USGA GREEN SECTION MEETING

Modernizing - when, why, how

Over 400 persons participated in a thorough program covering course renovation to putting green improvement.

By ROGER GANEM

The important matters of when, why and how to modernize the golf course attracted the largest crowd ever to attend a USGA Green Section meeting. The 1967 conclave took place on January 27 at the Biltmore Hotel in New York City.

After introductory remarks by Henry H. Russell, Chairman of the USGA Green Section Committee, the topic: Why Renovate or Revise? was discussed by Dr. Marvin H. Ferguson, Mid-Continent Director, USGA Green Section, John P. English, Williams College (Taconic Golf Club) and M. G. Miller, Green Committee Chairman, Baltusrol GC, Springfield, N. J., site of the 1967 U. S. Open.

Some courses have to go through expensive renovations simply because maintenance demands it. Dr. Ferguson pointed out, through the use of excellent color slides, how thatch, a bugaboo to all superintendents, often is removed only through renovation procedures; how weeds can cause revisions, and how even a watering system, with all its obvious benefits, can lead to expensive changes if it produces crabgrass. Dr. Ferguson also cited the example of how a green, with poor drainage, led to all golf course traffic being re-channelled: In searching for the reason for the grass's poor condition, the green was excavated, a layer of sand was discovered too close to the surface, choking off the roots, and the green had to be ultimately revised.

But, perhaps, his most graphic case history was the southern course that wanted to rid its grounds of all its burr weed. Not owning a sprayer and not wishing to invest too much money in the purchase of one, it arranged to borrow the necessary equipment from the highway department.

However, the department failed to clean the tank thoroughly before loaning it to the club and the results were nearly tragic. Nine fairways were ruined and it cost the club a lot of additional money and two full years to grow blue grass.

John English tackled the problem of how and when to modernize just to keep up with the demands of the growing number of golfers. Lamenting that Monday is no longer the free day it once was, the Green Section committeeman offered a four point objective in scheduling: 1) Protect club property; 2) Expedite play; 3) Increase visual beauty and 4) Simplify maintenance.

Fences and trees on the club's outermost limits will serve to keep the golf balls in and the undesirables out, English said in expanding point One. Planting trees on corners of tees and other areas to discourage short cuts by golfers will do a much better job than a boundary stake or stanchion. You must also consider the safety factor. On blind holes, erect some indicator, a bell or a periscope or mirror, to note or denote that the fairway or green is all clear.

To expedite play, design or maintain the rough, woods, ponds and brooks so that any ball that falls in is at least retrievable, if not completely playable. The stroke or strokes penalty should not be compounded by an additional loss of the ball. Special women's tees should be erected, too, not directly in front of the men's tees, and not too far from the green. The test for the women golfers should be a fair one.

You can beautify your course, English stated, by paying careful attention to the manner in which all disposable matter is treated, by considering the color schemes in plants, shrubbery and flowers and in the selection of type of fences erected to help divert or direct traffic. Rustic fences look particularly good, he noted. You will also simplify maintenance by building ramps for both the pull carts and the gas or electric cars, and special walking paths for golfers for up or down slopes.

But, perhaps the most demanding, in-depth type of renovation is that experienced by the club that is preparing for a major championship. In preparing Baltusrol for its U. S. Open, M. G. Miller first selected his committee, which consists of some 225 men and 225 women, outlined their responsibilities, then started looking into making the already-superb layout more challenging. "We started working on this project some 3½ years ago," he said, "starting with inspections of other Open courses, namely the Congressional, Bellerive and Olympia Hills. We had to overcome the affects of the prolonged drought, redefine boundaries, build new tees and bunkers and change the measurements of several holes. We have erected a new tee on the 7th hole, changing it from a par-5 to a par-4. We also changed the first from a par-5 to a par-4 and increased the length of a par-3 from 174 to 214 yards, surrounding the entire green with bunkers. The course will measure 7,200 yards and plays to a par-70."

