Should we see members who violate either cart sign directions or the intentions of the barriers, Dan and the green committee have the authority to redirect them. The Board of Directors may revoke the members' cart privileges should these violations be frequent. But we do not allow the superintendent to get in trouble because of this information.

WE ALSO TRY to inform the members that we love them and that we want them to play a golf course under tournament conditions every time they visit the first tee. Another of Dan's assistants paints the golf course for ground under repair and checks each hazard stake and each out-of-bounds stake every Friday. This accomplishes several purposes. First, the paint is visible from the heavy play over the weekend through ladies' play on Tuesday

and our men's day on Wednesday. Painting also allows the member to play by the Rules of Golf and avoid arguments about whether or not his ball lies in ground under repair. Secondly, when we are host to our normal four or five USGA qualifying rounds and two major benefit tournaments annually, preparing the golf course for these events is easy, because we have kept the golf course ready for championships on a weekly basis. The third factor, which is the most important of all, is that the assistant finally gets tired of painting the same area over and over again and will eventually repair the flaw. Also, a great deal of pride is generated during the season as the assistant uses less and less paint to complete these projects.

Our system at Crooked Stick, therefore, is one of trust between the superintendent, the green committee chairman, and the green committee; one of trust between the green committee and the board of directors and one of trust between the superintendent and the general membership. The more information we can relay, the more each of these groups will feel itself to be a part of the club. The more information we pass on, the less we have to communicate.

Our Business is Golf Course Maintenance

by **DAVID E. GREEN**

CGCS, Bell Meade Country Club, Nashville, Tennessee

THE DEMANDS placed on the golf course superintendent are far greater today than ever before. Golfers demand a quality turf playing surface, and our job is to provide it. Clubs are judged by their golf course; it is the most important asset the club possesses. Its beauty and playing attractiveness is enhanced by the capabilities of its superintendent, but in order to achieve results with a smooth and efficient operation, the working relationship between the green committee chairman and golf course superintendent must be a cooperative one.

The superintendent must be an educator — someone who can teach the ever-changing green committee members

David Green



and chairmen. The superintendent must communicate to the green committee the management practices of the golf course. To do so, he must be organized, have prepared his plans for turf management, and have knowledge of their cost.

Your green committee chairman is most likely a good golfer, moreover a successful business manager. He is accustomed to facts and figures. The superintendent should provide him the data that supports any management decision. The golf course superintendent should have available adequate records regarding daily operations, equipment, fuel and power, pesticides, fertilizer and seed, water, soil tests, weather, cultural practices, personnel, and budgets.

A planning program to keep the operation running smoothly is essential to success. The planning program should consist of long-range, annual, weekly, and daily plans.

Many golfers are self-styled agronomists. Often, so is the green committee chairman. He probably has taken this chairmanship in order to initiate changes on the golf course. Our role is to inform him of the technical and financial possibilities of such changes. Our job is to advise. Sound advice lends credibility to our profession.

One of the inherent factors we face is locale. The superintendent must be able to convey to the chairman why turf grown in Texas may not grow in Michigan. We must be able to explain why certain agronomic considerations rule our lives. The green committee chairman hopefully will understand the complexities and uncertainties of managing the golf course.

THE MOST SIGNIFICANT impact on golf has come from the efforts of the USGA Green Section. With its research, the USGA has provided us with an improved science to manage our golf courses.

All superintendents and green committee chairmen should have the book *Turf Management*, by James Beard. It is a USGA publication. It is a fundamental source from which everyone can draw sound turf management practices. One of its truisms is that a sound business approach is essential to turfgrass management.

In summary, the green committee's function is, in my view, as an advisory group. It is the communication line between the course superintendent, board of directors, club manager, golf professional, and the general membership. Together, the green committee chairman and golf course superintendent work toward providing three basic elements for a successful maintenance operation:

- 1) Financial management.
- 2) Deal with people developing communications.
- 3) Executing a turf management program.

Our goal is to enlist the support of the green committee chairman by demonstrating our capabilities as sound business managers. In so doing, we will be more likely to implement needed programs and spawn new ideas for projects that we know are important, and we will see the green committee chairman's full endorsement.



**Clubs Judged
by
Golf Course**



**Most Golfers
Self-Styled
Agronomists**



Some Committee Questions That Come to Mind

by **ELI BUDD**

Green Committee Chairman, Oak Ridge Country Club, Minnesota

ONE OF THE QUESTIONS I am frequently asked is, "Should green superintendents participate in green committee meetings?"

I would have to give a positive YES answer to this question. The green committee meeting is the best forum for the superintendent to explain his objectives for both his current and future programs, to explain his needs for new equipment, chemicals, fertilizers, trees, and seed. It's his opportunity to learn the members' thoughts and what he can do about them. It is also the superintendent's conduit to the membership. It is perhaps the most important means for members to understand the problems the superintendent faces.

Another frequently heard question is, "Should the superintendent attend board meetings?"

