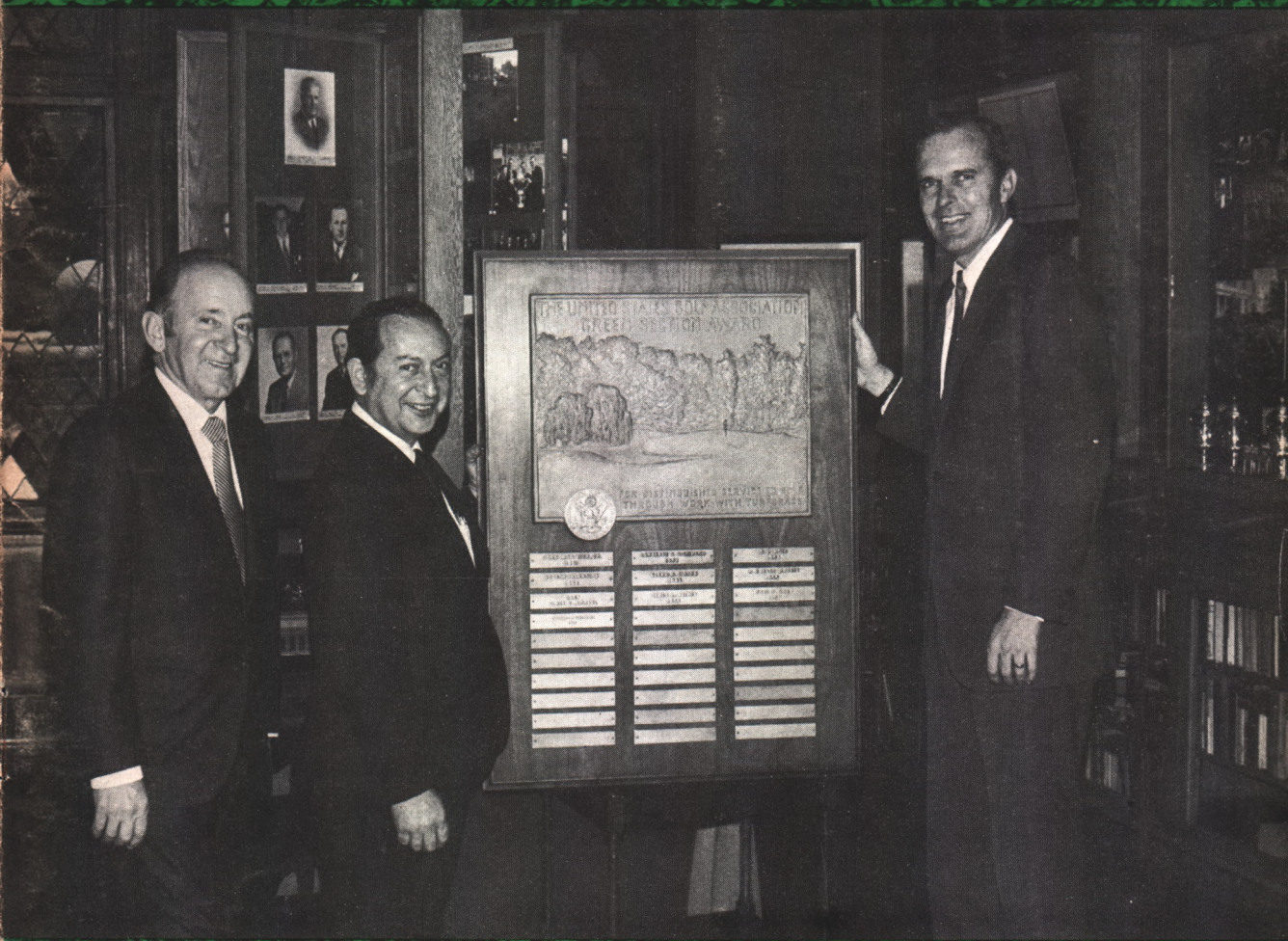
MARCH 1971

USGA GREEN SECTION RECORD

A Publication on Turf Management
by the United States Golf Association



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VOL. 9, NO. 2 MARCH, 1971

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COVER PHOTO: Thomas C. Mascaro (second from left) is the recipient of the Green Section Award for distinguished service to golf through work with turfgrass. With him are (left) Alexander M. Radko, Eastern Director of the Green Section, and P.J. Boatwright, Jr., Executive Director of the United States Golf Association.

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1971 Green Section Conference: The Budget and the Satisfied Golfer

Thomas Mascaro--11th Recipient of USGA Green Section Award

Thomas C. Mascaro, of West Point, Pa., has been named recipient of the 1971 Green Section Award of the United States Golf Association. The Award is presented annually in recognition of distinguished service to golf through work with turfgrass.

Mr. Mascaro has been actively engaged in the turfgrass industry since 1936. West Point Industries, the company he and his brother Terry founded, developed and produced the first practical fairway and putting green aerifier. Not long afterward, he introduced the first vertical mower for control of grain and thatch on golf greens. Today he holds 10 patents and has five more pending.

In addition to his manufacturing activities, Mr. Mascaro has assisted and supported many state university research programs, and has designed, built, and donated several special machines for turf research. During the early days of turfgrass conferences he recorded, mimeographed, and distributed the proceedings to interested parties throughout the United States. He was co-founder, with the late H. B. Musser, of the Pennsylvania Turf Council and has served as its Secretary, President and now Board Member.

Through Mr. Mascaro's efforts, his company developed and published a book entitled *A Handbook for the New Green Chairman.* His informal editorial staff included Richard S. Tufts, former President of the USGA; Admiral John S. Phillips, of Army Navy Country Club; H. B. Musser, of Penn State, and others. He developed a turfgrass school for salesmen, and this later evolved into the first correspondence course in turfgrass management for golf course superintendents. The course was offered at cost, and today the alumni number over 1,000.

Mr. Mascaro is also a prolific photographer/writer on turfgrass management topics. He has accumulated over 30,000 slides, including one of the first golf car and another of superintendent Joe Valentine identifying the spot where he discovered Merion bluegrass.

He has written for numerous magazines, newspapers, and technical publications. His writings have been translated into Japanese, Italian, French, German and Swiss. He has participated in over 20 turfgrass conferences annually since 1950. Today, Mr. Mascaro is Vice-President of Kearney-National, Inc., in New York City.

It would be difficult to imagine where golfing turf would be today without the mechanical maintenance principles pioneered by Mr. Mascaro. He has contributed much to the turfgrass world.

Mr. Mascaro is the 11th recipient of the Green Section Award. Previous recipients were Dr. John Montieth, Jr., of Colorado Springs, Colo.; Professor Lawrence S. Dickinson, of Amherst, Mass.; O. J. Noer, Milwaukee, Wis.; Joseph Valentine, Ardmore, Pa.; Dr. Glenn W. Burton, Tifton, Ga.; Professor H. Burton Musser, State College, Pa.; Elmer J. Michael, Rochester, N.Y.; James L. Haines, Denver, Colo.; Dr. Fred V. Grau, College Park, Md.; and E. R. Steiniger, Laurel Springs, N.J.

Where We've Been, Where We Are, Where We're Going

by **FRED V. GRAU,** Turfgrass Consultant, College Park, Md.

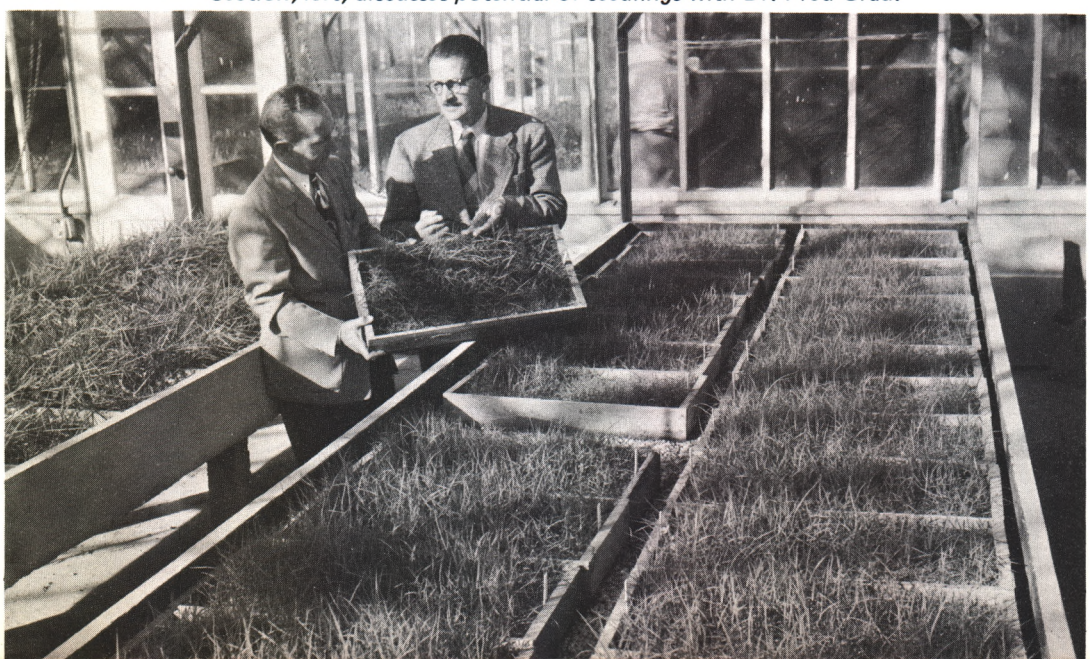
We've come a long, long way since the early days of golf and the first recorded turf garden in America. Mr. Olcott developed his plots at Manchester, Conn., in 1885. They consisted mainly of collected strains of bentgrasses and fescues that appeared to have desirable qualities. Later he sold the garden to Fred Taylor, of Philadelphia. All was lost when Mr. Taylor died in 1910. Meanwhile, turfgrass research was begun at Kingston, R.I., in 1895, and the work has continued there ever since.

In 1917 turfgrass knowledge took a giant step forward when Piper and Oakley, United States Department of Agriculture scientists, published their book, *Turf for Golf Courses.* They told what they knew at that time. It is interesting that they had called attention to the nefarious practice of substitution wherein 10 cent redtop was sold in bags labelled Colonial bent which brought 25 cents a pound. Colonial bent later was sold in bags labelled Velvet bent, which brought twice as much. Much to our sorrow, and to the detriment of the turfgrass profession, the same thing happened when Penncross bent seed came on the market in 1953. Today, due to the efforts of Dr. Duich of Penn State, all Penncross produced is true to name.

1920 saw the formation of the USGA Green Section, and its growth was stimulated by the disaster on the greens of the Columbia Country Club, of Chevy Chase, Md., just prior to the Open Championship. Generous quantities of sulfate of ammonia applied to produce brilliant green grass accomplished the desired result until high humidity, rains, and high temperatures encouraged disease, which thoroughly killed the soft, lush grass. The Championship was played on "sanded browns."

The Green Section was organized to conduct research and to disseminate information among member clubs. Essentially this is the goal of the Green Section today. The first Bulletin was published in February, 1921, the same year I graduated from the University of Nebraska's School of Agriculture (high school). These were the days when a soil test was made with a strip of litmus paper, soil acidity was considered desirable in order to reduce weeds, and *Poa annua* was considered a good grass.

Zoysia research in Beltsville, Md., greenhouse has paid dividends. Alexander M. Radko, USGA Green Section, left, discusses potential of seedlings with Dr. Fred Grau.



Rosette weeds were killed by dipping an ice pick in a pickle jar of sulfuric acid and plunging it into the heart of the weed. One club with bermudagrass fairways embarked on a program of improvement that involved fencing in several fairways, turning in a carload of steers and feeding them generously with hay and cottonseed cake. When the area was generously coated with manure, the steers were sold and everything was incorporated by disking. The bermuda grew vigorously and, presto, with the course out of play only a year, the fairway turf was greatly improved.

1929 was a significant year in turf. Penn State, under H. B. Musser, and New Jersey, under H. B. Sprague, began their programs of research and teaching in turfgrass management. The National Greenkeepers Association was organized with John Morley as the first President. John Monteith had been employed by the USGA to conduct the affairs of the Green Section and to bring his training in plant pathology to the USGA Member Clubs. B. R. Leach found that arsenate of lead controlled Japanese beetles. An important side effect was that chickweed and *Poa annua* were reduced and often eliminated. Demonstration gardens had been established on golf courses in strategic locations over the United States. They had an important function in testing strains of grasses, fertilizers, disease control and other features of management. Garner and Allard, at Arlington Farms, had discovered and demonstrated the length-of-day principle.

1931 was a year of decision for me. I had lost both my parents and was graduated from the University of Nebraska. Dr. Monteith made a place for me on the Green Section Staff, first at the Midwest Turf Gardens, Chicago, later in Washington, D.C., where I helped to edit *The Bulletin* and worked with Dr. Reid, Dr. Dahl, Kenneth Welton and others at Arlington Gardens, where the Pentagon now stands.

The emphasis these days was on chemical weed control. At Nebraska I had worked with iron sulfate. At Maryland sodium arsenite and sodium chlorate came into prominence. Now we were in a great depression. Money was extremely tight. The USGA lost Member Clubs by the hundreds. Green Section employees lost their jobs. *The Bulletin* was discontinued. Through Dr. Jacob Metzger, at the University of Maryland, I was able to pursue my Ph.D. work.

This was the era of Green Section "pie greens" where on many golf courses bentgrasses were planted and compared for suitability, texture, putting quality and other characteristics. Some of these greens and several of the grasses still are in existence.

1935 saw the depression easing. Leaders in Pennsylvania had convinced the University officials that an extension agronomist in turf was needed. I was chosen, and in February, I began my duties. In June I stumbled on crownvetch near Virginville in Berks County. Today, this variety is called Penngift and is a world leader.

In 1937 several of us attended the Fourth International Grasslands Congress in Europe. It is significant that turf was not a part of the official proceedings; it had not yet been recognized. The war threat in Europe sharply curtailed travel and conversation. Shortages of nitrogen were anticipated, and as a precautionary measure, Dr. K. G. Clarke was assigned to "Project Ureaform" at Beltsville, Md. His successful findings are well known today.

The first crude "hydroseeder" was operated in 1939 on the original Pennsylvania Turnpike. It blew on the slopes a thin mud which carried fertilizer, lime, organic matter, soil and seed (FLOSS). It worked! Now the hydraulic seeder often is seen on golf courses.

Turf Culture was launched in 1939 to try to bring a general publication before the public. It ran for about three years, then disappeared. At this same time fertilizer manufacturers from Michigan, Ohio, and Indiana agreed on a 10-6-4 analysis which would be designated a "turf" fertilizer. They admitted that it was not the best formula, but it was one that they could agree on.

The war years saw turfgrass work abandoned. Research workers joined the war effort trying to convince army engineers that grass had a place in erosion control and dust abatement. Agronomists simply were not recognized. The Green Section of the USGA published *Timely Turf Topics,* a mimeographed series of sheets, that tried bravely to keep the few remaining Member Clubs advised on how to produce useable turf under wartime restrictions and shortages of nearly everything. As the country recovered from the war, I became Director of the Green Section in August, 1945. The Arlington Turf Gardens had been moved to Beltsville. Mitchell and March, USDA, had proved the value of 2,4-D for broadleaf weed control.

Green Section Service Subscriptions were begun ($35 a year), and for the first time in USGA history, commercial firms and individuals could share with Member Clubs in the benefits of Green Section findings. The plan was to build a fund that would support Turfgrass Fellowships for training leaders.

In 1946 the American Society of Agronomy recognized turf, and the Turf Committee held its first meeting in Omaha.

The first aerator was built and demonstrated in 1946. Today this is a standard piece

of equipment on nearly every turfgrass area. In this same year I found Jim Watson at a meeting in Texas, sent him to Penn State along with money, and he became the first to receive a Ph.D. in turf.

The Tifton project received recognition and support from USDA and USGA, and Dr. Glenn Burton began his excellent work of developing new turf-type bermudagrass. Zoysia investigations were going on at Beltsville in this same period.

B-27 bluegrass was released as Merion in 1950 and became the first improved turfgrass in history to be established from seed. Significantly, it was Merion that started the sod industry on its way.

The publication of "Grass," the 1948 USDA yearbook, was an outstanding event and it remains a classic today. Turf took a giant step forward with this recognition.

In 1952, when the sixth International Grasslands Congress came to the Penn State campus, turf was on the program. It was my privilege to present a paper on "Turf—A World Concept." This was significant recognition.