Preparing for a Championship involves many things. A defective pine tree has had to be removed, the fairways have to be narrowed to 35 - 40 feet in the drive area, and the rough will be allowed to grow two to four inches by June, according to the USGA directive. Bridges will have to be reinforced or built over the 20 places where spectators and golfers cross the club's brooks; new shelters will be erected and tents will be provided to accommodate some 20 concessions, and 225 members of the press.

Most of the golf course will be staked,

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Elmer J. Michael making his acceptance speech for USGA Green Section Award, left, as William Ward Foshay, USGA president, looks on.

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Miller continued, 70 temporary sanitary facilities, portable, will have to be installed (and serviced nightly), parking made available for 12,000 cars and service roads constructed. Over 20,000 feet of snow fencing from the highway department will be used to direct the flow of traffic. This has to be obtained, erected, removed and returned. There will also be as much chain link fencing as necessary.

A supplementary water supply will be needed for the lakes, and stakes and 42,000 feet of rope positioned to handle the gallery. Also, since it is the American custom to discard paper napkins and cups, containers located in 250 convenient places will have to be provided and a clean-up squad mobilized to police the area. Then there are the unbelieveable involvements with the large scoreboard, the additional power lines, cables, platforms, security personnel, towers for the cameramen and a selection of the clothing to be required by the course worker.

"We've had 40 months to do the job," Miller said, "but we expect to be working on it right up to zero hour. All this and more for just one week of action."

When deciding the scope of revision, do you do it yourself or do you hire an architect and contractor? What is the committees' responsibilities toward improvements? E. L. Meister, Jr., Willoughby, Ohio, described how his Kirtland Country Club handled its renovation program. "We hired an architect who presented his proposal to up-date our course. The plan was submitted to the membership for approval. The architect did a fine job, and his plan was accepted."

"It is important to have the right person as your Chairman of the Green Committee. He should be a man interested in making changes. A person with tournament experience who sees the need of staying with the times will do a better job than one who might not be as skilled." The less talented committeeman might fight a change.

Communicate with your membership, Meister urged, and in discussing the renovations with him, try the 'negative approach'. That is, if he says the course is looking fine, say "Yes, but we could do a lot better". He'll probably then point out all the nice things about the course. "If you agree with him, however, he'll probably find something to criticize. I agree only when he is complaining."

A most valuable member of your team is your course superintendent, Meister stated, and he urged full support for him. "There is no middle ground when it comes to this kind of support. Either you get behind him or you should get rid of him."

Meister created a minor stir when he disclosed that his course seeds its fairways each year, during the fall and winter, uses fungicides three times in the summer and once in the winter, and keeps the course in good shape on a budget of $60,000.

Putting Green Improvement

In the highly sensitive and crucial matter of putting green construction, Holman M. Griffin, Agronomist, USGA Green Section, made a strong plea for adopting the widely-accepted USGA system in its entirety or not at all. "There is no better method than that advanced by the Green Section. It is often a waste of money to renovate rather than rebuild. Like installment buying, you end up paying more in interest charges, year after year after year.

Griffin made use of color slides to illustrate both the proper and the improper ways to renovate and reconstruct greens. Among his list of "don't's" are the following: don't mix soil in an on-site blending—do it off-site and haul it to the green when ready; don't renovate a green that is removed or destroyed in order to modify the soil—do think seriously of rebuilding, instead; don't put thick, heavy sod on top. It isn't true that the thicker you cut the sod, the better the soil will be.

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The USGA Green Section Specifications for a Putting Surface, shown in Griffin's slides, were reviewed for the gathering by Dr. Ferguson. (The specifications are available upon request from the United States Golf Association, 40 East 38th Street, New York, N. Y. 10016.) Here are the seven steps in this construction procedure:

Subgrade—The contour of the subgrade should conform to those of the proposed finished grade, with a tolerance of plus or minus 1". The subgrade should be constructed at an elevation 14 inches below the proposed finished grade. It should be compacted sufficiently to prevent future settling which might create waterholding depressions in the subgrade surface and corresponding depressions in the putting surface. The use of rollers to compact soil is not satisfactory. Use a method called "footing" (old fashioned term) or modified "sheep foot" roller.