I can't see the necessity for the superintendent to attend board meetings. In my 25 years on club boards, I have found

Eli Budd



that 95 percent of the meeting is not related to the superintendent's domain. It would be an imposition to a man whose hours start from daybreak and end at sunset daily during the season, to sit for three or four hours and listen to other club matters that do not pertain to him. There is at least one exception. That is the case of a significant change in the golf course itself. Surely the superintendent should attend such meetings.

"Should the superintendent attend budget meetings?"

If you are referring to budget committee meetings that encompass all of the club's committees, I would say no. At Oak Ridge, Keith Scott, our superintendent, prepares his annual budget and presents it to the entire green committee for approval. It is then submitted by the green committee chairman to the board for final approval. We have never had a problem getting his budget approved through these channels.

The Rules of Golf and the Golf Course Superintendent

by **WILLIAM J. WILLIAMS, JR.**

Vice President, USGA

IAM DELIGHTED to have this opportunity to speak to you about course condition and setup from the point of view of a Rules official and former Chairman of the USGA's Rules of Golf Committee.

When I set out to officiate at the U.S. Open, the Amateur or the Masters, my friends frequently say they hope to see me on television. Not me! That means that there is a Rules problem, and Rules problems can be very difficult to resolve.

It's not just that I'm chicken, which I am, but no one likes to see the outcome of a major golf competition turn on a Rules incident or an official's decision, even if most believe the decision was

correct. A golf competition should be determined by the skill of the players and not the resolution of a Rules problem, an inadvertent Rules violation, or a bad course condition.

Accordingly, it is in our common interest to avoid Rules problems that detract from a competition.

First, a word about the history of the Rules. The earliest written Rules we are aware of were laid down in 1744, at Leith, in or near what is now Edinburgh, Scotland, to govern a competition for the Silver Club of the city of Edinburgh. There were 13 rules; they took up less than two handwritten pages, and they still exist in a bank vault in Edinburgh.

For those who yearn for the simpler days of the original 13 rules, I might mention that Rule 13 deals with French ditches and dykes, scholars' holes, and soldiers' lines — the first local rule. And you will especially enjoy Rule 1: "You must tee your ball within a club's length of the hole." Did the original 13 rules last long? The second page is largely taken up with changes in Rules 5 and 13, which were apparently found to be unsatisfactory.

Early in the 19th century several clubs had their own rules. Later in the century there was an approach toward uniformity based on the Rules of the Royal and Ancient Golf Club of St. Andrews



Photos by Tom Meeks

Player in U.S. Amateur Public Links dropping within two club-lengths of where ball last crossed the margin of a lateral water hazard (Rule 26-1c). Note how player is going away from the hole in order to avoid dropping closer to the hole than permitted.

(the R&A). Finally, in 1897, authority was given to the R&A to establish a uniform set of Rules.

Meanwhile, in 1896 and 1897, the USGA developed its own set of Rules, based largely on the R&A's Rules with modifications more adaptable to conditions in the United States. In the 1920s there was a move toward uniformity between the R&A and the USGA, which was finally achieved in 1952. During the period from 1980 through 1983, the Rules book was completely rewritten to make it more user-friendly, in the jargon of the day, but with only modest substantive changes.

Back now to how we can work together to have fairer competitions. Let's begin with the course generally and then work our way from tee to green.

The Course. You would be surprised how many questions we receive that relate to players who omit holes, play holes in wrong order, or play holes that are not part of the competition course. Accordingly, it is a good practice to identify each hole clearly at the teeing ground. If two courses are contiguous, make the signs for the two courses easily distinguishable. If the way from a putting green to the next tee is not obvious, install signs pointing the way.

Speed of Play. Directional markers are permissible. Preferably, they should be out of the line of play. If it is necessary to have a directional marker in the line

of play, make it movable so that the player may remove it if it intervenes on his line of play. There is generally no relief from intervention of an immovable obstruction on the line of play.

Distance markers are permissible as well. For example, yardages to the putting green may be painted on sprinkler heads. Monuments and bushes may be used, but they should be placed where they are not likely to come into play. Charts showing distances from prominent landmarks to the putting green are common, and charts showing the location

of holes on putting greens (measured in paces from the front and nearer side of the putting green) are commonly used in our competitions and on the PGA Tour.

If the disadvantages of being in the boondocks are otherwise adequate, clean them up a bit to facilitate finding the ball. The adjacent areas need not be as manicured as the Augusta National, but I am always amazed at how few balls are lost at Pine Valley.

Teeing Ground. Make sure the tee markers are set out. A line drawn between the markers should be perpendicular to the line of play. They should not be set too far apart, in order to minimize the risk of players playing from in front of the tee markers.

Players may tee their balls two club lengths behind the front edges of the tee markers. Accordingly, if your Committee is going to play the tee markers all the way back, be sure players who tee up two club lengths behind the markers have adequate clearance for their swings.