The book *Turf Management* by H. Burton Musser, published by the USGA in 1953, has been a powerful tool in teaching and in the education of golf course superintendents and all turfgrass managers. I left the USGA the same year.

Penncross bent was released in 1953 by Penn State. This was the first polycross seed of a turfgrass ever produced. It is one of the elite grasses for putting greens and is popular over a wide range. An excellent feature of a polycross is its ability to adapt to an environment by virtue of the multiplicity of minute individual variations in its broad genetic base.

The Interstate Highway System was started in 1955. Little did anyone dream that we would see 25 acres of turf in every mile of highway. New vistas were opened!

The first authentic turfgrass surveys were completed in the 1960's, providing an accurate picture of the size and scope of the industry. Surprisingly, turf was nearly the number one crop in every instance.

The newest book *Turfgrass Science,* published by the A.S.A., was on display for the first time at the Detroit meetings in 1969.

Last June the Joseph Valentine Turfgrass Research Center was dedicated as a memorial to the contributions made by this man who was the first golf course superintendent to receive the USGA Green Section Award. His name is linked with Merion bluegrass.

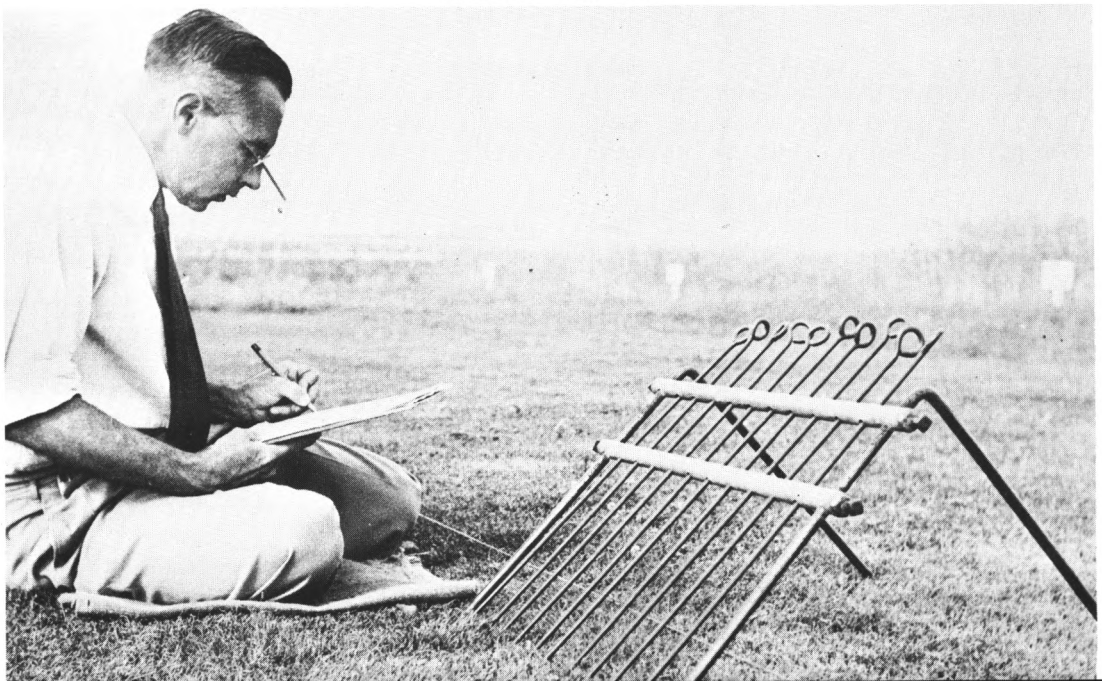
The past is prologue. That which has been accomplished to-date is only a beginning. We must learn from our own mistakes and the mistakes of others. We just do not have the time to make them all ourselves.

Leadership—The future of the entire turfgrass industry will rise or fall on our ability to develop leaders, without which all technical developments can only limp along to an imperfect conclusion—a future more and more devoted to artificial turf which requires only janitorial service.

Communications—Until all segments of the turfgrass industry learn how to communicate, we will lack the unity that we need so desperately. More taxpayers are concerned with better turf than with any other agricultural enterprise.

Tax Support—Turfgrass is not a money crop such as corn, wheat, soybeans, rice, and others, and yet it is nearly equal in value to the

Turfgrass quality used to be measured with the Point Quadrat. Here tabulating results is the late Professor H.B. Musser.



Twenty years ago we had only this version of plugging vegetative grasses (Zoysia here). Now there are improved planting machines that can plant 18 fairways in a matter of days using sprigs of superior grasses.

highest farm income in Pennsylvania (Turfgrass Survey 1966). Turfgrass is far behind in tax benefits, and it owes a large part of its progress to private funds. Through a unified voice we can increase our tax benefits.

Turfgrass Surveys—More authentic statewide surveys are needed to establish our position in the national economy. Without facts and figures we have little to talk about.

Measurements—The metric system is inevitable. We have been tardy in accepting it. Inches, feet, yards, pecks, bushels, miles, and all other English measurements are awkward when compared to the convenient decimal system based on tens, as our monetary system. The next generation will wonder why we struggled so long with an archaic, mixed-up system.

Specifications—Many who prepare them know not what they are doing. Many who interpret and apply them compound the felony. Those who manage the result often help to bring synthetic turf into greater prominence. Unified turfgrass interests must concentrate on this aspect of the industry to provide the guidelines that are so essential to success. Why leave an expensive installation to the whims of a caretaker who easily can be swayed by a convincing salesman.

Pollution—One great problem is people—the very ones on whom we rely to play our golf courses, build houses and install lawns; whose children need schools, playgrounds, athletic fields, colleges and universities. Each year farmland loses more than a million acres to industry and urban living, equivalent to ½ to ¾ million acres of turf.

Information—Turfgrass users everywhere deserve a source of reliable, unbiased information on every phase of management. These sources now are stratified and fragmented. Communications are vital to the objective of everyone telling the same story. It is disconcerting to receive one recommendation from a supplier, another from the extension specialist, and a third from yet another source. Mutual exchange of information will help to eliminate this problem.

Sod—As the sod industry matures, we can anticipate having available to us elite sod of the best varieties ready for rapid installation. More efficient methods in the fields have stabilized sod prices at an acceptable level.

Soil Testing—Each year we see refinements that increase accuracy that is hard to believe. It isn't too far out to visualize a soil sample being dropped into a hopper at one end of a system, with a computer print-out at the far end specifying the exact fertilizer/lime program that is needed.

Irrigation—Automation is the trend, along with improvements in equipment and controls. The rub will come when water supplies become inadequate. We will learn how to use sewage effluent water on our turfgrass areas. We will learn how to conserve water and how to grow quality turf with minimum water. Excessive use of water has been a major factor contributing to turfgrass troubles.

Grasses—Merion Kentucky bluegrass 20 years ago started the trend toward improved varieties. Each new variety must have characteristics that render it undeniably superior in one or more factors to those that preceeded it. We

need more disease and insect resistance, more drought tolerance, better color under stress, increased wear resistance. We need varieties that can recover from management mistakes and from long, dry periods.

Mowing—Methods of cutting grass have not changed very much in the last 50 years. We have bigger mowers and different designs, but the grass blade is pinched off or flailed off with more or less physical damage where diseases may enter. Ultrasonics or laser beams one day might keep grass at a playable height with no damage to the blades and with the potential of a high degree of control of diseases, weeds and insects. The possibility exists of treating turf with improved growth regulators to reduce mowing costs. This has been accomplished in the horticulture industry.

Year-round Green—We've had subterranean electric heat demonstrated and it has a future. Infra-red heat may have a place, particularly in open stadiums. In closed arenas where light is the limiting factor, we admit that synthetic turf has its place. With scientifically-prepared soil, excellent drainage and intelligent management of selected grasses, natural turf can be produced at a fraction of the cost of artificial, and it will have the natural feel.

The Environment—Evidence is mounting that grass, shrubs and trees have a highly beneficial effect on pollution prevention. A natural grass turf is one of the most effective filters known to science. Air-borne toxins are absorbed and nullified; oxygen is released as carbon compounds are absorbed. Turf reduces erosion, gives a lift to the spirit. As pollution increases, we need to keep pace with turf, shrubs and trees.

The future promises only an increasing need for better turf. As we plant and grow hardy grasses that need no chemical pesticides, we can begin to harvest the grass that we tend and convert it to feed and food. The chlorophyll, the fat, the protein and the fiber in grass has sustained life on earth since Biblical times. Now our turfgrass areas might come into a new concept of usefulness.

"Nothing great ever was accomplished without enthusiasm" someone once said. I would add that courage and imagination also are cardinal virtues. Our place in the turfgrass industry is being challenged every day, but we've come a long way, baby!

Your Budget—Fact or Fiction

by WILLIAM BRYANT, President, California Country Club, Whittier, Calif.

What is a budget?

It is an estimate of itemized expenses of operation for a given future period. It is a plan of operation based on such an estimate and an itemized allotment of funds for a given period. The budget for your golf course is an important function. Did you know there was in excess of $375 million spent last year, not to mention the cost of water, repair and equipment purchases, on the 10,000 golf courses in the United States? This represents an investment in a business that must be carefully planned. No one can afford not to have some guide lines or not to plan the direction in which he must successfully operate. You must have a planned program to know what to buy, when to buy, how to buy, and what it costs.

The following are three different basic Golf Course Operations:

1. Private club golf courses are basically interested in a well-conditioned golf course. Their maintenance budget while important, is secondary to high quality maintenance. Those clubs that are non-profit adjust their monthly dues, guest fees and other sources of revenue to meet their budget. Naturally, in addition to the normal maintenance costs, funds must be developed and set aside for capital improvements, such as major golf course construction, new greens, new sprinkler systems, new tree plantings, etc., as well as for emergencies, such as storm damage.

2. Budgets for privately owned public or semi-private club golf courses and resort courses are prepared with other considerations in mind. The quality of the golf course must be good, or at least acceptable. These golf courses must not only pay for maintenance, operation, taxes, but also make a reasonable profit in order to exist.

These golf courses must invariably operate on a "tight" program which includes minimum manpower, maximum efficiency of staff, new automation where possible, such as automatic sprinkler system, and more mechanized equipment, including scooters for the men. Usually,

sufficient fertilizer for greens and tees, fairways, and rough is closely scrutinized from a cost standpoint. The golf course superintendent is likely to be a hard-working, no-nonsense labor-pusher type rather than a turf expert. In most cases outside consultants are called when unusual turf problems develop.

3. The municipal golf course budget is based on yet a different set of criteria. The golf course maintenance budget is set on a predetermined basis by the city or county with advice from their golf course superintendent, park supervisors and department analysts. This money is allotted from the city (or county) general fund. Major construction or repairs for damage caused by unusual climatic conditions must have additional funds requested and allotted for these specific major expenditures.

The basic maintenance budget should be prepared for the predictable maintenance costs. Additions can be made for proposed new sprinkler systems, new greens, new tees, new lakes and new tree plantings, if the golf course is instituting a large scale improvement program. These items, while part of the total budget, are considered capital outlay items and are provided by additional funding and not taken from the maintenance program.

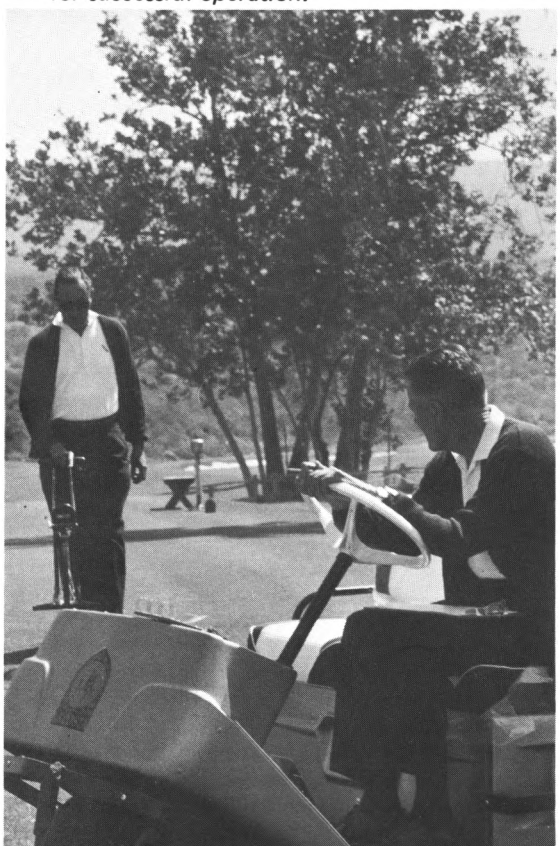
Attempting to siphon major project costs out of the average basic maintenance budget is a very nearsighted method of financing. It always results in more costs to the golf course. An example is the restoration of the golf course turf after being allowed to deteriorate. This is always in excess of any savings by reduced maintenance.

Many courses without a budget find their barns full of unused fertilizers, chemicals, seed etc., at the end of the year. The main purpose of a budget is to get what you need and not what you want. A budget is fine if a superintendent knows how much it costs for the materials he uses and has the knowledge of how to use it. Many millions of dollars are lost each year by superintendents who immediately after getting a budget approved, order enough materials and supplies to last a whole year. A careful study of a maintenance plan and what improvements will be done is necessary to adjust your spending. This is also quite necessary when allotted money is budgeted over the year. A budget should be analyzed at least every two months. Conditions may vary because of weather, usage, new technologies, and other factors. With a fixed amount of money to work with, it may be necessary to delay some planned project for another year to take care of an immediate problem that has arisen.

At the California Country Club, several years ago we had so much rain we were almost washed out. Some courses were. The real damage to us did not occur at that time, however. On checking the course one morning, I found some fairways that appeared to have been over-irrigated. My superintendent told me that these particular fairways had not been watered for two weeks. Naturally, I was quite alarmed. Upon checking into the problem, I found that the water table had risen so high that old natural springs had revived, thus flooding the fairways. On further checking, I was told the crest of the water under the surface would rise for the next 6 weeks before beginning to recede. I could see not only loss of play, but loss of grass on the fairways and damage to the trees. I called in some drainage experts, and they advised drilling wells and pumping the underground water away. This sounds easy but it was quite difficult and very expensive. If you are working on a tight budget an occurrence like this will make you revise your schedule considerably.

I'm really not talking about the operating budget. I'm talking about the philosophy of budgeting. You must take into consideration the new methods of operation that are continually arising. An example of this could be the automatic irrigation system, the use of triplex mowers for the greens, and other new equipment. This is the evolution of new technology, all of which results in saving of salaries.

William Bryant, (standing) President of the California Country Club, Whittier, California, believes no club can afford to be without guide lines and a planned program for successful operation.



I have compared figures for the past five years concerning the number of man-hours expended at California Country Club. Using newer methods of maintenance and equipment, we have saved 3,400 hours per year. This really does not reflect the true saving since golfers' demands are more critical now than they were five years ago. This results in more demands on labor. I estimate we have saved an additional 3,000 man hours over the 3,400 last year. Probably a total of 6,400 hours.

Most large organizations budget on a six-year period, and each year it is revised on the basis of the previous year. This must be done in order to be up-to-date. In addition, there is another major factor concerning the budgets of most large organizations. The budget is not prepared by top management or the Board of Directors but by the operating head of each department. However, top management is responsible to see that a superintendent or department head presents a realistic budget, one that is not too high nor too low. One must be careful and take a realistic look at the overall program. It is all to a superintendent's credit if, through good management and efficiency, he saves money and cuts under the operating budget. It does not mean the budget was too high in the first place. On the other hand, it is management's responsibility to see that a superintendent has a sufficient budget to do the job.

The responsibility of management is to approve a realistic approach to what it wants to accomplish. If management does not want a course maintained to the utmost, if it is satisfied with less than perfection, then perhaps a sub-budget is all that is necessary. If the board expects more than what it provides for in the budget, then it must accept the blame if the higher level of services is not achieved. It is management's or the board's responsibility to determine the level of service to be provided the membership. Once the level of service is established, then the department head should be provided with a sufficient budget. If the department head can do it more economically, that's fine. If it costs more, then all other factors must be considered.

Basically, the board of directors will approve what the membership desires. The final budget must come from the governing body. Without its approval and commitment there will be no budget.

The budget is only a working scheme that is developed for planning purposes. It is a road map from where you are to where you want to be at a later date. Following the map with its detours, unpaved roads, and freeways is the problem the superintendent must solve.