The materials above the subgrade consist of 4 inches of gravel, 1½ to 2 inches of coarse sand, and 12 inches of topsoil. Thus the total depth will be 17½ to 18 inches. However, this fill material will settle appreciably, and experience indicates that 14 inches will be the approximate depth of these combined materials after settling.

Drainage—Tile lines of at least 4-inch diameter should be so spaced that water will not have to travel more than 10 feet to reach a tile drain. Any suitable pattern or tile line arrangement may be used, but the herringbone or the gridiron arrangements will fit most situations. Tile should be laid on a firm bed of ½" to 1" of gravel to reduce possible wash of subgrade soil up into tile line by fast water flow.

If the bottom mixture is not permeable, or if the green is long and hilly, surface water will quickly move to the subgrade soil and bubble up.

Gravel and sand base—The entire subgrade should be covered with a course

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of clean washed gravel or crushed stone placed to a minimum thickness of 4 inches. The preferred material is washed pea gravel of about ¼" diameter particle size. Larger gravel or stone may be used, but it is important that changes in size between this course of material and the succeeding one overlying it not be too great. Otherwise, smaller particles from overlying material will wash into the gravel, clog the pores or drainage ways and thereby reduce the effectiveness of the gravel.

In the sports vernacular, the successive layers would be say, basketballs, baseballs, golf balls and marbles. Then a top layer of BB shot will not go through.

When the gravel is in place, assuming that pea gravel has been used, a 1½" layer of coarse washed sand (commercial concrete sand is satisfactory) should be placed to a uniform thickness over it.

"Ringing" the green—When the courses of gravel and sand are in place and outlets have been established for subsurface water, through tile lines, the green should be "ringed" with the soil which is to be used for aprons and collars. Any contours established should blend into the putting surface. The next step is to fill the depression, which represents the putting surface, with the prepared topsoil mixture next described.

Soil mixture—A covering of topsoil mixture at least 12 inches in thickness should be placed over the sand and gravel layers. It should meet certain physical requirements: Permeability — after compaction at a moisture content as described by Ferguson, Howard and Bloodworth, (USGA Journal, Sept. 1960), a core of the soil mixture should permit the passage of not less than ½" of water per hour nor more than 1½" per hour when subjected to a hydraulic head of .25 inches; Porosity—*After compaction,* a sample of the soil mixture should have a minimum total pore space of 33 per cent.

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To evaluate further the potential behavior of a putting green soil, information with respect to bulk density, moisture retention capacity, mechanical analysis, and degree of aggregation in the hands of a soil physicist would help.

Few natural soils meet these requirements. It is necessary to use mixtures of sand, soil and organic matter.

Soil covering, placement, smoothing and firming—When the soil that has been mixed off-site has been spread uniformly over the surface of the putting green, it should be compacted or firmed thoroughly and uniformly. Whenever possible after construction, saturation of the soil by extensive irrigation is suggested. Water is useful in settling and firming the surface. This practice will also reveal any water-holding depressions interfering with surface drainage.

Sterilization of soil and establishment of turf—These steps may be accomplished by following well-known conventional procedures.

Dr. Ferguson concluded that some clubs have been deterred from building putting greens according to the USGA Green Section method because they have thought the construction costs would be excessive. It is not possible to ascertain costs in any given area because of variations in cost of materials and labor, but the following quantities of materials are required per 1,000 square feet of putting surface: Gravel, 4 inch depth — 12.3 cubic yards; Sand, 1½ inch depth—4.6 cubic yards; Soil mixture, 12 inch depth —37.0 cubic yards and Tile—approximately 100 lineal feet.