Bunkers. The sand in bunkers shouldn't be too soft or the ball will bury in the face of the bunker. While the player may probe in the sand for the ball, losing a ball in these circumstances can be very unfair, and the disruption of the bunker caused by searching for the ball can give rise to a number of Rules problems, as we experienced in the 1977 Open, at Southern Hills.

William J. Williams, Jr.



It's important to know whether a ball is in or out of the bunker. Accordingly, the lips should be recut periodically. Also, avoid spillovers of sand, especially where mechanical rakes are used. Try to avoid situations in which a ball will be against the front or back lip and be unplayable.

Should rakes be in or out of the bunker? We at the USGA have been on both sides of that one. We finally deferred to the experience of Clyde Mangum and the Tour. Rakes should be placed outside the bunker in a position least likely to affect play.

There is no relief from loose impediments in a bunker. Accordingly, try to keep bunkers free of stones, pine cones, leaves, etc. During the recent Rules negotiations, the R&A pressed hard for an amendment that would treat stones in bunkers as movable obstructions. This would permit stones to be removed, and, if the ball moved, it could be replaced without penalty. The R&A argued that playing the stroke under such circumstances is hazardous. Thanks to the good work done by many of you, we were able to respond that it was not a serious problem in our country. The compromise was to permit the R&A to adopt a local rule permitting relief from stones in bunkers. Accordingly, if you're watching the British Open on TV, don't wonder whether there is something wrong with your TV set if you see a player remove a stone in a bunker before playing from the bunker.

Roads. A player is entitled to relief without penalty from interference by an artificially surfaced road. What then is artificially surfaced? Worn tracks do not constitute an artificially surfaced road, but concrete, asphalt, gravel, and even wood chips do. But where does a road composed of gravel or wood chips begin and end? When is a player entitled to a free drop away from the road, and when does the player simply have to remove loose impediments and risk a penalty if the ball thereafter moves? Preferably, roads should be of hard surface and clearly defined.

Staked Trees and Bushes. Remove stakes and guy wires supporting trees as soon as possible. Otherwise players may obtain relief they really don't deserve.

Ground Under Repair. This is the one Rule that refers explicitly to the golf course superintendent, even though by a somewhat old-fashioned name. It permits



Rule 33-2a provides that the committee shall define accurately the margins of water hazards.

a player relief without penalty from areas marked as ground under repair, including material piled for removal and a hole made by a greenkeeper, even if not so marked. What about grass cuttings dumped near the greens? Grass cuttings and other material that have been abandoned and left on the course are not intended to be removed and are not ground under repair unless so marked. Apart from being eyesores, such piles of debris create problems, because it is rarely clear whether anyone intends to remove them. If they are not GUR, a player whose ball is in grass cuttings is in serious trouble, even if he can find his ball.

What about tree nurseries? Should they be marked out of bounds or ground under repair? If it was desirable to prevent play from the nurseries, we marked them out of bounds. We have since been persuaded by the R&A that it is better to mark them ground under repair and prohibit play from the area. See Note 2 to the Definition of "ground under repair."

In my opinion, a golf course is no place for flower beds. You don't want people playing from them, but if you must have them and they are located where they are likely to come into play, mark their margins clearly, declare them to be ground under repair and prohibit play.

Bird nests have brought the USGA and R&A Rules Committees to their knees. In deference to the possible occupants, we have determined that they should be treated as immovable

obstructions, whether or not they are occupied. I wouldn't mind terribly if they were quietly removed by the groundskeeper before the Rules officials arrive.

Putting Green. Where does the putting green end and the apron begin? The answer may be important. A ball on the putting green may be lifted and cleaned, whereas a ball on the apron may not. Ball marks on the putting green may be repaired, whereas ball marks on the apron may not. Sand and loose soil on the putting green may be removed, whereas sand and loose soil on the apron may not. It is important, therefore, to mow the greens in such a way that the border separating the putting green from the apron is clear. If an official is walking with a player, it is relatively easy to prevent a possible inadvertent penalty by commenting on the difficulty of determining where one ends and the other begins, or that a ball that appears to be on the putting green is not. If an official is stationary, it is very awkward to pop up and point out to a player that his ball is not on the putting green. While the official is only trying to save the player from an inadvertent penalty, the player may regard the official as interrupting his concentration to point out what to him may be obvious.

There is no relief for spike marks on a putting green. For a while the European Tour and the South African Tour had local rules permitting repair of spike marks, but no more. Accordingly, I would urge you to do everything you can to avoid putting green conditions that cause spike marks.

Old hole plugs should be properly repaired, with the surface of the plug neither above nor below the surface of the green. While the Rules now permit a player to repair such hole plugs, this is relatively easy if it simply involves tapping down a hole plug to the level of the putting green; it is almost impossible if it requires raising the old plug.

There is no relief from stones or acorns solidly embedded in the putting green. Accordingly, if possible, sweep the putting green before mowing it.

Finally, a personal note. I am not much of a golfer. A disproportionately large part of my pleasure on a golf course comes from being outdoors in pleasant surroundings. To the extent you contribute to the appreciation of the game by me and those like me, I sincerely thank you.