Misfit Items in a Maintenance Budget

by G. DUANE ORULLIAN, Western Agronomist, USGA Green Section

Every budget contains items that could be called misfits, or out of place. Whether an item can be termed misfit or not, however, depends on how the budget is planned, how specific areas are categorized and how certain items are defined. For example, the area of "outside repairs" could be easily placed under the heading "miscellaneous purchases" and thereby not clearly define the service to be rendered.

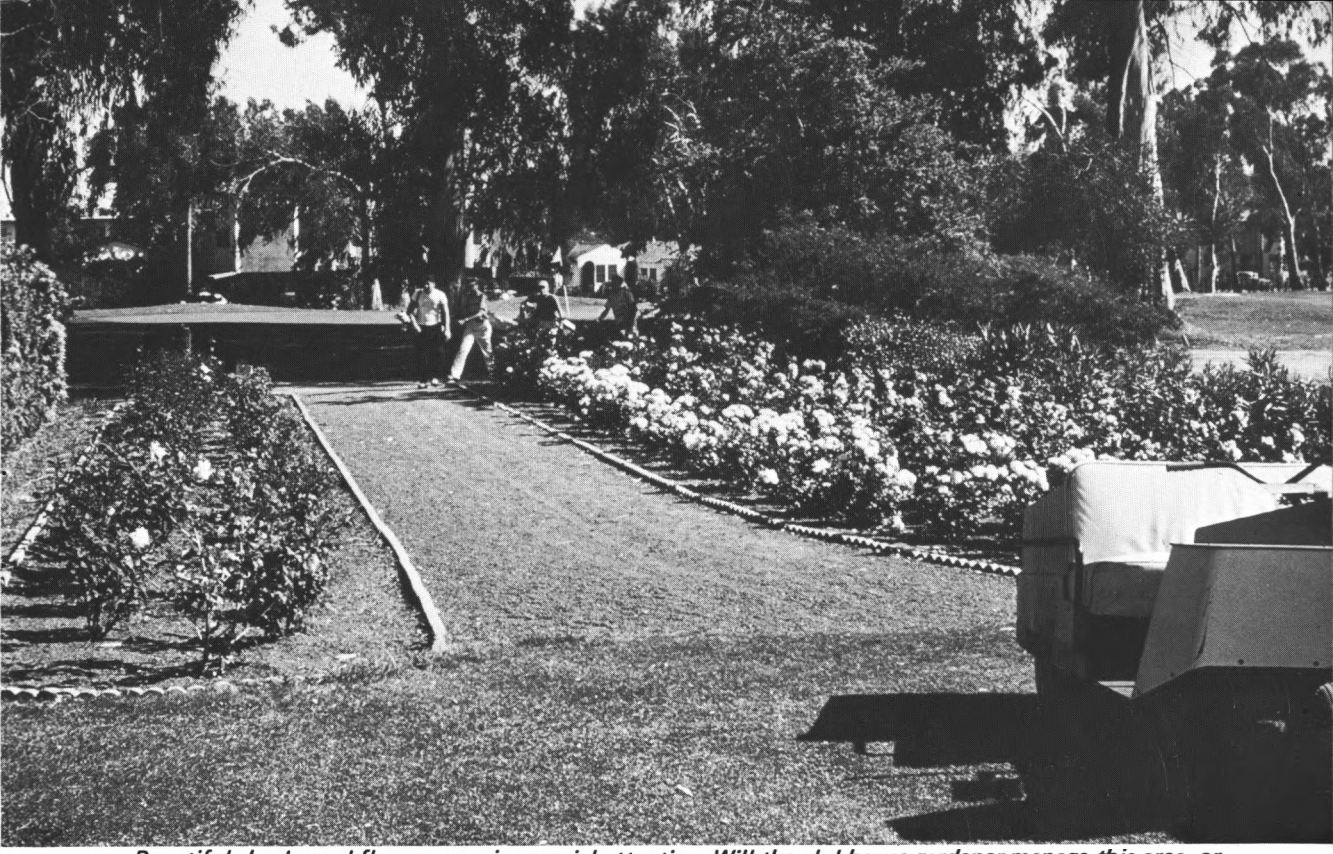
In this way, an item that should normally not be out of place may become so by virtue of the definition that is given to it. There is a parallel to this in agronomy. We are constantly fighting weeds to improve turf conditions on our courses today. Simply stated, a weed is just a plant that is out of place in relation to its use or environment.

Since budgets should be tailored to fit the needs of the individual golf course, each item of the budget must be carefully categorized and assigned its proper identity. This does not mean, however, that a budget category must be allowed for each minute item, but it does mean that budgets should not become so generalized as to have the "miscellaneous purchase" category dominating a large portion of each annual budget. Careful analysis in budget planning will lend greater credibility and accuracy to the budget and give a more accurate picture of expenses.

Obviously, misfit items will vary not only with the individual course budget, but also from year to year as needs and maintenance practices vary. With this in mind then, let us explore certain items that might become out of place in the maintenance budget.

1. MAINTENANCE OF GROUNDS AROUND A CLUBHOUSE

   If the superintendent is not responsible for



Beautiful shrubs and flowers require special attention. Will the clubhouse gardener manage this area, or an extra man from the golf course maintenance crew?

upkeep and maintenance of this area, should it be included as part of his budget? In this case, might the budget not be more accurate to include "gardeners" as part of clubhouse personnel? On the other hand, if the superintendent is responsible, one or two additional men will be needed on the grounds crew and the golf course superintendent then also becomes grounds superintendent.

A. **Swimming Pool**— This area requires constant attention and is generally the responsibility of those who maintain the clubhouse area. If the Grounds Superintendent handles it, it should be a separate item and not a part of "golf course maintenance."

B. **Tennis Courts**— This area is similar to swimming pools as far as maintenance and upkeep. Weed control around the outside perimeters may be necessary on occasion in addition to maintaining the nets, fences and general playing conditions of the surface. The area really has nothing to do with turf maintenance on the golf course and should be included as a separate budget item.

C. **Bowling Green**— Turf needs of a bowling green have specialized maintenance requirements and should logically be a part of the grounds maintenance budget. Again, however, they should be excluded from the golf course maintenance budget.

D. **Parking Lot Maintenance**— In northern areas asphalt damage in winter can be expensive, and who will be responsible for making repairs? Parking strips may need painting, and weeds may need attention next to curbs and near chains or fences. This is where the golfer first meets the course, and it is a high maintenance item that may end up as "miscellaneous expenses" in the grounds budget.

E. **Special Projects**— All golf courses are occasionally faced with special projects requiring extra labor and expense. The clubhouse needs painting; a sewer line breaks; the air conditioning unit needs service. If there is a cost advantage in using the golf course maintenance crew in this work, all the better. However, these misfit items should be charged appropriately—not to golf course maintenance.

2. DUAL SALARY ROLES

A. **The Club Marshal**— Many golf clubs

today include this category in the golf course maintenance budget because the marshal may frequently help the superintendent in certain areas of turf maintenance. For example, the marshal may have the task of daily placement of tee markers, checking ball washers and occasionally even helping in rodent control by placing traps or using poison bait when out on the course. Will his salary come from the golf course budget entirely, partly, or will it be listed as Grounds Maintenance?

B. **The Starter**— Should the starter's salary really be a part of the golf course maintenance budget, the golf shop or the clubhouse? Perhaps all three. He's a hard one to place in a category.

3. THE PRO-SUPERINTENDENT OPERATION

This generally occurs on smaller golf courses where budgetary requirements for both the grounds and the clubhouse are lumped together. In such cases, specific items that might be included in the grounds budget may end up in a general category and lose their identity. For example, repair of a heater in the clubhouse may also be included as part of the equipment maintenance budget. This will cause distortion in the true cost items required for turf maintenance equipment.

4. REPAIR AND MAINTENANCE OF SPECIAL EQUIPMENT

With the advent of the electric cart, a new era has come to golf course budgets. Generally, this is included as part of the golf shop or clubhouse operation, but frequently the superintendent, the golf course mechanic, his tools, and the shop area becomes involved with some phase of cart maintenance. When this occurs, it should not be reflected as a part of the turf maintenance (i.e., golf course maintenance) budget.

On the other hand, golf carts do add to the cost of turf maintenance. Some feel at least a portion of their income should go toward the golf course maintenance budget.

5. SPECIAL PURCHASES

Special purchases might include items used around both the clubhouse and the maintenance facility. Uniforms, office supplies, lockers, furniture, etc. are sometimes hard to place in the budget.

6. UNFORSEEN EXPENSES

A. **Rental or Leasing of Equipment**— Occasionally, circumstances require a certain item of equipment to be rented or leased for a short period of time. For example, a severe storm or flood may call for tree removal or unplugging of drains in the clubhouse area and on the course. Properly placing the rental charges in the budget is important if it is to be meaningful.

B. **Vandalism**— It is nearly impossible to make allowances for vandalism. Is the golf course maintenance budget responsible for windows broken in the men's locker room? Suppose someone burns down a shelter on the golf course; was this item originally included in the maintenance budget or was it a clubhouse item? Damage to turf, equipment and grounds on the golf course is clearly discernable, however, overlapping items are again another matter.

Ideally, the best method to eliminate misfit items is to avoid overlapping situations. While misfit items in a grounds budget happen sometimes by mistake and sometimes by definition, they distort the budget. By being realistic, well organized, and taking the time to properly consider the needs, an effective budget for every department can be formulated. It should be the goal of every golf course operation!

Use of electric carts will increase the wear and tear on turf. A portion of the profits from cart rental fees should be channeled for turf maintenance.

Honestly, Can One Budget Be Compared With Another?

by **WILLIAM H. BENGEYFIELD,** Western Director, USGA Green Section

Can the budget of one club really be compared with the budget of another?

The answer matters very little, because the plain truth is that budgets and golf courses *will* be compared. Man, especially in economic matters, must be logical. He must standardize; make a formula; figure the percentages. He must always compare. This is his nature.

How often have you heard something like this:

> "Sleepy Links Golf Club only spends $40,000 a year, has a crew of 4 men and the course is in good condition! Why do we have to spend so much money?"

The speaker is obviously not a member of Sleepy Links. He has only skimmed the surface. He doesn't know all the facts, and maybe he doesn't want to know them. But in all fairness, he should stop and ask himself:

1. How may rounds are played at Sleepy Links each year?
2. How often are the greens, fairways, and tees mowed?
3. Is the course closed for maintenance one day a week?
4. Does the maintenance crew stop work as members play through or does it continue to work?

And so on. Comparing two budgets or two golf courses is like comparing two of anything else. They may appear similar at the outset, but the more you know about them, the less similar they become.

Golf courses cannot be standardized. They do not fit any formula. Their value, beauty and enjoyment depends on their individuality. The variation in size of tees and greens; the length of the course; the types and location of trees; the size, outline and number of bunkers, the topography—these are the wonderful differences. This is their nature.

Can categories be standardized? I wonder what is meant by "categories"? If it means can we develop a standard method of record-keeping and place particular jobs in certain categories, then the answer is probably "yes." However, if it means allocating a fixed percentage of our budget for each category—and thereby permit comparison in dollars of one course budget with another, then I must answer an emphatic NO! There are just too many variables. The personality of an individual golf course, its membership and staff are all involved, and no one can standardize personalities. One can't compare a $10,000 fertilizer item at one course with $2,000 for the same item at another.

To digress for just a moment, I think we do ourselves and our profession an injustice by constantly referring to the rising cost of golf course maintenance. Of course it's rising—and so is everything else! Ours is not the only rising curve in golf course operations. Inflation eats at all of us, but we grass growers didn't invent inflation, nor did we start it. In fact, because of improved methods, equipment, and materials, the golf course maintenance operation is far more efficient today then it has ever been. We are doing a better job than 20 years ago, and usually with less labor. Compare this with other phases of club operation.

If it is the nature of man to compare, and if it is the nature of the golf course to defy comparison, have we then reached an impasse? Not, I think, if we wish otherwise. Golf is only enjoyed to the fullest when the course provides the best possible playing conditions and pleasant surroundings. Emphasis of these points in relation to the money being spent is therefore important and the main point. In fact, it is the *only* point. It's not what one spends, it's what one receives for it that counts.

Your budget is the fact. Comparing it with others is the fiction!

Tomorrow Is the Day You Should Have Planned Yesterday

by J.R. WATSON, Director Distributor Relations, Toro Manufacturing Corporation

That title has a very clear message. It means that you can't start too soon to plan for the future. The future doesn't creep up; it's rushing to meet you. Therefore, if you want to be prepared, begin work on that long-range plan now.

If the past is any guide, one of your major concerns will be how to obtain the equipment needed to maintain the golf course properly. Certainly one necessary technique is proper budgeting. To budget properly for new equipment, the turfgrass manager must first gather pertinent data. He must know what funds are or will be available, the current and contemplated labor force, what the pay scales are now, and what they are likely to be in one, two or three years. Is it possible that his facility may be expanded or redesigned? Such information will, of course, have a profound effect upon labor and equipment needs.

Finally, the turfgrass manager should be aware of what new equipment is available, what it will do (and even more importantly, what it won't do), what is its life-span and a host of other considerations.

This data is valuable in reaching the decision on what and when to buy. Once that point is reached, you are launched on long-range budgeting.

A budget is simply a plan—a plan that allocates and commits funds to support current or future action. To be an effective management tool, a budget must be based upon accurate records.

Let me digress a moment to stress this point. Clear, concise operating records are so important to planning. They are your point of departure, your measuring stick, your guide to future decisions. They are the key to good management. Without them, you're no more a manager than a fellow who plays piano by ear is a serious concert artist.

Budgets may be developed for any purpose. Those concerned with equipment purchase should be designated as "capital." Those concerned with equipment repair and maintenance should be designated as "operating."

Capital budgets are concerned with planning for expenditures that will return a benefit beyond a one-year period. Expenditures for use within a one-year period are classed as operating expenses and so budgeted. The

Because of the hydraulic controls, this fairway mowing unit has greater efficiency and is superior to gang mowers pulled by a jeep or tractor. It will cut a swath 18½ feet wide.

designation as capital for items with life of more than one year agrees with generally accepted accounting principles and, further, is a requirement of the Internal Revenue Service for taxing purposes.

Most of the equipment purchased for maintenance of turfgrass has a useful life of several years—in most cases, well beyond a one-year period. For this reason, capital budgeting for equipment becomes one of the key elements in strategic financial management. The commitment of current and future assets for a period of five to seven years for certain pieces of mowing equipment, and for 20 to 25 years, perhaps longer, in the case of an underground irrigation system, places a high degree of responsibility on the turf manager. The funds committed for these purchases are tied up and become unavailable except as they are returned through the depreciation allowance and the savings or benefits they generate. Without adequate plans and records, a sound judgment for the commitment of funds cannot be made. For those turf facilities with limited funds, the proper use of capital could mean the difference between success or failure.

Plans for the capital budget must of necessity be based upon adequate equipment and an efficient operation. And since adequate equipment is essential for efficient golf course operations, its selection, procurement and use must be based upon a planned and organized approach with proper supervision. Only through such an approach will it be possible to meet the ever-increasing demands for improved maintenance standards on our turfgrass facilities. This problem is particularly pertinent in view of the rising labor costs. Operations must be keyed to the use of equipment which will produce a greater number of work units per man-hour of operation. Great strides have been made in this direction during the past two decades, but still greater strides must be made if player and spectator demands are to be met.

Planning for adequate equipment—budgeting for new equipment—requires the development and execution of programs built around equipment presently available, not for equipment expected to become available at some future date.