James L. Holmes, Agronomist, USGA Green Section, capped the morning session with the reminder that the Green Section specifications for building a putting green offer the greatest assurances of working without the hokus pocus that accompanies some of the other methods.

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"Beware the guesswork that will produce grass that will behave for 3, 4 or 5 years but then disappears, along with the builder's guarantee. The one-third formula, (soil, sod and peat moss) is not always certain. And, above all, be careful of drainage. Watch the tile that is packed with soil that holds water, preventing the water from ever reaching the tile."

USGA Green Section Award

Following the luncheon break, the United States Golf Association Green Section Award, presented for distinguished service to golf through work with turfgrass, was awarded to Elmer J. Michael, of Pittsford, N. Y. Mr. Michael served as Golf Course Superintendent at the Oak Hill Country Club, Rochester, N. Y., from 1929 until his retirement in 1965. The award was presented by William Ward Foshay, of New York, USGA President, and Henry H. Russell, of Miami, Chairman of the Green Section Committee.

Mr. Michael was among the earliest superintendents to recognize the value of creeping bentgrass for putting greens. He planted the East Course at Oak Hill to a strain of bentgrass that he discovered on grass plots that were abandoned after the Pan-American Exposition, which had become the site of the Park Club of Buffalo, N. Y. At that time, 1918, he was an assistant to his father at the Park Club.

He also designed and installed an irrigation system for both the East and West courses at Oak Hill. Mr. Michael served as Mayor of Pittsford from 1956 to 1960 with no interruption to his duties at Oak Hill. He is a past President of the Pittsford Rotary Club and an Elder in the Pittsford Presbyterian Church.

Mr. Michael is the seventh recipient of the Green Section Award. Previous winners were Dr. John Monteith, Jr., of Colorado Springs, Colo.; Professor Lawrence S. Dickinson, of Amherst, Mass.; O. J. Noer, Milwaukee, Wis.; Joseph Valentine, Ardmore, Pa.; Dr. Glenn W.

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tees and it will disappear and crabgrass moves in. Also, the golfers want to start to play earlier and continue longer. The superintendent has trouble keeping the course in condition. Because *Poa annua* colors early and looks good, he might be inclined to go with it and risk the months of intense heat. For this reason *Poa annua* is a powder keg.

"We have now become a nation of Poa Pamperers. But Poa can't be considered a sound grass because of its reaction to heat. We must develop a strain that is always like *Poa annua* is for ten months of the year."

Other fairway renovation ideas were presented by a panel consisting of Richard Silvar, Superintendent, Knickerbocker Country Club, Tenafly, N. J.; Sherwood Moore, Superintendent, Winged Foot Country Club, Mamaroneck, N. Y., and Albert Neuberger, Agronomist, USGA Green Section.

Silvar described his scorching and replanting eleven fairways at Knickerbocker, successfully, despite a ban imposed on the use of water before the program was completed. His plan was one recommended by the USGA, using sodium arsenite, 5 gallons per acre initially, then 3 gallons per acre in the second application a week later, with water applied every second day to germinate any seed in the soil. The second application of sodium arsenite would kill any new growth. Then he followed this preparation with a complete job of thatching and finally he fertilized and seeded.

When the water ban was imposed, he solved the problem by using heavy polyerethane sheets to cover the tees. The 28 x 100 sheets retained the moisture and the results were excellent.

Albert Neuberger discussed the subject of seeding and the mixture ratios when using Bluegrass, Bent or Rye. He emphasized the importance of working the soil to increase the percentage of survival and to be thorough when thatch-

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ing. "It looks horrible but it will pay off."

Neuberger also related the tendency toward earlier planting, such as Bent in mid-August, Bluegrass by mid-September, so that Poa won't have a chance to flourish. And he cautioned to use quality seed. "This is not the area to try to save money. Buy certified seed from reputable dealers, even if you have to use it judiciously. There's no substitute for top seed."