Is Today's Golf Course Management Too Fine?

by DR. ROY L. GOSS

Western Washington Research and Extension Center, Puyallup, Washington

THE MAINTENANCE level of North American golf courses is usually directly proportional to the size of the budget, but it does not necessarily equate to the best maintained or playable facility. Knowledge, experience, and dedication of the superintendent and his crew can make a big difference in cost-per-hole maintenance. Likewise, climate, topography, soil factors, and intensity of use can also influence maintenance budgets. Mega-bucks Golf and Country Club may spend over \$20,000 per hole for maintenance while Mini-bucks Golf Club may spend half that and still have an enjoyable test of golf. The difference is usually the fineness of management required to meet the expectations of the clientele, who may or may not be willing to pay for the fine tuning but still expect perfection.

Without a doubt, golf course management is too fine today from a number of viewpoints. National television coverage of major tournaments showing immaculate grooming, over-exuberance of committees and superintendents who want their putting greens to be the fastest in the country, and very low handicap golfers are just a few of the reasons for overkill in fine management. Grasses are chlorophyll-dependent living plants. They have use and management limitations that the professional golf course superintendent already knows about but may not be able to control because of demands by the players.

VOLUMES HAVE been written over the years. Some excellent articles concerning the evils of excessively close mowing were published in the November-December 1984 issue of the USGA GREEN SECTION RECORD; they should be read by committees and golf course superintendents alike. We are definitely going in the wrong direction with continuous mowing heights shorter than 3/16 inch. When greens are mowed at 1/8 inch or less, only a little leaf tissue remains for the active photosynthesis the plant needs to maintain proper color, density, rooting characteristics, resistance to diseases, and recuperative potential. Besides, close

cutting is only one of the factors that affect putting green speed. Moderate use of nitrogen, light frequent topdressing, brushing, verticutting, and carefully controlled irrigation can increase green speed significantly.

The starved, fast syndrome has produced some strange, previously uncommon symptoms, including moss, lichens, algae, and thin turf. A whole complex of symptoms caused by mildly pathogenic organisms have become more visible under extreme stress. Instead of returning to sound management practices, we simply intensify our fungicide programs and increase management cost — sometimes without success. Problems caused by anthracnose and certain unidentified basidiomycetes have increased over the last decade and can be correlated with overfine management.

Putting greens mowed at 3/16 inch will meet most speed requirements with applications of two to three cubic feet per 1,000 square feet of good quality sand applied every two to three weeks. Over-irrigated putting greens with high percentages of organic matter and fine-textured soils will not putt as fast as firm, dry sand surfaces. To compensate for wet, soft surfaces, we lower the mowers to increase speed. Yes, this is managing too fine, or simply not good

judgment. It is understood, of course, that we maintain balances of other nutritional and management practices, but these are a few of the most significant.

The demand for closer lies on fairways has resulted in decreased mowing heights to the point where, in certain areas of the country, Kentucky bluegrass has virtually been eliminated on many golf courses. These fairways have become dominated by annual bluegrass (*Poa annua*). Occasionally we have survived this botanical shift in some northern cool-season regions by changing to bentgrass management on these fairways, or by increased fungicidal programs to protect the annual bluegrass.

THE USE OF putting green aerifiers and small lightweight triplex mowers may be considered by some to be too fine management. In my view, this is one of the best things that has happened to golf course fairways for those who can afford the expense. The small aerifiers do a better job of coring, while triplex mowers induce less compaction, produce more uniform mowing patterns, and, in some cases, significantly improve the quality of the fairway grasses. For the low-budget golf course, this is too fine management; for the clubs that can afford it, these may become standard practices.

The removal of grass clippings from fairways can be classed as managing too fine. The removal of grass clippings is labor-intensive, even though the aesthetics seem to make it worthwhile. Nutrient loss from clipping removal can also significantly increase fertilization costs.

FAIRWAY TOPDRESSING with sand or soil is one of the better means of controlling thatch, but is very expensive and can only be instituted by golf courses that can afford it. The playability of fairways with heavy-textured slow-draining soils could be significantly improved with sand topdressing, and in some cases this would be economically feasible.

Dr. Roy L. Goss



Some golf courses suffer from the lush, soft syndrome because club policy dictates wall-to-wall green. Because of variations in soil texture and depth and topography, it is virtually impossible to maintain uniform water distribution and infiltration rates throughout the golf course. Invariably, steep terrain will have water-stressed areas or burnout during the summer. Although increasing the use of wetting agents and more intensive aerification may help the effectiveness of applied water, it nonetheless increases costs of management and is not always effective. We are managing too fine when we try to keep every inch of the golf course green at all times. The usual result is excessively wet low-lying areas at the expense of keeping a few isolated areas green all the time. Automatic irrigation with sophisticated controls will partially correct this type of problem, but in most cases, not entirely.

Green committees and playing members should be extremely cautious in making decisions that are counter-productive to the best management of their grasses and soils. Before implementing hard-core management decisions, a green committee should carefully discuss the situation with the golf course superintendent, and if the committee is still not satisfied, it may refer the question to competent consulting agronomists.