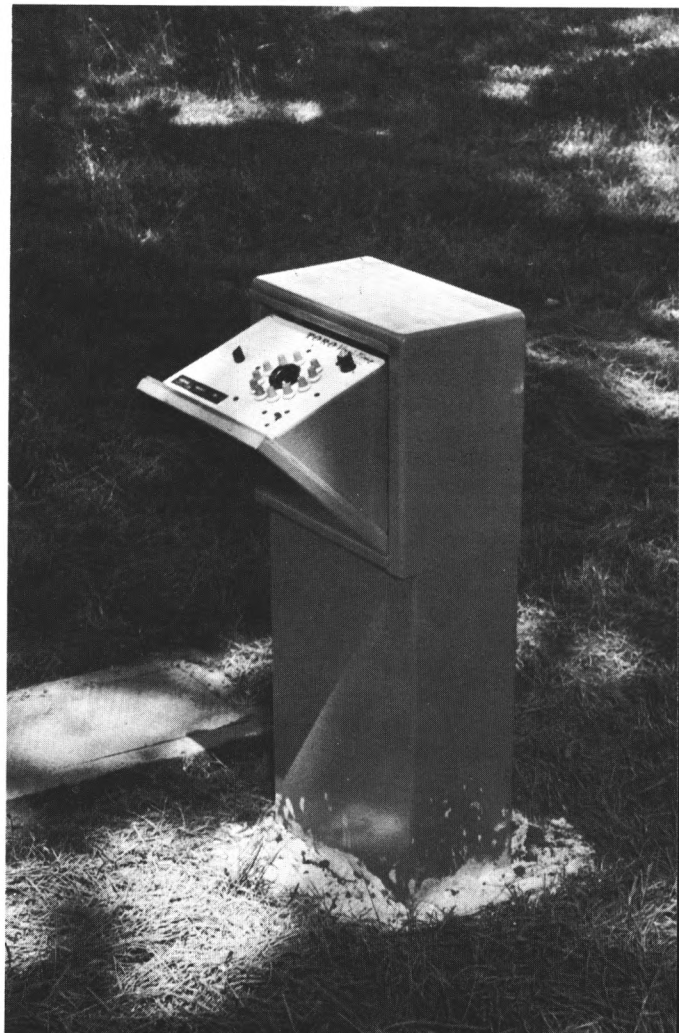
The club membership is responsible for overall programming of operational standards. They must decide the type of course and level of maintenance required for their particular needs. These expressions are made through their appointed representatives—the Green Committee. Based on the authorized expenditures, the committee, in cooperation with the Golf Course Superintendent, prepares and submits a long-range and an immediate plan of operation. If approved, the Superintendent executes the program under the general supervision of the Green Chairman.

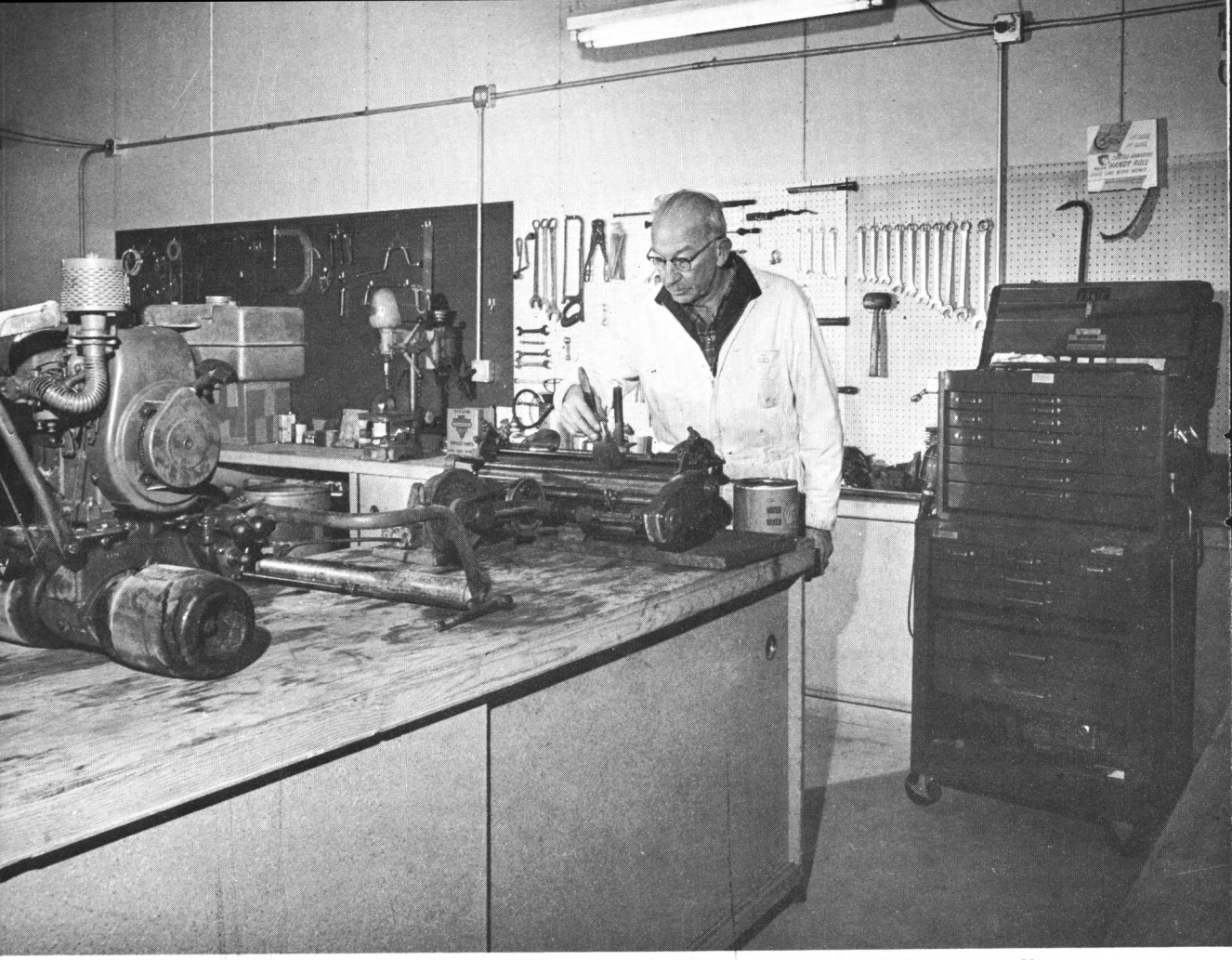
Planning for adequate equipment, then, is indirectly the responsibility of the membership, but actually it is the direct responsibility of the Superintendent acting within the confines of an operational program, planned and developed in cooperation with the Green Committee and approved by the membership through their representatives (Board of Directors).

Participation of the Golf Course Superintendent in local, regional and national educational conferences, particularly the National Show and Conference, is invaluable from the standpoint of keeping abreast of developments in golf course operations and the availability of new equipment.

When planning for new equipment the Superintendent should carefully examine the capacity, the maneuverability, the sturdiness and durability of equipment—and in the case of certain mowing units, their trimability. Also, a study of the maintenance records on each piece of similar equipment presently owned and operated, to determine annual service and

Pedestal mount controller for an underground irrigation sprinkling system.





A clean, well-organized workshop provides good working conditions and improves efficiency.

repair costs, will provide a basis for projecting life expectancy. The reliable manufacturer and his authorized representative will be of great assistance in this respect. In addition, some organizations have developed a simple form for recording, by machine and operator, such items as hours operated, gas and oil consumption, down hours, service required, replacement parts, and labor costs.

At the end of the cutting season, your records will show the number of hours the equipment has been operated, plus the cost of maintenance. This information is invaluable for determining the proper type of unit to use in a given area, the most economical brand of equipment, the good as well as the undesirable equipment operators, and methods for improving maintenance practices. Also, records are almost a necessity to properly determine the most economical time to trade in old equipment. They are also the best tool for selling a board of directors on your new equipment needs.

Many golf courses were designed and constructed during an era when labor costs were negligible and mechanization of little importance, thereby creating many time-consuming operations requiring the use of low capacity and often costly equipment. Landscaping may not have been planned, but grew haphazardly over the years with little thought to the maintenance demands being created (often in accordance with the whims and fancies of some particular member). Shrubs and trees requiring specialized care in spraying, trimming, and pruning, and often located in such a manner as to interfere with large capacity mowing equipment, thus requiring additional time-consuming operations to maintain surrounding turfgrass, do not contribute to efficient operation. The turf manager has a responsibility to point out these deficiencies and to develop a long-range program of redesign in keeping with modern trends. This would include landscaping to eliminate problem trees and shrubs and substitution of more hardy species requiring

minimum maintenance and located to accommodate equipment with greater capacity. The construction of greens and trees employing the latest materials and techniques developed through research will unquestionably contribute to efficiency. Such a program may require several years for completion, but with competent direction, supervision and adequate equipment may be accomplished through careful budgeting for new and replacement equipment.

It must be recognized that adequate equipment for one turf facility may be inadequate for another and excessive for a third. Therefore, equipment must be selected on the basis of the individual requipments for the particular facility.

A common reason for shortened life span and high maintenance costs is the use of a machine for the wrong job. When choosing equipment:

1. Consider the terrain to be cut. Is it wooded, rough cutting, hilly or more formal? Decide if a reel or rotary type machine is to be purchased, based on course conditions.
2. Consider the size of the area and buy the largest machine that is practical. The job gets done faster—with less man hours. Figures are available regarding capacity. If the machine is to be used for trimming and demands on the mower are not too heavy, a small, light-duty machine can be used. However, maintenance costs on this type of equipment are inevitably higher.
3. Look for simplicity of design. A complicated machine has many moving parts and may have a high maintenance cost. Also, it may be difficult to adjust, and a trained expert may have to be used for repair.
4. Check for construction and durability. The machine should be substantially built, well-braced, with good bearings. The sideframes, handles or drawbars should be heavy enough to do the job. The bed bars, reels, and blades should be rigidly constructed.

Variations in terrain on which the machine is used, the type of lubrication it receives, the correctness of repair, the treatment by the operator, storage, accuracy of records, all have an influence on cost per-machine-per-year and useful life-span. However, to get the lowest possible machinery operating costs under the conditions of your course—buy quality equipment, buy the right machine for the right job, operate and maintain it properly, and keep adequate records.

Other matters to consider when developing the budget for new equipment should include:

(1) Consultation with the manufacturer or his representative regarding the type of equipment needed. Information on new equipment and improved features, as well as the suitability of their equipment for the job at hand, is readily available from the reliable manufacturer.

(2) The availability of parts and service facilities. This is of prime importance when selecting equipment. If repair parts are not available when needed, and a machine is inoperable for extended periods, it is of questionable value and certainly will contribute little to efficient operation.

(3) Develop or estimate a reasonable or probable life, and, based on current replacement costs, allow for the proper amount of depreciation per year. Then, request or provide a yearly sinking fund for the orderly replacement of the equipment when it becomes economically feasible or when new and improved equipment becomes available.

(4) Prepare supporting statements for capital budgets. List each piece of equipment separately and state concisely why it is needed and the benefits to be derived from its use.

(5) When possible, invite those responsible for approving your selection of equipment to join you at local turf equipment field days or national shows.

Capital budgeting has significant long-range implications and may have a major impact on the economic well-being of a turfgrass facility. When dependable estimates and reliable projections indicate the desirability of the investment and funds are not available, or if the large commitment would jeopardize the financial structure of the organization, then a leasing program should be considered. Most major manufacturers offer practical leasing arrangements or programs to qualified organizations. The major advantage of the lease-buy program is to reduce or eliminate the requirement for an immediate capital expenditure. Instead, the equipment purchase is programmed into the operating budget and handled on an annual basis. Also, there may be a tax advantage. Such a program is particularly suitable for new turf and recreational facilities and for those desiring to expand their current operation. For that matter, it is suitable for any organization concerned with new equipment purchases.

Lease or buy—that answer and the answer to many other questions that plague a golf course superintendent are to be found in sound management. And that in turn is based on good planning, good budgeting, and good record-keeping. Take care of those chores and tomorrow will hold no unpleasant surprises.

What a Club Expects of Its Superintendent

by **ALLEN E. GROGAN,** Green Committee Chairman, Baltusrol Golf Club, Springfield, N.J.

The golf course superintendent is the most important person on the staff of a golf club. He is in charge of the only asset we have to sell—the golf course. His relationship with the club is a most important one, and in many cases not a happy one.

What does a club expect from its Superintendent? In some cases, miracles. But realistically, the answer is to do the best job possible with what is available. There is no absolute measure of performance. Conditions vary too much from club to club and many factors determine how much a superintendent can do. Among the controlling factors are:

1. Climate.
2. Location.
   a. Soil condition.
   b. Water supply.
3. Club finances.
4. Labor supply and quality.
5. Member demands for other services.
   a. Pool.
   b. Tennis courts, etc.
6. Unreasonable demands for course condition.
7. Personalities.
   a. Is green committee chairman effective?
   b. Has superintendent been able to establish rapport with the chairman, club Officers, and board?

Each club has its own personality and requires a superintendent who can answer its demands. A well qualified individual may be unsatisfactory at one club, but may do an outstanding job at another club. In many cases, the club has made the job of the superintendent much more difficult than it need be. At times, every club will become interested in another superintendent, and every superintendent has occasionally wished he was working at some other club. I think each of us should look at our superintendent and the job he is doing. We should ask ourselves a question—Is he doing his job well? No matter what your answer, try to figure out the reason for it.

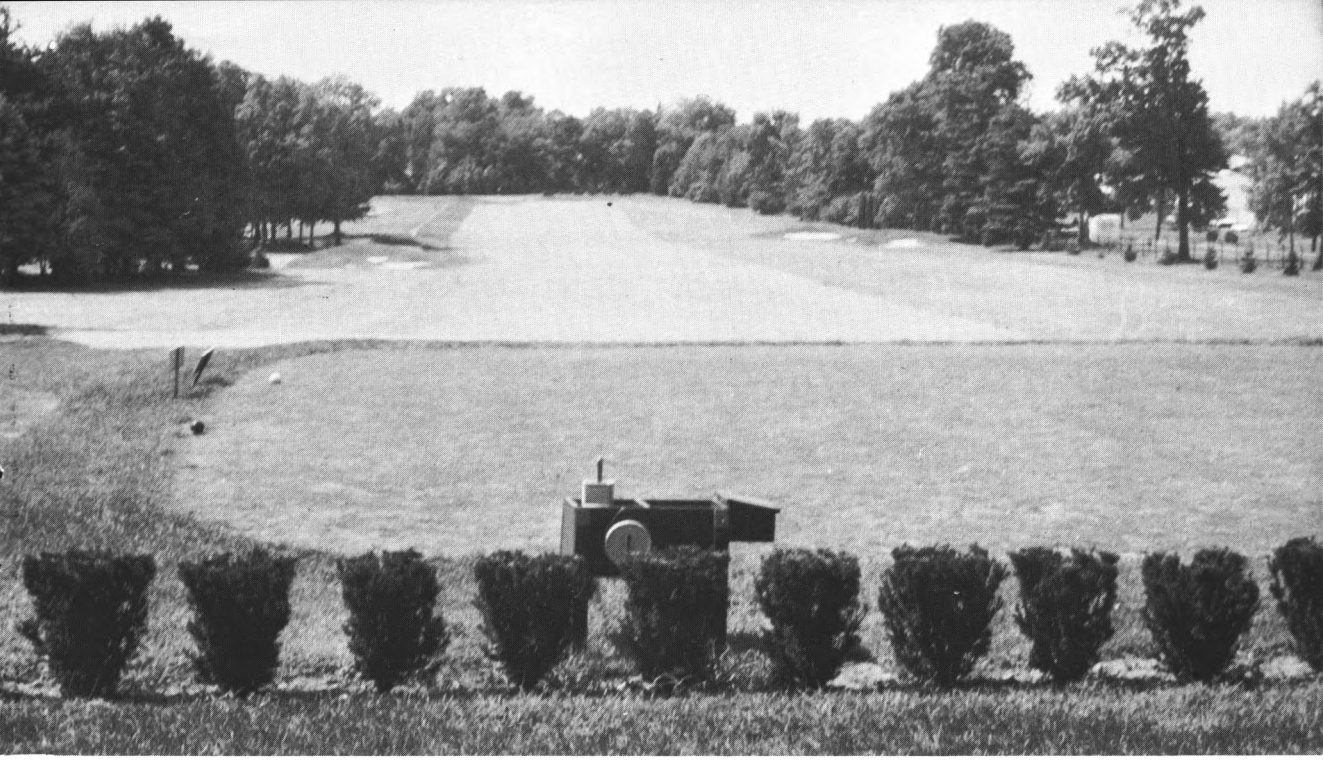
If you, as Green Chairman, are unhappy with your present superintendent, it may still be better to work with him, since he knows the club and the course, rather than to try to make a change. Again, the reasons behind his apparent failure may be a club failure, and no superintendent could do the job expected of him under present conditions. To help with this analysis, let me comment on some things we should expect from a superintendent.

The green chairman is usually the primary rating authority of the superintendent. Before attempting an evaluation of a superintendent, I feel the green committee chairman must be fully qualified in his job. The chairman cannot be selected as part of a new broom campaign. He must be groomed, brought along, and prepared in green committee work, just as management is developed in business.