Sherwood Moore posed the question, "What happens afterward?" and suggested that attention be directed toward how the fairways and greens are mowed, does the worker follow the same path every time, thus creating a problem? Over fertilization can be harmful. Too much nitrogen on established turf would be an abuse, as would too much lime when followed by a hot spell. Drainage can lead to problems and the superintendent must keep on the look out for any tell tale signs. At Winged Foot the maximum size drain pipes are now 21″ in diameter. Insect control and the selection of correct sprays have to be considered, and Moore had this sensible suggestion: If the spray you use burns the fairway, chances are that the grass will come back. If so, just disappear for a day or two until the color returns!

Miss Carol McCue, Executive Secretary, Chicago District Golf Association, opened the talks on the renovation of tees, bunkers and paths and struck a blow for the women. "I don't like to call 'forward tees' ladies' tees, because many a man would prefer to hit from a spot closer to the green. I think they should be designated by color, with each of them rated for both the men and the women. That way either can play from *any* of the tees and be able to submit the scores for handicap purposes."

In selecting the site for ladies' tees, Miss McCue said that it should not be so located as to change the character of

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the hole, or the course, or to make it less interesting to play. "If it changes the strategy of play or if hazards suddenly come into play, or if the golfer's safety is endangered, the ladies tee is misplaced."

Lee Record, Agronomist, USGA Green Section, talked of sand versus grass for bunkers. "By its color contrast, sand gives the golfer a visual aid to his target, whereas grass is not as attractive to look at. Sand is costlier to maintain but grass is tougher to play out of." One midwestern course, Record stated, spends $5,000 annually to maintain its 80-odd sand traps.

Naturally, angular sand is preferred to rounded sand. "A ball will lose itself in rounded sand," he said. "The depth of the sand near the green should be 4 to 6 inches. Good sand will bury a ball about one-half its depth or less. The sand should contribute to a golfer's skill and pleasure, not minimize it. But in many cases, sand traps are being replaced by grass bunkers."

A second member of the Baltursol team, to address the large group, Edward Casey, superintendent, spoke of the extensive bunker renovations taking place at the 1967 U. S. Open site. Of the 125 traps on the Lower Course, 105 have been renovated in 13 months. Another problem was installing irrigation lines that would cover the re-sodded area without reaching the sand. The trap on the 17th hole, "a brute", was redesigned. It was graded, limed, fertilized, sodded and worked. The new sod held the water in place and water seeped down to dry soil without running off as it did before. Pop-up sprinkler heads in a specially designed double line, each independent of the other, wets down the area with no danger of watering the sand.

Now the big question: How to finance the renovation job. For this one, the USGA Green Section brought in Harry C. Eckhoff, Executive Director of the National Golf Foundation, and here are some of the sources of money.

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It would depend on the type of golf course involved, that is, nonprofit member-owned club, privately owned facility with profit motive, or a municipal operation. Among the Federal financing programs, the Farmers Home Administration of the Department of Agriculture during 1966 made 95 loans totalling $13,311,070 to nonprofit associations for recreation facilities construction. All 95 included golf courses.

"Loans of this type are available only to nonprofit associations serving rural areas or towns of not more than 5500 population. Maximum term, 40 years, usual interest rate 5 per cent, maximum loan, four million dollars.

"Profit motive course operators may explore the Small Business Administration program if local banks are not interested. Maximum loan $350,000 usually repayable in monthly installments over a 10-year period, rate usually 5½ per cent to 6 per cent.

"Probably the best sources for loans for private member owned country clubs are local banks.

"Cities, counties and states seeking to acquire open space for recreational use may explore the possibility of a loan or outright grant from the Department of Housing and Urban Development, Washington, D. C. 20410."

On this promissory note, (pun intended!), the conference ended. •

Larson Opens Warehouse

Larson Machine, Inc., Princeville, Ill., have announced the opening of a new warehouse located with the Coleman Equipment Co., 1900 Kingshighway, Paragould, Ark.

Along with their line of sprayer and Broadcast equipment, they will stock Hypro pumps and parts for spraying system sprayers.