MANY MORE AREAS of golf course management can be labeled as too fine. It is the responsibility of each professional golf superintendent to communicate effectively with his committees to prevent the kind of mistakes that seem to be arising more frequently. A golf club hires a qualified superintendent because he is the most knowledgeable person for managing the golf turf. So why is his advice so frequently overruled? Many years ago Bobby Jones stated, "The first purpose of any golf course should be to give pleasure, and that to the greatest number of players — because it will offer problems a person may attempt according to his ability. It will never become hopeless for the duffer nor fail to concern and interest the expert."

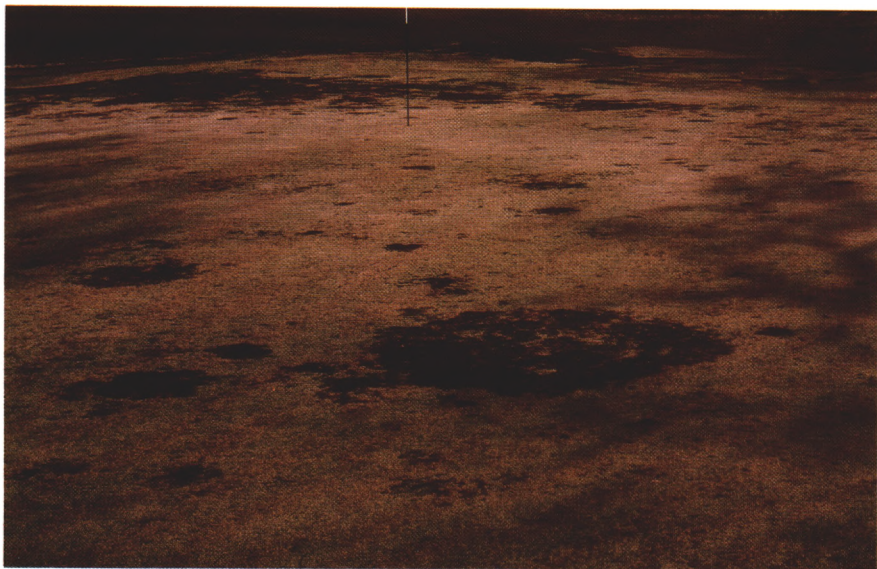
As long as we are doing the best management job possible with the budgets we can afford, what's wrong with the rule of playing the course as you find it and the ball as it lies? In this age of high technology and scientific advancements, let us not lose sight of common-sense management.



(Above) Putting Green aerifiers on fairways. Great if you can afford it!

(Opposite page, right) Over management results in Poa annua greens. Desiccation losses can be disastrous.

(Opposite page, far right) Close mowing and starvation can destroy putting greens.



Have We Gone Too Far with Low Nitrogen on Greens?

by A. M. Radko

Former National Director, USGA Green Section

REPORTS INDICATE that more and more superintendents are caught up in a green speed race, and some are combining a program of one pound of nitrogen per 1,000 square feet per year with a 1/8-inch height cut to attain maximum speed.

My question is, "Why?" Fastest doesn't necessarily mean best! I could understand these extremes if all greens were constructed billiard-table level, but the real joy in putting is to be able to make a putt now and then on well-contoured greens. The challenge of putting on sloped, terraced and mounded greens that vary in severity is what makes every course so interestingly different. This is where every club has the unusual opportunity to find, through trial and error, the speed that is best suited to its character and special conditions of play.

The place to start is not at a speed of eight feet six inches, measured by the Stimpmeter, but at seven feet and work up until you find the speed that is best suited to your membership. From what I've observed through the years, many clubs will find that an average speed in the range between seven feet six inches and eight feet six inches will satisfy most members.

Believe me, this is an excellent and enjoyable putting speed range. Remember especially that as speeds grow faster on well-contoured greens, the ability to stop the ball close to the hole becomes more difficult . . . and this should be the main criterion in determining green speeds at every course. A speed of seven feet six inches on well-contoured greens may well be far more difficult to putt on than mildly contoured greens with a Stimpmeter speed of eight feet six inches. As an example, the 1974 Open Championship was labeled the Massacre at Winged Foot by one sports writer because of extremely fast greens. In 1974 the Stimpmeter was not yet used to test green speeds.