Many clubs change green committee chairmen every year or so. This is a problem for both the new chairman and the superintendent, and it can lead to many interesting solutions. Some chairmen step in and immediately tell the superintendent how to do his job—in detail. Others back off and let the superintendent do everything, hoping that all will go well during his term as chairman. Then he can either tell his friends, "how I ran the green committee the year the course was so good," or "the superintendent let me down," if things do not go well.

The best approach is for the chairman and the superintendent to work together very closely. Each must understand the other's problems. It is very important that they constantly communicate with one another about the job they are trying to do together. The chairman should—

1. Provide overall direction for the efforts of the green department.
2. Assist in long range planning.
3. Provide management information for the superintendent.
   a. Time scheduling and work planning.
   b. Labor policies.
   c. Work practices.
4. Shield superintendent from direct contact with members.
5. Provide liaison and communication between green department and members, club officers, and board.
6. Work with superintendent to give



This fairway has been prepared with the necessary equipment and with proper timing so that later results were gratifying.

members the course they want at a price they are willing to pay.

a. Find out what is really wanted.
b. Let members know what is being done and why.

7. I feel that the chairman should be a good golfer and a person who is interested in the whole golf course. A good golf course in not just fine turf. It requires overall management of the whole club property to make a great golf course.
8. It is a good idea to play golf with your superintendent. You get to know one another better. The superintendent may be amazed at how his course looks to the player. You never really see a course until you play it.

The superintendent should—

1. Listen to the comments and the suggestions of the chairman with an open mind and discuss these ideas with him. The chairman understands the desires of the members and they must be satisfied.
2. Run department in a sound business-like manner.
   a. Plan work well ahead and make each day's operation fit into the master plan.
   b. Constantly review actual costs as related to budget.
   c. Operate department to get maximum use of members' investment.
      (1) Use all possible labor saving equipment as much as possible. When equipment is purchased it must be used effectively or club officals will loose faith in your judgment.
      (2) Set up and follow schedule for—
         (a) Routine operations.
         (b) Maintenance of equipment.
         (c) Cleaning of shop area.
3. Work with chairman in developing a long-range plan for each hole of the course. This helps in that the long-range plan stays for future implementation even when the chairman changes.
4. Set up detailed operating and capital budget. What better way to sell a program than to show what it means to the club in money. All programs eventually come down to the budget.
5. Keep fully informed on the latest developments in the turf industry and advise your chairman of this information. He is just as interested in turf as you are. Your relationship must be one of easy two-way communication.

The budget is a very valuable tool in

planning for the next year's work. First, set-up a master plan for a five-year period covering every hole on the course. I suggest that you set up a loose leaf book with a page for each hole. Each page should have a scale drawing of the hole and then add comments regarding the work required for that hole. During the initial stages of annual planning, review your plan book and decide what to put on the coming year's work schedule.

I recommend a three-year capital budget, up-dated each year. With this set-up, capital requirements do not come as a shock to the board, and equipment purchases can be handled in an orderly fashion. This forces us to plan our operation more thoroughly than if we just live from year to year. Another advantage is that you always have the board and the club officers presold on your program. If things go well, you may be allowed to get something from next year's shopping list a year early.

The operating budget should be compared with those of the prior years and then projected a year into the future. Budget time is a good time for questioning. Look at each operation. Question each expense. Are we getting full value? I feel that the ground work on the budget and all other plans should be done by the superintendent. He should then review and finalize his program with the chairman.

The budget determines the whole program for the coming year, and it must be set up in detail. Only then can an intelligent analysis of the budget be made. The preparation on the budget must start with a realistic picture of what the members want and what the club can afford. The club officers and board must understand what can be done at different expense levels. The key is the close relationship of the chairman and the superintendent. When both understand one another's problems, much more can be accomplished. The chairman contributes his understanding of the members requirements and his knowledge of what will be approved by the officers and board. The superintendent contributes knowledge of costs and what can be done at each expense level. A good team reinforces one another and produces a stronger program.

A good record comprised of well thought-out, detailed budgets and final expense records provides a history that the superintendent and future chairman will find invaluable.

In his day-to-day operation, the superintendent must manage the assets he has to work with in the manner calculated to give the club maximum return on its investment. Some suggested practices are—

1. Set up staff for the most efficient operation possible.
    a. Constantly review jobs on the course.
    b. Are crews the right size?
    c. Do we have the right equipment?
    d. Use good labor practices.
2. A well-planned purchasing program—
    a. Avoid panic purchases.
    b. Compare purchase value on a routine basis.
3. Set up and follow through on equipment maintenance.
    a. Make sure work is done as planned.
    b. Keep shop neat to facilitate work and improve employee morale.
4. Take time every day to look at your course and appraise its condition.
    a. Put your comments on paper and review them with the chairman. This helps him in his job of liaison with the board and club officers.
    b. It is hard to rate yourself objectively. Confer with your chairman, the USGA Green Section, and others for constructive comments.

The superintendent is in the business of managing the golf course, not just its turf. This is a very challenging job and requires constant updating of his supply of knowledge. We continually learn more about our jobs as we go along. Most superintendents seek knowledge from every available source—USGA, State and Federal Agencies, personal contact, colleges and other sources. The superintendent must constantly review why things are being done in their present manner. Labor practices, equipment, and maintenance policies should constantly be studied to see if there is any room for improvement.

Baltusrol, where we have two outstanding golf courses, has not been without its share of turf management problems. We were host to the 1967 United States Open. Conditions were excellent. Two weeks later our courses were in very poor condition. Our problems stemmed from a number of causes:

1. Heavy accumulation of thatch in our fairways.
2. Large areas of silver crabgrass.
3. In many cases *Poa annua* population of 80 percent in fairways.
4. An outmoded manual irrigation system.
5. Limited amounts of old and obsolete equipment.
6. Equipment maintenance was being done in an old house.
7. Tees were too small for increased volume of play.

To solve our problem we had to—

1. Build a new modern maintenance shop.
2. Equip our staff with modern labor saving equipment.
3. Install a modern automatic irrigation system.
4. Renovate fairways to remove thatch, goosegrass and *Poa.* We then established championship-quality bentgrass fairways.
5. Rebuild and enlarge our tees.

We had to accomplish these objectives within the financial limits of the club and still get the job done in an amount of time that the members would tolerate.

The planning started in 1967 and 1968. All our planning was finally reduced to capital and operating budgets. When we had studied the plan through, and the board had approved it, we called a meeting of the membership and sold our plan to them. As the work progressed, we made several interim reports to the members and complaints have been held to a minimum by our interest in member communication. The members understood our problems and what we were doing to solve them.

Test areas were renovated in 1968 and after results were observed the fairway program was continued in 1969 and completed in 1970.

A modern shop was built for the green department in 1969.

A multi-row automatic irrigation system was installed in the years 1969-70.

A tee improvement program is about half completed at present.

Our superintendent practically had to build two new golf courses in three years. The job was completed in a relatively short time and within budget. Our success was due to proper planning. ***Everything was put in writing.*** Costs were studied both on an operating and capital budget basis. Next time you have a proposal for your board, put in in writing first. We found many ideas change after they are down on paper and can be studied. Somehow, many ideas "sound" better than they "write."

Results are what count in this or any other business. As each year ends, ask yourself, "Have the members had a course in the condition they wanted? Did the year go so well that no one thought of the green department or were you mentioned many times in bitter, mumbled conversations at the bar? Did you stay within your budget or did you upset the club's fiscal apple cart?"

No matter what happened, study the year and try to learn from it. Look to the coming year and plan for it. Work on your master plan and implement the next phase. The chairman and the superintendent must work together to produce an effective overall course management program for the overall good of their club.

What Does a Superintendent Expect from the Club

by RICHARD C. BLAKE, Superintendent Mt. Pleasant Country Club, Boylston, Mass.

In today's constantly changing business world, a great deal of thought and effort goes into the selection and employment of a qualified and professional golf course superintendent.

During the last decade the demand has been for the college-educated, business-oriented man who has practical experience obtained by working under a qualified superintendent, usually at a well-known and well-groomed golf course. Generally, these men will have worked at several different golf courses and obtained all the practical knowledge possible. They realize the importance not only of technical knowledge, but also of the common sense approach to turf management. In short, they can do the job as well as know why it is done.

Most superintendents are dedicated, hard-working, dependable, and have spent considerable time learning and living their chosen profession. They enjoy their work, and when you enjoy your work, you are usually good at it. Unfortunately, emphasis has been given to learning the technical aspects of our profession at the expense of learning the business aspects and in dealing with eople, and it is in this area

where help is needed. Handling the problems of people is the most important function of the green committee chairman—to keep balance, to evaluate complaints. His responsibility is to communicate and to maintain liaison with the superintendent, the board of directors and the membership.

Do you realize that at many clubs a large percentage of the membership doesn't know the superintendent? They do not know what he is responsible for or what he does. They are unaware of what is required to give the member what he doesn't know he has or what he thinks he wants!

Is that confusing? In most business organizations, people have job descriptions; areas clearly defined as to responsibilities; and contracts. Usually when responsibilities are defined and written out, the employee at least knows where he stands.

Because most members are interested only in enjoying the golf course and getting away from their own problems, they employ professional people to operate their golf courses —the golf course superintendent, the golf professional and the clubhouse manager. These men are trained to provide service to golf club members. The success of most clubs starts when the three professionals work toward this common goal.

To be successful a golf course and club must be effectively and efficiently managed. The degree of management should be established and agreed upon by the board of directors or executive committee. This has to be done with the money available to provide services expected by the membership. What is expected by many is becoming more difficult to provide, simply because a business-like approach to management is lacking.

Player demands have increased each year. People have more free time to play golf and use other club facilities. They expect excellent conditions seven days a week. There are more golf tournaments of all types—member-guest, shotguns, you name it! The golfing season starts earlier and ends later.

You read everywhere about the high cost of golf. But hasn't inflation affected other forms of recreation and business as well? Managing a golf course requires capable leadership and men and women experienced in working with people. It requires those who can face up to problems and look at the overall picture, the short-term and the long-range problems as well.

Members who serve on committess should be hand-picked. They need not be low or high handicap golfers, but a cross section of the membership. They need not necessarily be the ones who complain the most, or the loudest. A factual approach is required—not an emotional one.

The green or ground committee chairman is one of the most important men at the club. He should ideally serve as chairman for five years, and the man who succeeds him should have at least three years' experience on the committee. In all, this means an eight-year tour of duty. Lack of continuity and lack of long-range planning both add to the high cost of golf. The committee should be in agreement on programs, and once initiated, plans should not be changed. They should, however, always be explained to the membership. If the chairman or superintendent needs outside help or wants to consult with others, call on experts. It all adds up to understanding what the members want and what the superintendent can give them within the budget. Wouldn't it be wonderful to have enough to do the job right just once?

How many superintendents believe they have an adequate budget? How many club officials think their superintendent is spending too much money?

The budget should be separated into specific categories so that you know your actual costs. Then when club officials compare budgets they will mean something. When comparing budgets, why not also compare those areas that influence and effect budgets: age of the golf course; acreage of greens, tees, fairways, roughs and overall acreage; wooded areas; contour of the area; soil conditions; grass types; and questions such as was the course properly constructed? can modern equipment be used efficiently or is a large amount of hand work required? how many playing members and how often do they play? how many golf cars? how are they used and are they controlled? do you have roads? How much damage results from improper use?

Player attitude toward the golf course is very important. Do members care? Do they practice golf etiquette? replace divots? repair ball marks? rake out their own foot prints in traps? take care of their own litter? Do they respect the rules of the club? Player demands and player attitudes contribute directly to the high cost of golf.

Budgets must be adequate to provide the facilities and services demanded by the membership. Budgets must be flexible enough so that the unexpected problem or condition doesn't cause a major panic. Construction and major course improvements should be separate budget items, as they usually represent capital improvements. Capital improvements need to be planned well in advance and performed

when possible by outside contractors during the off season. Superintendents and club officials frequently get into trouble by trying to do construction work during the playing season, thereby overextending themselves and their maintenance people.

Equipment needs should be approached as in any business. Equipment is needed to get the job done. It is not purchased necessarily to replace people but to make them more productive and efficient. Equipment requires service and preventive maintenance. It is usually more economical and practical for clubs to service and maintain their own equipment, but someday it will wear out and will have to be replaced. Constantly repairing junk equipment adds to the high cost of golf.

An adequate facility should be provided to store and repair equipment. It should include proper work areas; have adequate lighting and heating; and have electrical and air outlets so power tools may be used. There should be an area where topsoil and soil amendment materials can be prepared and stored. Clean and sanitary areas for the maintenance crew are essential. They handle dangerous chemicals and materials and must be provided with safety equipment and encouraged to use safety procedures.

An efficient and adequate water system with the capacity necessary to meet player demands for fine turf is of utmost importance today. An automatic water system is a necessity—not a luxury. It is not a cure-all or laborsaver by itself, but a tool—one of the best tools available because it gives some irrigation control back to the superintendent. It will save labor in some areas but increase it in others. It enables the superintendent to provide better playing conditions, to inconvenience the golfer less, and to conserve water and use it more efficiently.

The highest paid, most efficient, best educated and trained superintendent with the biggest budget, the most modern equipment, in the best service building, with the best automatic irrigation system, on the best constructed golf course means absolutely nothing unless you have people—good, qualified, reliable and dependable people—interested in working on a golf course.

The golf industry is behind in providing adequate and favorable working conditions, fringe benefits, proper sanitation facilities and safety practices for the people who provide a service for the membership. At most clubs labor represents 60 to 70 per cent of the overall budget. Most clubs are constantly turning over people, replacing and retraining and using these people unproductively. Most workers like to know exactly what they are going to do each day and want some type of job description. This is impossible when you operate with a constant turnover of help. Player demands and player attitudes are reflected by worker attitudes. The turnover at a club reflects the club policy, or more accurately stated, lack of policy.

Assuming now that we have everything we need to do the job—adequate budget, etc., that nature is kind, that we aren't plagued by disease, insects, storm or vandals—we next need understanding of one another's problems and responsibilities. The Golf Course Superintendents Association of America published a brochure entitled "The Golf Course Superintendent, His Qualifications, Responsibilities and Requirements." The USGA Green Section has published handbooks, numerous brochures on everything from constructing greens to standardizing budgets. There is a wealth of printed information available to club officials written by experts. It is the club's responsibility to establish policy, and that policy should be set up by the board of directors within the financial structure of the budget. Lack of direction and policy contribute to the high cost of golf.

Today's successful golf club will take advantage of professional services available, the Golf Course Superintendents Association of America, the Green Section of the United States Golf Association, Soil Conservation Service, U.S. Department of Agriculture, and state university and extension services. They are capable and willing to provide a service. Often it is free. Work closely with your local golf association. In Massachusetts, the Golf Association and the Golf Course Superintendents Association of New England work together; we understand one another's problems and we communicate. We are interested in better golf courses and in the golfing public; amateurs and professionals, juniors and seniors. Work with state universities or colleges. Support these groups; they also face inflation. I think clubs have a responsibility to support turfgrass research. I would suggest to golf officials that scholarships be presented to those young men who, although not caddies, contribute equally to the game. Those young men who work on the golf course or in the locker room or the kitchen at a club.

Consider the other person. Everyone wants to do a good job, to be recognized, to enjoy a better way of life. Everyone is looking for security of one type or another. The game has done so much for so many. I know we can do more for golf through understanding, better coordination and better cooperation between those who work and those who play (and pay) in golf!

Research S-t-r-e-t-c-h-e-s the Budget Dollar

by **ALEXANDER M. RADKO,** Eastern Director and National Research Director, USGA Green Section

The turfgrass industry has grown steadily, and it is natural that research also would experience growth. The number of workers in industry, universities, and experiment stations is swelling. Now groups of specialists accent the team approach to special problems. We have come a long way since 1920 when the Green Section was established to work with the U.S. Department of Agriculture to research turf problems. From 1920 through 1953 the Green Section was directly involved in research, and limited work was done by others. Since 1953 the universities and experiment stations have greatly expanded their facilities and personnel in turfgrass research, education and extension.

Research has played a major role in making the most of the budget dollar. Decentralization was a giant step forward in stretching the budget dollar. Turfgrass research now is being conducted in all parts of the nation, and researchers are better able to answer specific questions arising in localized areas. It is now possible to pinpoint limitations and strong points of grasses and management practices, thus saving the golf course superintendent who formerly depended on results from distant areas many a costly error.

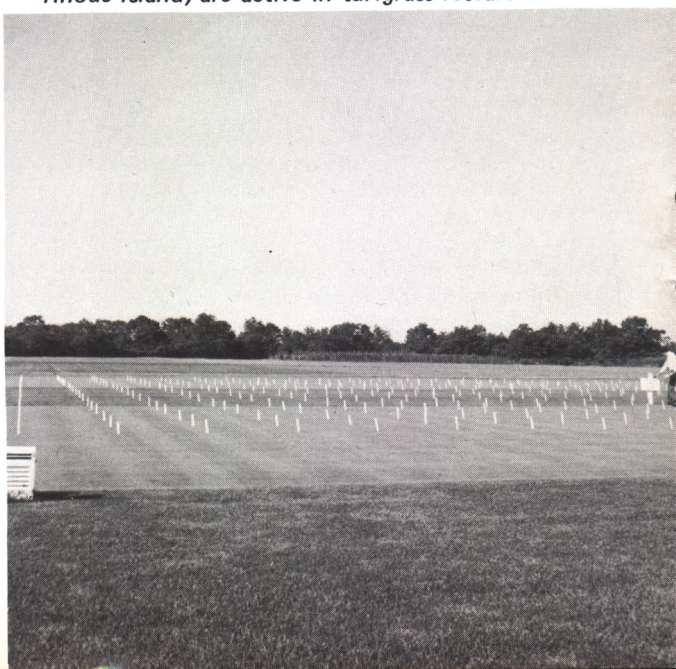
Industry, too, has a large stake in the turfgrass field, and it has always been strongly research minded. Industry developed machinery, chemicals, and numerous products designed to do specific jobs for the expert user. Some of the more recent industrial developments that stretched the budget dollar were the triplex mowers, the mechanical trap rake, the rotary fertilizer spreaders, the systemic fungicides and insecticides, the pre-emerge herbicides, to mention a few. These are labor-savers—this is research in action.

Research also is people, people interested in solving problems. There is frequent contact among workers engaged in research as well as other phases of the turfgrass industry. Meetings, conferences, and field days tend to bring everyone together to discuss problems of mutual interest. When the researcher learns of your problems firsthand, he is better equipped to produce a satisfactory solution. When the researcher is golf-oriented, so much the better; he realizes then that the requirement is not only a beautiful turf cover, but also one that meets the specifications of the game. It is important that golf turfgrass research meet this requirement for obviously a fairway turf that is expertly grown at two inches does absolutely nothing for the game, the golfer, or his temperament.

There also is a lot of practical research that goes on in the superintendent's field, born of necessity. The superintendent must make the most of his labor if he is to survive: he seldom is overstaffed. As a result, he has come through with some combination chemical spray that controls diseases, kills weeds, feeds the grasses, kills insects, and colors the grass, all in one spray. Saving labor on one job allows more time for grooming and manicuring operations that mean so much to golf and golfers. Time is money, and time saved stretches the budget dollar. The wise superintendent carefully tests his combinations before using them on a large scale. This is practical research in action.

Stretching the budget dollar goes one step further. You can have the best recommendation in the world, but if you don't have reliable help, it doesn't do much good. If the mower operator is careless, doesn't observe mal-

Universities and experiment stations, such as Rhode Island, are active in turfgrass research.



Research prevents costly mistakes. This shows injury to putting green turf from misapplied heavy rates of sulphur.

functions, doesn't take care not to overlap, drives too fast or too slow, isn't careful to shut off the equipment when making his turns—even the safest research recommendation could result in a risk beyond repair. There have been recommendations that country clubs re-examine their hiring policy; hire fewer people at higher wages to assure a staff of reliable and competent workers.

Intensive management of turfgrasses, where perfection is the goal, means that you must keep diseases under control, insects from foraging the beautiful carpet of green, and weeds suppressed. Great strides have been taken in these areas. Dollar spot, brown patch, cutworm, sod webworm, chinch bugs, dandelion, plantain, knotweed, clover, Japanese beetles and other grubs are no longer major problems.

More recently we've made gains on problems that appeared insurmountable just a few years ago. *Poa annua,* silver crabgrass, *Pythium Fusarium,* and the *Hyperodes* weevil now can be controlled.

We are making headway on problems of thatch, Fairy Ring, spring dead spot, winter hardiness and problems related to winterkill, in improved grasses, and especially with an eye towards grasses that enhance golf. Research is working to produce grasses that do not die of winterkill, dwarf types that can be mowed closely, disease- and insect-resistant grasses, drought-tolerant species, shade-tolerant grasses, in fact, grasses that will be made to your specification. There is more golf-oriented research going on today than ever before, and this can only result in handsome dividends for golfers. Research, indeed, is stretching the budget dollar in the direction of better turf for better golf.

Department of Labor Workplace Standards

by **FRANK B. MERCURIO** Regional Administrator for Workplace Standards

We have always found in the United States Department of Labor that the basic instrument in the enforcement of laws is the goodwill of the employers affected by those laws. The Fair Labor Standards Act, better known as the Federal Wage and Hour Law, is among the laws administered by the Labor Department, and recent amendments to this law affect the Member Clubs of the United States Golf Association.

The Fair Labor Standards Act was passed in 1938, and it has undergone many revisions.

In applying the Act to any situation, the first consideration is coverage. Before 1961 the Act's coverage extended only to employees who, on an individual basis, were engaged in interstate or foreign commerce, or in the production of goods for such commerce, including any closely related process or occupation directly essential to such production.

Thus, private clubs engaged in the operation or maintenance of golf courses might have had employees, such as telephone operators handling interstate calls, office employees producing, sending or receiving interstate mail, and employees transmitting, ordering or receiving materials, supplies or equipment from outside the state, who were individually covered. They continue to be covered under the Act as amended. Maintenance and custodial employees performing work closely related to the interstate operations of their employer are also covered on this basis.

The Act applies on an enterprise basis to the golfing and other facilities of private mem-

bership clubs not open to the general public, or privately operated clubs which are open to public patronage, which have two or more employees engaged in interstate commerce, or the production of goods for interstate commerce. This includes employees handling, selling or otherwise working on goods that have been moved in or produced for commerce by any person, and where the enterprise has an annual gross volume of business of $250,000 or more, exclusive of excise taxes at the retail level which are separately stated.

In connection with this dollar volume test, the Act has defined enterprise to mean "the related activities performed (either through unified operation or common control) by any person or persons for a common business purpose, and includes all such activities, whether performed in one or more establishments by one or more corporate or organizational units."

If the enterprise coverage conditions are met, all employees in the enterprise are covered, whether or not they are individually covered by their relationship to interstate commerce.

Questions have arisen as to whether golf professionals, operating facilities at a golf club, are independent contractors of the kind excluded from enterprise coverage by Section 3(r) of the Act, or whether their activities must be included as part of the enterprise. In this regard, it has been concluded that not only are the activities of the golf professional not excluded from the enterprise, but his employees would be covered under enterprise coverage to the same extent as other employees of the golf club.

In computing gross annual volume of business you must count such receipts or items as initiation fees, charges for use of club facilities, food and beverage sales or charges, athletic or sporting rental fees, fees paid by members to club professionals, lodging and valet charges, and pro-shop sales and income.

There is an exemption provided in Section 13(a)(2) of the Act from minimum wages and overtime pay for employees of a "retail or service establishment." A retail or service establishment is one wherein at least 75 per cent of annual sales or services are not for resale and are recognized as retail in the industry, whose sales made within the state amount to more than 50 per cent of such dollar volume, and which is not a part of a covered enterprise or, if in such an enterprise, has less than $250,000 annual dollar volume of sales exclusive of specified taxes. This exemption may apply to employees of a golf club establishment which is open to the general public, but does not apply to any select membership private club.

The Section 13(a)(3) exemption from the Act's minimum wage and overtime pay requirements may also be applicable to a golf course establishment which meets the specific tests of seasonality of that Section, and which is used by the public for its amusement or recreation.

To qualify for this exemption, a golf course must be open to the general public, must operate for no more than seven months of any calendar year, or during the preceding calendar year its average receipts for any six months of such year were not more than one-third of its average receipts for the other six months of such year.

Another exemption of interest to you is provided for bona fide executive, administrative, and professional employees under Section 13(a)(1). This exempts from both minimum wage and overtime those employees who meet the tests set forth in Regulations, Part 541.

Briefly, the primary duty, amount of discretion and independent judgment exercised, degree of responsibility, amount of time spent in non-exempt work, and salary, determine whether or not an employee qualifies for exemption as an executive or administrative employee. Compensation on a salary basis at a rate of $115 to February 1, 1971, then $125 or more a week exclusive of board, lodging, or other facilities is required for exemption.

The tolerance for non-exempt work is limited to 20 per cent generally; in a retail or service establishment it must be less than 40 per cent. If such an employee spends less than the permitted percentage of his work week in non-exempt work, such work does not disqualify him for exemption under the special provisions of the Act and the Regulations which apply to bona fide executive and administrative employees.

A professional's primary duty must be the performance of work requiring knowledge of an advanced type in a field of science or learning customarily acquired by a prolonged course of specialized instruction and study, and whose work requires the consistent exercise of discretion and judgment in its performance. There is a 20 per cent tolerance for work not an essential part of and necessarily incident to his primary responsibilities, and payment on a salary or fee basis of not less than $130 to February 1, 1971, and then $140 per week is required.

There are shortened duties tests for executive, administrative and professional employees paid on a guaranteed salary basis of at least $175 until February 1, 1971, and then

$200 per week. These standards are all spelled out in Regulations, Part 541.

The Act contains five major requirements: minimum wage, overtime, record-keeping, child labor, and equal pay.

The minimum wage, since February 1, 1968, has been $1.60 per hour for non-exempt employees individually covered because of their relationship to interstate commerce, and for all employees who are enterprise covered because the enterprise in which they are employed meets the $1,000,000 annual dollar volume tests.

Employees in employment not covered before the effective date of the 1966 amendments who are employed in an enterprise meeting the $250,000 test or in connection with the golfing facilities of a privately or publicly operated hospital, school, or residential care institution described in Section 3(s)(4) of the Act are entitled to a minimum of $1.45 per hour, unless specifically exempt, and $1.60 on February 1, 1971.

It should be pointed out that tips or gratuities paid to employees by a third person such as a member of the golf club, may be counted as wages to the extent permitted under Section 3(m) of the Act, as explained in Section 531.50 of our Regulations, Part 531.

Certificates authorizing payment of less than the minimum wage, usually 75 per cent of the applicable minimum wage, can be secured from regional offices of the Wage and Hour Division for handicapped workers or student learners employed as part of a bona fide vocational training program.

Insofar as caddies are concerned, a golf course operator would be required to pay the caddies in accordance with the monetary requirements of the Act only if they are his employees within the meaning of the Act's definitions, as interpreted by the courts. Although the courts have established general guidelines for determining the existence of an employment relationship under the definitions of the Act, they have not, to our knowledge, dealt with the application of these guidelines to a factual situation involving the relationship between caddies and golf course operators or any comparable situation.

Caddies are engaged to serve particular players exclusively for substantial periods of time, and their services are generally directed by and for the benefit of the player himself, who is ordinarily expected to pay in one way or another for the service they provide. The compensation arrangements undoubtedly differ in accordance with the policies adopted at particular playing courses, as does the nature and extent of control by the course operator over the activities of the caddies. Control, in any event, is not the sole test of the employment relationship under the Act, which must be determined by the total situation, viewed in terms of economic realities rather than technical concepts. In recognition of these considerations we are constrained to refrain from the assertion of a responsibility as an employer under the Act in the case of a golf course operator with respect to payment of statutory wages to caddies who work on the course.

Employees covered under the Act must be paid in accordance with applicable overtime pay requirements, unless specifically exempt. Employees subject to the minimum wage must be paid time and one-half their regular rate of pay for all hours over 40 worked in a workweek unless specifically exempt.

It should also be pointed out that Sections 13(b)(8) and 13(b)(18) provide an exemption from the overtime pay requirements of the Act for employees of restaurants and certain food service employees of retail or service establishments. Information concerning these Sections of the Act as well as any other information may be obtained from the nearest Wage-Hour office.

In computing overtime pay, a cardinal rule is that each workweek stands alone. To illustrate:—If the maximum workweek applicable to a given employee is 40 hours, that worker is due overtime pay for each hour of work exceeding the 40-hour standard in any workweek. His hours are not to be averaged over two or more workweeks. In other words, 35 hours one week and 45 the next aren't equivalent to two 40-hour weeks. Premium pay would be due for the five overtime hours worked during the 45-hour workweek.

As to the workweek, it need not coincide with the calendar week, but it must be a regularly recurring period of 168 hours consisting of seven consecutive 24-hour periods.

We are frequently asked how to figure overtime pay for non-exempt salaried employees. The first thing to do is to determine the employee's regular rate of pay, which must at least equal the applicable minimum wage. If the employee is paid his salary for a 40-hour week, divide the weekly salary by 40. When he works overtime, he must be paid for each overtime hour not less than one and one-half times the regular rate so obtained. This sum, of course, is added to his salary.

What if the employee is paid a fixed salary which is paid as straight time compensation for all hours worked by the employee in a workweek, and the number of hours worked fluctuates from week to week? Such salary arrangement is valid for straight time pay under the Act so long as the salary is in sufficient amount to ensure that the employee will be

paid not less than the minimum wage for each hour worked in the longest workweek that he works. If the salary meets this test, the regular rate of pay when the employee works overtime is computed by dividing his salary by the number of hours worked each workweek. Naturally, the regular rate will vary from week to week. For each overtime hour, the employee must be paid an additional half of his regular rate for that week, which is added to his salary. Of course, the amount of overtime pay will vary from week to week as the number of overtime hours vary.

The examples I just gave are based on the assumption that the employee receives no compensation other than his salary.

The keeping of certain records is required by Department of Labor Regulations, Part 516, "Records to be Kept by Employers." There are no particular forms for maintaining the records; the required items are the kind firms usually keep as a matter of good business practice. For non-exempt employees, such items as the following must be recorded: name, sex, address, occupation, regular rate of pay, hours worked each day and week, and weekly earnings.

From time to time, in various industries or enterprises, it has been found that the term "hours worked" is often misunderstood or misapplied. By law, the term "employ" includes "to suffer or permit to work." The Act does not contain a definition of "work." If an employee is "suffered" or permitted to work at the end of his shift at his own volition, or because he wishes to complete a particular assignment before he leaves for the day, the time so spent is working time. The reason for his working beyond his regular hours is immaterial. It is the duty of management to exercise its control and to see that no work is performed unless it is properly compensated.

The record-keeping regulations also require covered firms to display the official poster where employees can readily observe it. The poster briefly outlines the Act's major provisions, and copies can be obtained free of charge from any of our offices.

As to child labor, another major requirement, the minimum age for general occupations under the Act is 16. Occupations declared hazardous by the Secretary require an 18-year minimum. Under restricted conditions, 14 and 15-year olds may work outside school hours for a limited number of daily and weekly hours. You can protect yourself from unintentional violation of the law by keeping on file an employment or age certificate for each young person on the club staff.

With respect to the fifth and final requirements of the Fair Labor Standards Act, an employer may not discriminate on the basis of sex in the payment of wages. The equal pay provisions apply to every establishment where an employer has covered employees, and require the payment of equal rates of pay within the establishment to men and women doing equal work on jobs requiring equal skill, effort, and responsibility, and which are performed under similar working conditions.

The payment of wages at lower rates to one sex than to the other is not prohibited where the employer can establish that the differential is based on a seniority system, a merit system, a system measuring earnings by quantity of production, or any other factor other than sex. However, any such system must be applied equally to men and women engaged in work subject to the equal pay provisions.

We seek compliance through an extensive information and education program, and by investigations. If you are investigated, don't assume that a complaint has been received.

Investigations are made for a variety of reasons, all having to do with equal enforcement. The same basic investigative principle, to do only what needs to be done and no more, is applied in all our investigations, whatever the reason for the investigation.

While there is no requirement that advance notice of an investigation be given, normally an appointment will be made if time permits. If the investigator appears at, or an appointment is made for, an inconvenient time, an agreeable date and time will be substituted.

In the usual case, the following steps are taken during an investigation:

1. An opening conference is held with the employer or his designated representative.
2. A tour of the establishment is made and pertinent records are inspected to determine coverage, exemption, and the status of compliance.
3. A representative number of employees are interviewed.
4. If necessary for completion of the investigation, the employer may be requested to make extensions, recomputations, or transcriptions of records.
5. A closing conference is held with the employer or his designated representative to review the results of the investigation.