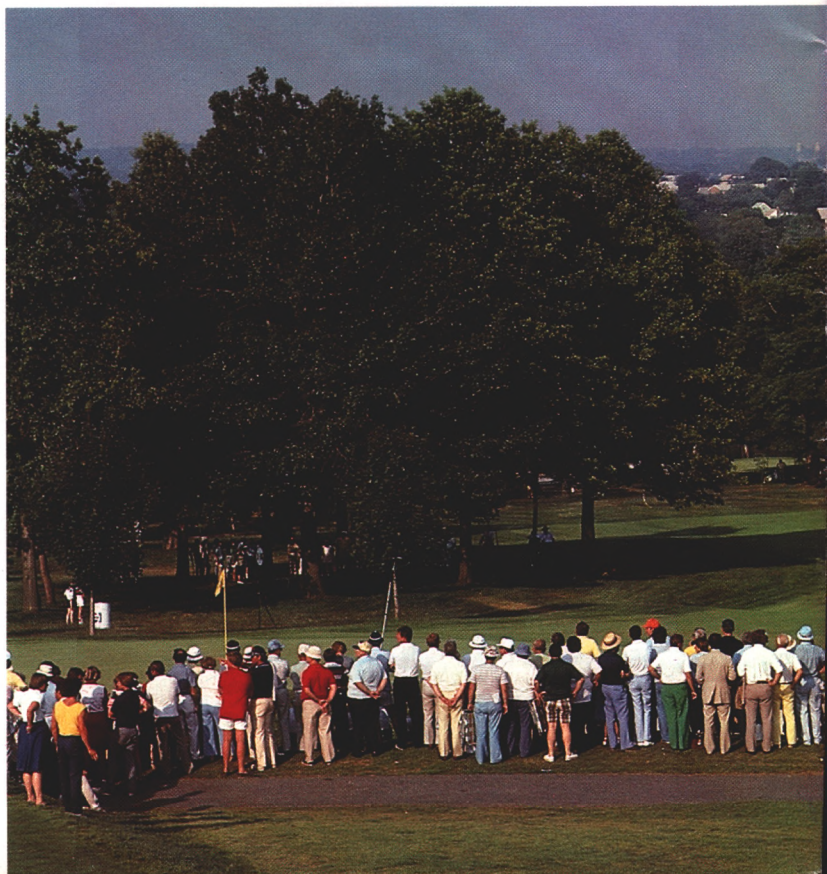
Prior to 1974, I visited Winged Foot annually for about 25 years and played it several times. It is a beautiful course and an exceptional test of golf. The greens are always in superb condition.

I was not concerned, therefore, about moving up to championship speeds; it would all be routine. Ted Horton was superintendent then. Those of us from the USGA concerned with championship conditioning asked Ted if he thought he could, without danger to the turf, set the mower a hair lower. This he did, from 5/16 to 9/32, and it caused no problem. Then he tried for 1/8 inch, but the turf wouldn't accept that cut. That was fortunate, because at 9/64 these well-contoured greens were very, very difficult to putt. The point is that Winged Foot's greens were converted from regular membership speed to championship speeds for the best golfers in the world with only a slight modification in Ted's regular nitrogen program and a 1/64 reduction in height of cut. His regular nitrogen program was about five pounds per 1,000 square feet per year — a little heavier than he would

like, but he was forced into it because of continuous heavy play.

This is the way we believed it would work when the two Stimpmeter speed tables were published in 1977. At first we considered publishing only the Tournament Speed Table and using the Stimpmeter only on courses preparing for national championships. We agonized about making the Stimpmeter available to all clubs, because we felt it might cause problems through misuse. Finally we decided to release the instrument to all because we wanted to be sure it got into the right hands at a price that couldn't be duplicated commercially. When that decision was made, we released the Regular Membership Speed Table.

THIS IS WHERE the misunderstanding occurred. Almost everyone believed we were advising all clubs to



switch back and forth from one table to another every time a club held a tournament. This certainly is not the intent. The Regular Membership Speed Table is meant for use by clubs for everyday play as well as all their tournaments, with exception of national events. The Tournament Speed Table is meant solely for tournaments of national caliber for the best golfers in the world, and only for the brief period that the tournament is being played.

Now it appears that many clubs are attempting tournament speeds for the entire playing season. This, in my opinion, places putting green management in a totally new category, with risks far greater than greens were ever subjected to before. This, in my opinion, is madness!

I've visited several courses that use this combination of one pound of nitrogen per 1,000 square feet per year and mowing at $\frac{1}{8}$ inch. I've also talked to superintendents who have been pressured into the program because "other clubs are doing it." Only one superintendent among those I visited feels comfortable with the program; all the others foresee problems. These problems include moss, algae, crabgrass, silver crabgrass, and other undesirable encroachment; thin, stringy turf; decumbent rather than upright growth; turf lacking in turgidity, thatch, and density; many more ball



Al Radko

marks with displaced turf; more scalping over terraces, mounds, and crests of slopes; decidedly a weak, off-color appearance, not a healthy look; weaker turf in summer; weaker turf in winter, which could add to winter injury problems and also mean slower spring recovery that could affect length of playing time. These are the possible agronomic problems that I see.

There are serious implications here also with regard to the playing of the game when greens are exceptionally fast.

Putting green speeds averaging over 8'6" on the Stimp meter are intended for National competition — 1979 Women's Open Championship, Brooklawn Country Club, Fairfield, Connecticut.