There are various methods for the recovery of unpaid wages owed under the Fair Labor Standards Act. They may be paid under supervision of the Administrator. In certain circumstances, the Secretary of Labor may bring suit for back pay upon the written request of the employee. The employee himself may sue for back pay and an additional sum, up to the amount of back pay, as liquidated damages,

plus attorney's fees and court costs. However, an employee may not bring suit if he has been paid back wages under the Administrator's supervision, or if the Secretary has filed a suit to collect the wages.

Also, the Secretary of Labor may obtain a court injunction to restrain an employer from violating the law, including the unlawful withholding of the proper compensation.

Normally a two-year statute of limitations applies to the recovery of back wages. The period is three years if violations were wilful.

I want to mention another law administered by the Divisions—the Age Discrimination in Employment Act. Since June, 1968, private employers of 25 or more persons in industries affecting interstate commerce may not refuse to hire, may not discharge, or otherwise discriminate with respect to compensation, terms, conditions, or privileges of employment due to age with respect to individuals who are at least 40 but less than 65 years of age.

An additional law administered by these Divisions is Title III of the Consumer Credit Protection Act, known as the Federal Wage Garnishment Law, effective July 1, 1970. This law limits the amount of an employee's disposable earnings which may be subject to garnishment, and it protects him from discharge because of garnishment for any one indebtedness. This law has general application.

It has been our experience in the Divisions that the great majority of employers strive for voluntary compliance. We want to help them.

We realize that these Acts impose a number of important responsibilities upon employers, and though responsibility for compliance necessarily rests with management, we are ready to help you achieve or maintain such compliance. Through such mutual efforts, not only workers, but also employers themselves benefit. This law is intended not only to provide beneficial employment conditions, but also to promote the interests of fair employers by helping to eliminate unfair competition based on the cost advantage of substandard labor conditions.

The Divisions have offices in most major cities and the staff is ready to assist employers and workers in understanding how the law affects them.

— LABOR —

The Lion's Share of the Budget

by **TED WOEHRLE,** Superintendent, Oakland Hills Country Club, Birmingham, Mich.

Golf course labor has changed drastically during the past 25 years. Shortly after World War II when labor was plentiful, we had very little trouble finding men ready and willing to work. Most golf courses were staffed with skeleton crews made up of loyal, hard-working men. Wages were low but adequate for the economy and the situation was helped by many wives who still had jobs from the war days. Young men were planning for the future and there was an attitude of good relationship between labor and management. These men produced a good day's work for their pay.

Small farms were being absorbed by larger farms, and many of the farmers and their families were looking for work in similar occupations. Golf course maintenance was quite similar and attractive.

In time, a premium was placed on "education." Technology was beginning to show in industry. Farmers were still moving off the farm, but now they were attaining more education and the new jobs began to appeal to them. Golf courses began looking elsewhere for employees.

As an example of new job classification; the U.S. Department of Labor now lists some 35,000 job classifications in their "Dictionary of Occupational Titles." Consequently there are many more jobs with more glamorous titles today than 25 years ago. Titles are important, as indicated by the fact that the greenkeeper changed his name to "golf course superintendent" during this period.

What are some of the sources of labor for golf course maintenance? Because most golf course work is seasonal, we can only appeal to certain people. It really isn't a problem of labor shortage so much as it's a problem of finding people interested in this type of work. Occasionally someone with golf course training who is between jobs or who has moved from another area may come by, but these people are rare.

One good source of labor is from the ranks of college students. Many of these boys are in turf schools and are being placed at courses between school years. This is a limited group, and unfortunately there are not enough to go around. They are studying to become superintendents and appreciate the additional training under the guidance of a good superintendent. Some of these schools are: Penn State, Purdue, Michigan State, Illinois, Ohio State, Iowa, and several others in the East as well as some of the schools in California. As a rule, you have to place your request for these boys early in the fall.

There are also the regular college students looking for summer employment. These students are usually available from mid June until mid September. They usually want to quit a few weeks early (just before Labor Day) to take a short vacation before returning to school. You must have some type of incentive to keep them until after Labor Day. A small bonus can do the trick in some cases.

Many clubs find good workers from the local high schools. If you contact the vocational agriculture teacher or the athletic director you can normally find a few boys who would like to work with nature and, in the case of the athlete, love an opportunity to work outside all summer. Of course, these people are limited to the times they can work. Often they can come in after school for a few hours and on the weekend. During the summer they can work for three solid months. If these boys enjoy their work, they will come back all through college.

Another good source is retarded children. Most school systems have classes for these boys, and they are always looking for employment. One receives a great deal of personal satisfaction from working with and helping these students. They are capable of doing many jobs, such as raking traps, mowing around trees, trimming around fence lines, gardening, etc. With a little encouragement they become loyal, hard-working men who are very proud of their work.

We occasionally hire handicapped personnel. Most cities and the Veterans Administration have a list of these people. One nice thing about hiring the handicapped—they repay you with good, hard work.

There are several sources of ex-prison inmates who have successfully completed rehabilitation programs and are available for golf course work. With proper management they become good citizens again and fulfill a need.

Many courses in the larger metropolitan areas have begun to hire migrant laborers, usually Mexican Americans. They arrive in early spring and stay until late fall. Very often the clubs will furnish housing, which must meet government specifications. Family ties are quite strong. Often the entire Mexican crew may be related in some way to one another. If one quits or gets fired, you may lose the entire crew. They are very hard workers and enjoy their work.

On occasion I have used married couples for certain work. They can make a good team for night watering. During the installation of our watering system, the wires for the automatic controls were installed and coded by a young married couple. It worked out very well. She even washed our tee towels and uniforms from time to time.

If you have a job that must be done in a hurry, usually a temporary employment agency can be of help. If your club uses caddies, ask the caddie master for the names of good workers.

When looking for a man to work as a steady crew member for the entire season we must use a different approach. Want ads are a possibility. Men looking for steady employment on a golf course are usually retired military personnel, semi-retired businessmen, firemen, retired farmers and drifters.

Labor Use

Now that we have found the men, how do we keep them and how do we use them? If we would like to do the job with fewer men, we must become superior managers.

Properly trained people with the incentive to do a good job can save labor. One good man is worth two or more poorly trained men.

We must instill pride, and here are a few ways to do this.

1. We must offer fair wages, hours and working conditions. Wages must fit in with the area you live in. It varies quite a bit from place to place.
2. Let the men participate in decision making.
3. Give them economic security.
4. There must be opportunity for advancement and self-improvement.
5. We have to make the men feel that their individual accomplishments are significant and worthwhile.
6. We have to create a positive group feeling.

Following is a list of things that are important to labor in the order that a recent survey shows them, number one being the most important and number ten the least important.

1. Full appreciation of work done.
2. Feeling "in" on things.
3. Sympathetic help on personal problems.
4. Job security.
5. Good wages.
6. Work that keeps you interested.
7. Promotion.
8. Loyalty.
9. Good working conditions.
10. Tactful disciplining.

You can see from the list that wages are not the most important item. True, they are important but a few of the little things that we fail to do in many cases are more important.

Budgets are going up and up. Can we continue to justify it by blaming it on higher costs, hard to get labor, etc.? Maybe we should take another look at management. The more demands put on us by the golfer to do a better job, the better managers we must become or our budgets will skyrocket out of reach for the average golf course.

Any neglect of supervisory education in management is to be condemned. Such education is greatly needed because few, if any, superintendents learn anything about the management phases of their jobs before they become superintendents. We step into our managerial responsibilities with practically no knowledge of what is expected of us or how our obligations are to be performed.

Let's take another look at our new tools and use them to our advantage. Perhaps we can use fewer men and do the same job better for less money if we improve management.

Streamlining the Operation

by HOLMAN M. GRIFFIN, Agronomist, USGA Green Section, Southern Region

Streamlining an object usually makes it move along more smoothly and swiftly. To do this, you knock off the rough edges and make the driving force more efficient. By streamlining our golf course maintenance operation we can most certainly make the most of our labor, money, time, and any other resource available to us.

A golf course could not thrive without an adequate budget to produce good turf, just as a bank could not stay in business if all it did was deposit money in a vault. Banks use their resources, and although most of their activity is regulated by law, some banks grow and others just manage to stay in business. The difference is usually found in their ability to attract customers by providing for customer needs and utilizing the resources provided by their customers. If you think the golf course business is any different, you may be in for a rude awakening.

As I see it, the key factors in a successful golf course operation are progressive improvement and efficiency. Both go together. Improvement seeks to obtain the ultimate. Efficiency seeks to make every dollar spent on improvement worth more than it costs.

It behooves every golf course superintendent to examine his operation and find out where costs may be reduced and quality maintained or improved upon. In the case of the triplex greensmower, current models may have their faults, but any superintendent who overlooks the possibilities of a machine that will pay for itself in labor saving in a year or less and do a job acceptable to his members had better re-examine his values.

If your greens do not lend themselves to triplex mowing, or if members prefer the smaller units, then you should at least be thinking of how to realize maximum efficiency from your smaller mowers. Does the man doing the mowing plod along behind the mower from green to green, or does he mow a green and deposit all the clippings in a vehicle which transports the man, mower, and excess baggage from site to site in a minumum of time?

Further streamlining the operation, automation may be able to improve an already mechanized program. Automation offers greater efficiency with the least amount of personnel, and also allows higher paid and more knowledgeable individuals to utilize their skills over a larger area. Automation has saved the day in many instances where labor was unavailable at any price. Except in irrigation, automation on the golf course is a relatively unexplored field, but it has great possibilities.

A few years ago, many of you were "greenkeepers." Now you are "superintendents" and some would like to change that to "managers." Titles change with the times and it

is not beyond the realm of possibility that in the future one "agronomic engineer" may be all that is needed to maintain a golf course or a golf course complex by pushing buttons.

So far we have covered automation and mechanization as a means of streamlining the operation. Perhaps this could be summed up by saying, "Use the proper tool for the job to be done." Since chemicals are also tools of our trade, we are justified in bringing them into the discussion.

The list of herbicides, fungicides, nematocides, and insecticides is extensive and growing rapidly. A whole modern chemical arsenal is at your disposal if you will only become familiar with their uses.

Because of the current concern over pollution, we might be wise to change the term "pesticides" to "environmental protectants," as suggested by many of our university research people. Pollution is a major problem in our world today, but, please, let's not confuse the necessary and/or judicious use of chemicals to protect our environment with the indiscriminate pollution of our air and natural resources.

Pesticides are an absolute necessity for mankind, and, when properly used, they are a valuable tool in good golf course maintenance. This is not to say that we do not need to eliminate the use of certain chemicals on the golf course, especially when there are acceptable alternatives. Nor should we be indiscriminate with their use. However, I would suggest that their proper use not only can enhance our environment, but also save money. The small amount of so-called pollutants used on the golf course and in agriculture are used to insure the preservation of the very plants which make our life possible and more enjoyable.

As for the practical side of chemical management, figure the cost of trimming against chemical growth retardation or soil sterilization where practical. Possibly chemical clearing of roughs and waste places would be more economical than your present method. Compare the cost of selectivity of chemical weed control against mechanical means. Compare the cost of replacing turf against the cost of disease and insect eradication and prevention.

May we also pursue this further by assuming we are allowed to use the chemicals we choose. Are we knowledgeable about synergystic actions which make certain mixtures more effective at lighter rates? Are our applications timed so that the wind, weather, and the season of the year are to our advantage? Do we compare the price per unit for effective control, and do we always use the lightest rate with which it is possible to achieve effective control? If you answered any of these questions negatively, then I hope you will do some homework.

Probably everyone feels he could do an outstanding job if he just had enough money in the budget. Rather than spend the time in wishful thinking, try to develop methods of making what you have go further. By proving you can get a dollar's value from every dollar spent, you may find money more easily available for the course budget.

Three areas you should definitely spend some time thinking about are planning, organization, and education. Without planning, you

Asphalt or other permanent surfaces in special places can reduce trim time, be more attractive, and help streamline the operation.

Well maintained working and storage facilities provide good working conditions and improve efficiency.

don't know what you are doing or when to do it. Without organization you can't find anything to do the job with. Without education you won't know how to do the job even if everything you need is available.

The simplest example I can think of to illustrate the need for planning, organization and education is the man assigned to rake bunkers. He heads for the other side of the course with his lunch basket and no rake. It is difficult to rake bunkers without tools, so he heads back to the maintenance area and spends about an hour looking for the rakes. They're not in the usual place. Having arrived at the destination a second time, rake in hand and ready to work, he rakes all the sand off the bunker face and into the center because nobody ever bothered to tell him how it should be done.

A rather oversimplified example, true. But do we not often plan hastily and inefficiently? Do we not accept disorganization because it takes discipline to be well organized? Do we not become complacent about our way of doing things rather than seeking improved methods?

Planning, organization and education are never-ending jobs. They cannot be neglected without waste in any operation. They help us to use better the ideas of mechanization, automation, mobilization, communication, centralization and chemicals, which can effectively streamline our operation.

In an age when scientists have discovered so many substitutes, TIME is still the one unique, irreplaceable, and universal commodity which cannot be taken for granted. Perhaps nothing else distinguishes an effective manager so much as his efficient use of time.

The saying goes, "time is money." Are you making the most of this resource, which costs nothing unless we waste it?

Motivation and In-Service Training

by **PALMER MAPLES JR.**, Superintendent, The Standard Club, Atlanta, Ga.

Motivating a crew of men and training them for the work they will perform are most often related to one another. It is the responsibility of the golf course superintendent, or the man in charge, to correlate these two in such a way that we have maximum production for expended manhours.

Man is motivated by many things, and the most basic is self-preservation. He wants food, clothing, and shelter. For him to provide these for himself and his family usually requires that he work for a wage that can be used to buy these necessities. Therefore, if we have a crew of men to train, we can assume they have been motivated first by self-preservation.

As we go into a training program we can relate the training with the motivation, since a trained person has more value than an untrained person. We instruct our crews and tell them that if they can do certain jobs in the desired and proper manner they can get a higher wage, thus enabling them to obtain more of their necessities.

This gets us back to motivation, because now we get into another basic motivating principle—self-improvement. After the essentials are provided, our next desire is to improve ourselves, to make ourselves better than the next man. And now we can relate motivation and in-service training.

There are means of motivating a crew for general purposes or morale building; for example, a ham or turkey for the best kept equipment, or no trees hit with equipment; an extra bonus for no loss of time, a coffee dispenser for the winter; a half-day break and TV set to watch the World Series.

Motivation can be accomplished when we praise a workman for a job well done in front of other crew members, and just as important, NOT to correct a man in front of the other men. Always give the man a chance to explain his side of the story. Make sure your orders are clearly given and understood by all. It's not always the workman's fault if he's not properly instructed. That's your responsibility.

One of the more important factors in dealing with a crew is communication. If we cannot explain ourselves, or make ourselves understood, then we have a hard time getting the job done. I once heard a man compare the relation of the superintendent and crew to that of a spark plug; the spark plug furnishes the fire at the right time, in the proper amount and to the right places; the motor runs smoothly. There is an exact setting of the gap of a spark plug that causes all these things to take place and be of use when the spark plug fires. And so we too must adjust to a proper gap if we are to perform our duties in the best manner. We must be aware of the gap between ourselves and our crew. Not too close, not too far apart.

If we are training and must criticize, let it be constructive. If we are trying to motivate, let it not be too personal, but always keep the proper relationship. If things go wrong and we become angry, don't fire off too quickly; try to maintain the gap. This communication contact is the best adjustment to make the program function smoothly. And if it is adjusted properly, it can take care of the "slow downs" and "speed ups" in the same manner it takes care of the normal run.

As we go about different jobs, we should explain what we do and why we do it. It gives the crew a better understanding of the overall picture, where this job fits in, and why it is important. It will make the crew feel important in that they can answer a member's questions. A crew member feels more at ease in being able to say, "we're spraying an insecticide for grubs," rather than "just something the boss put in the tank." The member in turn feels that the crew knows what it is doing, has pride in its work and takes proper care of the golf course.

There is a relationship between in-service training and motivation. As we go about our job of explaining one and creating the other, let us remember to keep the proper gap, to be the spark plug that runs smoothly, to communicate with our crew so that we will be assured the maximum production from manhours expended.

Hand tools should be in an orderly, accessible area with ease of inventory.