On occasion, I've heard of players taking four to seven putts on some well-contoured fast greens. Slow play already is a problem on greens of normal pace. Slow play is definitely more of a problem on extra-fast greens! Will golf become a six-hour game now? Will the 95 shooter, alive with hope that one day he will break 90, lose interest when he can't break 100 because he no longer can average his usual number of putts over 18 holes? Will this discourage the golf club membership and reduce club revenue? If a player, attempting his fourth putt from a spot farther from the hole than his first putt, goes through his

some general guidelines you might consider for a typical six to eight months per year golf course operation:

If the course receives an average of 25,000 rounds a year, my program would be three to four pounds of nitrogen per 1,000 square feet per year.

If the course receives well over 25,000 rounds a year, my program would be four to five pounds of nitrogen per 1,000 square feet per year.

If the course receives well under 25,000 rounds per year, my program would be between two-and-a-half to three pounds of nitrogen per 1,000 square feet per year.



At extremely low nitrogen rates crabgrass will again be a serious problem on putting greens.

normal ritual of studying that putt from four sides, then plumb-bobs it, then takes two vigorous practice swings with his chipping stroke before putting . . . golf will no longer be known as a gentleman's game.

The Stimpmeter's influence rests heavily on the golf course superintendent. Used as a cruise control device, the Stimpmeter can be a valuable asset in pursuit of a contented membership. Used only as an accelerator, the Stimpmeter will provoke risky problems unnecessarily.

WHAT IS THE BEST program for you? Only you can work this out because of the many variables. As a starting point, if you are not satisfied with your present program, here are

If greens were constructed with a high sand mixture, my program would begin at five pounds of nitrogen per 1,000 square feet per year and would be monitored yearly to determine whether more or less nitrogen is required as the turf matures and the soil medium adjusts.

Equally important as the yearly rate is the rate of nitrogen per application! These are the guidelines recommended:

One quarter of a pound of nitrogen per 1,000 square feet approximately every two weeks for a total of one-half pound of nitrogen per 1,000 square feet per month until the total yearly amount is reached. This applies to granular and non-granular forms of nitrogen — the water soluble, the water insoluble, and the natural organics. This program would vary only at heavily played

courses, where heavier rates would be required to prevent traffic wear. In such cases mixtures of slow- and fast-acting formulations would be used preferably at no more than three quarters of a pound per 1,000 square feet per application. If liquid nitrogen is used, apply it at rates of 1/16 to 1/8 pound per 1,000 square feet per application.

Fertilization during periods of high temperatures should be avoided, except for extenuating circumstances, such as heavy traffic or other special conditions. If required during this period, apply no more than 1/8 pound of nitrogen per 1,000 square feet per application, nor more than one quarter pound of nitrogen per 1,000 square feet per month.

If a dormant application is made at the end of the season, I would reduce the seasonal total by the amount of nitrogen applied as dormant feed.

Light, frequent applications of nitrogen are recommended, because it takes only one heavy application to cause the turf to become coarse. Once it does, it is impossible to fine it down again within that growing season. Nitrogen is acknowledged to be the key element in turfgrass management. Nitrogen is the superintendent's control in putting green management! A superior nitrogen program provides unforced, steady growth during the entire playing season.

The field height of cut would depend upon member speed preference and turf performance during stress periods. I definitely would advise my members to select a speed between seven feet six inches and eight feet six inches. It is the sure way to better putting and to more pleasurable golf for the greatest number of players.

USGA Green Speed Test Comparison Table (Regular Membership Play)

Fast	8'6"
Medium-Fast	7'6"
Medium	6'6"
Medium-Slow	5'6"
Slow	4'6"

USGA Green Speed Test Comparison Table (National Championships)

Fast	10'6"
Medium-Fast	9'6"
Medium	8'6"
Medium-Slow	7'6"
Slow	6'6"

In Tribute to Marvin H. Ferguson



EVERY PROFESSION, to be worthy of the designation, must surely develop its own traditions and values, its own heroes, and its own ties with the past. In golf in the United States, particularly in the art and science of growing grasses for it, Marvin Ferguson possessed an abundance of those qualities we would all emulate.

It began in 1940, when Dr. John Monteith offered Ferguson, then a young Texas A&M graduate, his first job, laboring in the fields of the old Arlington Turf Gardens, in Arlington, Virginia. Here the USGA and the United States Department of Agriculture carried on cooperative studies in turfgrass research. It soon became necessary to move hundreds of grass selections from the old gardens (the Pentagon was to be built on this site) to the new USDA Plant Industry Station, in Beltsville, Maryland, and Ferguson was to select the specimens to be saved and transferred. Among those selected was one to be later known as Merion bluegrass and another as U-3 bermudagrass.

Marvin Ferguson went on to earn a Ph.D. degree (University of Maryland, 1950) and to become the National Research Coordinator and Mid-Continent Director (1952-1968) of the USGA Green Section. His office was on the campus of Texas A&M, where he also served as a professor of agronomy.

During those years Dr. Ferguson became intrigued with the problems of poor soils and drainage on putting greens. He reasoned that, based on their physical properties, different sands, soils, and organic matter might be mixed in certain combinations to provide the right permeability and pore space distribution to alleviate problems of compaction, drainage, and management. He built his own laboratory equipment and established procedures for testing such mixes. Combining his physical soil analysis techniques with the phenomenon of soil-water movement through textural soil layers, as shown by Dr. Walter H. Gardener, of Washington State University, Dr. Ferguson became the driving force behind the development and publication of the USGA Green Section Specifications for Putting Green Construction, in 1961.

In 1964, he was elected a Fellow in the American Association for the Advancement of Science. He edited the GREEN SECTION RECORD and was a member of the editorial board of the H. B. Musser book, *Turf Management*. He was the first to show the damaging effect of spiked golf shoes on soils and grasses. His influence on students at Texas A&M brought many new practitioners to the field of turfgrass science.

In 1968, after 22 years of Green Section work, he left to start his own business, Agri-Systems of Texas, Inc., a consulting and soil-testing laboratory service. He was soon designing and building new golf courses, and he became a member of the American Society of Golf Course Architects. In recognition of his contributions, he received the USGA Green Section Award for Distinguished Service to Golf Through Work with Turfgrass, in 1973.

IN HIS QUIET, soft way, Marvin Ferguson continued to labor on behalf of better turf and was a member of the USGA's Turfgrass Research Advisory Committee. "A good researcher," he was known to say, "first asks, 'Why?' The what, when, who, and where answers will always follow!"

He consulted and advised in soils and turfgrass matters from New Zealand to Iceland, from Hawaii to the Azores.

"I have had a varied and satisfying career," he said as he accepted the Green Section Award in 1973, "and have felt blessed more than most men. My work now involves my son, my daughter and my wife, Floy. With a close-knit loyal family, friendships and work I enjoy, what more could one ask? My cup runneth over."

Many years ago in St. Andrews, Scotland, Joseph C. Dey, who was then Executive Director of the USGA, found this poem inscribed on a tombstone in the old graveyard at the cathedral of St. Andrews:

*"Then seal away,
Give little warning.
Say not good night,
But in some higher clime,
Bid me good morning."*

Dr. Marvin H. Ferguson, on January 10, 1985, died suddenly in his home town of Bryan, Texas.



TURF TWISTERS

TELL ME . . .

Question: What is the best time and what are the important considerations in liming practices on golf courses? (Oregon)

Answer: Before anything else, take soil tests to determine if and how much calcium is required to reduce the acidity level and raise the soil pH. If the soil is deficient in calcium, apply dolomitic or ground agricultural limestone. These are usually the best choices. Determine their neutralizing capacity, size of the particle (fine grades are preferred), cost per ton, magnesium content, and the handling and storage requirements for the limestone needed. Drop spreaders are preferred, and lime may be applied anytime in the fall, winter, or spring when the ground is firm enough for the equipment.

ABOUT SOIL SAMPLING . . .

Question: What is the proper technique for taking soil samples? (California)

Answer: Four points should be remembered when taking soil samples on the golf course:

- 1) Each sample should be taken to a depth of two inches, *i.e.*, the top two inches of the soil profile.
- 2) Be sure to take enough samples (from a particular green, tee, or fairway) to furnish approximately half a pint total for the area in question. Take samples in a random pattern so that, when they are mixed together, they will provide a representative sample of the test area.
- 3) Allow the samples to air dry before sending them to the laboratory.
- 4) Take samples during a time when recent fertilizer applications will not affect the results. Late fall, winter, or early spring are preferred. Usually, sampling the same green, tee, or fairway every two or three years will provide an excellent guide or reference for future planning. Rarely does one need to sample every green, tee, or fairway to find a proper reference.

AND WHERE DID ALL THIS MOSS COME FROM?

Question: We seem to be developing moss problems on our greens even though the soil is well drained and our program is geared toward applying as little water as possible. I thought moss occurred on wet, partly shaded areas. What is happening and what can I do about it? (New York)

Answer: It is not strictly correct to talk of moss, but of mosses. There are over 600 species of moss, and more than 30 of these are known to occur in turf. Each has its own individual habitat preference. Courses that maintain low fertility levels, low cutting heights, and firm, dry putting surfaces seem to be most susceptible to moss encroachment. The Acrocarpus (mat forming) mosses like these conditions. In addition, they have a comparatively high light requirement, and they are particularly drought resistant.

A combination of cultural practices and chemical controls offers the best solution. Light and frequent nitrogen applications throughout the growing season, combined with 3/16-inch to 7/32-inch height of cut, plus aeration, topdressing, and bentgrass overseeding for one or two years will be effective. In other words, help your bentgrass to become competitive again. Ferrous iron sulfate (four pounds per 1,000 square feet) plus mercury-based fungicides have been effective not only in killing present moss but also in checking its further propagation. Spot treatments to kill the moss and reestablish bentgrass turf in spring or fall have also been effective. (See "Have We Gone Too Far with Low Nitrogen Levels on Greens?" by A. M. Radko in this issue.)