Maintenance Is a Must

by JAMES B. MONCRIEF,
Southern Director, USGA Green Section

Good golf course management must deal with two inescapable realities daily: labor and equipment. We are concerned here with equipment—its care and maintenance—for a golf course without good equipment is like a sailboat without sails.

As a visitor enters a typical maintenance building he will soon notice its neatness (or lack of it) and its organization. Hand tools that are color-coded are much easier to keep in their proper place and far easier to inventory. Small hand tools such as hammers, wrenches, rules, etc. just seem to disappear unless some systematic control is exercised. The proper tool in its proper place is the mechanic's dream. He soon becomes inefficient if he can't find the item he needs, or if it hasn't been properly cared for.

Transportation and radio communication are also money-savers for golf course operators today. In this time of high labor costs, walking is becoming an expensive exercise. Hand-held radios and automotive transportation for the maintenance crew add to operational efficiency.

BATTERIES—GO POWER: Care of rolling equipment grows more sophisticated each year. Top performance demands top maintenance, and most manufacturers make every effort to show how their equipment should be handled. However, maintenance of some small items, such as batteries, all too often is neglected.

Corrosion from a poorly kept battery can cause a short life. Always maintain the proper liquid level, check the battery frame, cable connections and the electrical connection. A battery requires more water when it is being overcharged or when the weather becomes hotter.

It is important to maintain the battery at or near full charge for two reasons. When a battery remains discharged for several weeks, the lead sulfate on the positive and negative plates becomes hard. This is called harmful "sulfation." When recharging is attempted, the hardened lead sulfate remains and prevents the plate from taking a full charge. This lowers the overall electrical capacity of the battery and shortens its life.

There is a second reason for keeping the battery at or near full charge. If this condition is not maintained, the capacity of the battery for cold weather starting is greatly reduced. A fully charged battery at zero degrees F. has only 40 per cent of the capacity it has at 70 degrees F. This is the reason why a weak battery may give fair service during normal weather but fails when the weather turns cold.

Checking the specific gravity, or state of charge of the battery is recommended for every 50 hours of use. The liquid level should be kept above the plates and separators. Charge the battery after each water addition and keep it charged. A fully charged battery will not freeze.

The tools and materials needed to check batteries include:

1. Battery syringe
2. Container of distilled water
3. Battery hydrometer
4. Wrenches that fit the nuts on battery holdown clamp and the nuts on the battery posts.

Battery cells should not be overfilled. This will cause the electrolyte to overflow through the caps onto the top of the battery. As the electrolyte spreads, it may reach the battery terminals and frame and the battery will undergo a slow discharge.

FIRE EXTINGUISHERS: One of the least maintained, yet vital pieces of equipment at the maintenance building and on large equipment is a fire extinguisher. Extinguishers usually have one of two problems: either they are not inspected regularly, or they are not available when needed. The large hydraulic fairway unit should have at least a one-quart capacity fire extinguisher attached to it before placing it in service.

The CO_2 fire extinguishers or the dry-powder types are for fires created from gasoline, diesel oil, or hydraulic fluid. To control this type of fire, the smothering technique must be used.

BELTS: Do you frequently check belts on the cooling and hydraulic systems of your equipment, or do you simply wait until they break? Most operator manuals recommend belt checks for tightness and condition about once a week. After the initial adjustment, however, further adjustments probably will not be needed for several weeks. Belt replacement will be less frequent if they are checked regularly. V-belts are designed to ride on the sides of the pulley grooves, not on the bottom. As long as they ride on the sides, there is ample friction area to deliver power without the belt being particularly tight. Unfortunately, many operators do not understand this, and frequently they believe the belts are too loose.

Two methods usually are recommended by manufacturers for checking tension of a V-belt. One calls for depressing the belt between the pulleys and measuring the deflection with a ruler. In the second method, a spring scale is used with a recommended pull of about 10 pounds, and then measuring the deflection with a ruler.

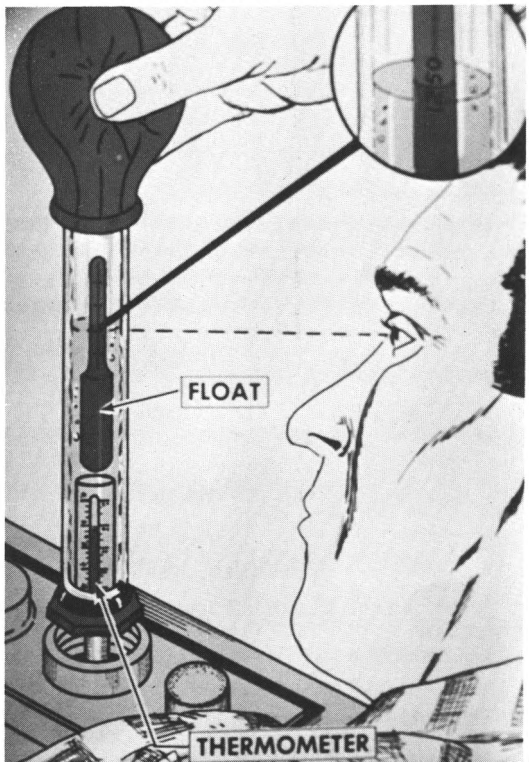
ENGINE FILTERS - WHEEL BEARINGS: Engine filters are another very important part of the engine often neglected but directly influenced by engine-operating time. Both dry and oil bath air filters are in use today. The air dry type directs the incoming air against a shield causing a cyclone action that carries the large dirt particles to the opposite end where they are deposited in a dirt cup or dirt unloader. Air then enters the pleated filter element for final cleaning before continuing to the engine.

With increased use of front-mounted loaders, the importance of caring for front wheel bearings has also increased. The fact that servicing wheel bearings is not a frequent requirement makes it all the more important to do it regularly and properly. With proper care, front wheel bearings will last indefinitely. With improper care, they may last less than one season.

To clean wheel bearings, swish the bearing in a cleaning solution of kerosene or diesel fuel. Use a stiff brush to help loosen old grease deposits. Compressed air can be used to dry the bearing, but do not allow the bearing to spin. Spinning a dry bearing causes rapid wear and it may ruin both the rollers and raceways. When packing the bearing with grease, it is important that all parts be covered. The best way to pack a bearing is to place grease in the palm of the hand, pushing the grease into the bearing by pressing the bearing against the palm and rotating it. This works the grease entirely through the bearing and between the rollers.

IN CONCLUSION: The equipment used on golf courses today is more sophisticated, and preventive maintenance is essential in order to obtain maximum performance. When your equipment is in top-notch condition, maintenance of the golf course is much more pleasant and satisfactory. Maximum efficiency is also realized from the budget dollar.

Importance of proper battery maintenance includes battery liquid level.



You Can Do Something about the "Whether"

by **ALPHONSAS A. BARAUSKAS,** Avalon and Avalon Lakes Golf Course, Warren, Ohio

Weather" has always been a popular topic of conversation and it probably will remain so until control of the elements is a matter of routine.

Now to a golf course superintendent the weather is not just a topic of conversation, but his master, his servant or his downfall. We cannot control the weather at this time, but thanks to radar, weather satellites and weather bureau organization, we can receive reliable and timely information relative to climatic conditions. We must build our daily turf management routines on this information, and marshal our labor forces and equipment to accomplish what has to be done within the time allotted us.

So our plans are laid out, the men are ready, the materials are provided and off we go on to the golf course with a variety of tools and equipment designed to minimize the time factor in competing with the elements and the creditors by accomplishing turf management procedure in the shortest time possible.

All will go well if you can depend on the "whether." No, not the *weather* we originally mentioned, but the *whether*—whether your equipment will start, whether it will operate long-enough to complete the task. It is this *whether* that we can and must do something about!

The key lies in an effective preventive maintenance program. This applies to all golf courses. In order to produce excellent turf conditions within limited budgets and soaring labor costs, the reliance on time- and labor-saving machines continues to grow. As your equipment inventories expand, so does the need for an effective preventive maintenance program.

We at the Avalon and Avalon Lakes Golf Course have initiated such a program. Though this 36-hole golf course is maintained with equipment whose cost exceeds $125,000, the need for a preventive maintenance system is applicable to all golf courses regardless of the amount of equipment they may own.

Having equipment ready when it is needed is very important to the golf course superintendent, because it contributes to the producing and maintaining of a well-groomed golf course. In addition, the saving of dollars realized by the reduction of the total cost per acre in maintaining a golf course must always be uppermost in the superintendent's mind. He should always remember that every $10 saved by more efficient maintenance or repairs to his equipment is the equivalent of $100 collected in green fees. (For this is $10 essentially converted into profit versus $100 of gross income required to achieve the same.)

In a discussion between Alexander Radko of the USGA Green Section and Robert D. Cochran, our green committee chairman, Mr. Radko mentioned that the Green Section had tried on many occasions to determine the average cost for mowing 1,000 square feet of green putting surface; the cost of raking 1,000 square feet of sand; the cost of mowing one acre of fairway, etc. Actually, it was this brief contact that encouraged us on the quality of our system of records. This system will not only answer those questions, but also can determine that cost of maintaining your green by individual process, or all the processes ranging from mowing to changing cups, from spraying to fertilizing, or any and all the other functions you may feel important to your overall golf course management and cost accounting.

Mr. Radko was not seeking this information just to make conversation but because he realized that in order to alleviate the high cost relative to golf course operation you must stretch your budget dollar. By keeping records you can justify the expenditures you are making, but should the inevitable budget cuts occur, you have the information at hand to show the committee how the proposed cut in funds will affect your operation in terms of trees not trimmed, drainage trenches not dug, water systems not repaired and labor-saving equipment not purchased.

The Preventive Maintenance Program

The key factor in any maintenance program is the operator, not the mechanic. It is the operator who detects in time a mechanical problem so that a mechanic can correct minor

Figure 1. The Maintenance Control Board shows at a glance the status of equipment at the Avalon and Avalon Lakes Golf Course. Superintendent Dean Peterson uses this board during conferences with his assistant supervisors, John Setak (right) and Robert Mizike (center).

failures before expensive and more time-consuming replacements are required. Proper operation and use of equipment is as important a part of preventive maintenance as the scheduled service recommended by factory engineers in their service manuals.

Putting these last few paragraphs together we have the basic definition of preventive maintenance; the systematic care, inspection and servicing of equipment and detecting and correcting minor failures before expensive replacement and more time-consuming repairs are required.

To insure that all important parts of the equipment are checked thoroughly, two types of maintenance service are required. The first is performed by the operator each day prior to, during, and after operating his equipment. Second is the scheduled services performed by a mechanic. This service is basically that recommended by factory engineers, and the experience factor relative to your own specific use of the equipment and information gathered from past equipment utilization and repair records.

In order to have a scheduled preventive maintenance program, a system of records must be used that provides the necessary information to schedule equipment for service with the least possible interference with the turf management operation. The preventive maintenance program is based upon the hours accumulated by each item of equipment. Use of equipment will differ among golf courses, but if records are being kept, the hours accumulated will be a guide to other requirements that cannot be found in maintenance manuals. An example of this is in the establishing data for projecting your lapping and sharpening requirements and bed-knife replacements, as well as your spare parts stockage objective. So it is obvious that in order to have any projected preventive maintenance program, a system of records is essential.

The Record System

The smooth operation of any maintenance system depends upon the understanding and completion of certain forms and records plus the availability of all pertinent operator, maintenance and parts manuals. These forms, records and maintenance manuals provide uniform procedures for the control, operation and maintenance of equipment. In addition, it also provides a means for gathering cost data to justify expenditures, as well as to evaluate equipment. (This is precisely the information that the green committee and board of trustees want to know.)

Though your golf course may have a variety of equipment, the system followed at the Avalon and Avalon Lakes Golf Course can be used for all equipment, regardless of the variety or amount.

The information required by these forms is provided by the operator and the mechanic, with information recorded and analyzed by the green superintendent, who recapitulates certain entries to condense data for committee, budget and progress meetings. These records also provide a consolidated daily record of all items of equipment used in each of the turf management and golf course maintenance areas. Interestingly enough, although the system consists of five basic forms, the majority of the key information is provided by the operator and the mechanic—information that takes just a minute

or two to record will provide pieces to a large picture puzzle—a picture that is completed by one complete season or annual cycle. (See log and record charts).

The foundation of this record system is based upon the *Employee's Daily Operation and Maintenance Log.* It is here that the worker enters the basic elements of information required for this record system.

The Monthly Labor Utilization and the Monthly Equipment Utilization forms consolidate all the daily totals of labor and equipment hours used in performing specific tasks, and reflect the daily totals to come up with the monthly totals.

The Annual Labor Utilization and the Annual Equipment Utilization forms reflect all the monthly totals gathered from the monthly forms and show the annual total of labor and equipment hours, as well as each specific area where labor and equipment were utilized and the processes that were performed.

The annual forms are the simplest to complete and the most indicative of your overall golf course operation. You can tell at a glance when you have fertilized or sprayed, watered or aerified, together with a man hour figure that tells you the cost of any specific operation, or the equipment used in performing these tasks.

The preventive maintenance requirements are geared to this information gathered from these forms. This data that indicated the total hours of operation for each item of equipment enables the superintendent to forecast engine overhaul requirements and specific schedule maintenance in accordance with factory recommendations, as well as your projected equipment replacement program.

It also enables you to review items of equipment that have not been used to determine if the lack of hours was due to lengthy down-time, or because of an inferior product or a change of requirements.

Those items that show a high usage factor may warrant the purchase of a more efficient machine that may pay for itself due to less man hours utilized in accomplishing the same task.

The seasonal needs and usage of specific equipment are apparent, and this information is used to schedule equipment for scheduled maintenance, and also when these items can be serviced for storage to prevent deterioration because of idle equipment. The frequency of use determines the frequency and type of service your equipment should receive.

The Annual Labor Utilization together with the Annual Equipment forms provide a composite picture record of your complete operation. It is a tool that you can use to convince your green committee in any area where they may need convincing. Our green committee chairman showed his confidence in our judgment by authorizing the purchase of a triplex for greens mowing. Initially we speculated on this new labor saving machine, but now our records attest to the wisdom of his decision by showing the man-hours saved.

At Avalon and Avalon Lakes we can read the weather from the Annual Equipment Utilization forms. When our lift-pump is used to lower the lake level, it shows that we had rain. When the irrigation equipment is recorded, it shows the need for offsetting a dry spell. These items of information are interesting and useful, but the basic document that feeds the information to this form, the Operator's Daily Operation and Maintenance Log is the foundation of the entire record and maintenance system. It is here that we deal with the most important and critical element of any maintenance program—the operator and his equipment.

It is here that the superintendent can check for work progress and problem areas. He can tell whether the employee was or was not working efficiently. He can also see if the mechanics have responded to the mechanical difficulties noted. It assigns direct responsibility for your equipment to the operator and minimizes unreported maintenance problems. If used properly, it will assist you greatly in doing something about the "whether"—whether you will be ready to go when conditions warrant.

The Employee's Daily Log is the only form that requires explanation to the employee. Actually, there is only one column that requires any real explanation and that is the "Job Code" column. In order to identify a specific job, a job code number has been assigned. A four digit number is used. The first two digits are assigned to specific areas. We have assigned numbers in order of priorities and frequency of use. Example—the name of the golf game is "greens" so the area of greens has been assigned "01." The process performed with the greatest frequency is mowing, cutting and trimming, so this process has also been assigned "01." The combination of both numbers makes up the job code. 0101 denotes that the greens have been mowed; 0103—changing cups on the green; 0105—watering greens, etc. The system is best understood by looking at the job identification list. The Job Code Identification List is posted in an area that the employees use for recording equipment used and work performed.

To give the system additional flexibility, a double "00" is provided so the employee may add in the "remarks" column any area or process not listed. This enables the superintendent to add, if he deems necessary, the new process or area noted. All other columns

Figure 2. Superintendent Dean Peterson (left) explaining to the Green Committee Chairman Robert Cochran, the job numbering system. Basically it is a four digit numbering system. The first two digits denote the area of operation, the last two digits denote the job performed.

on this basic form are self explanatory. The mechanic who makes repairs or adjustments required adds his "OK" in the same "Remarks" column where the operator recorded his complaint.

By referring to the log and records charts, we can further see that with the exception of the Employee's Daily Operation and Maintenance form, the remaining four forms deal with just two columns. The Monthly Labor Utilization and the Annual Labor Utilization deal with job numbers and total hours of labor. The Monthly Equipment Utilization and the Annual Equipment Utilization forms deal with equipment number and total hours of equipment operation.

In addition to the operational monitoring and maintenance data, this record system can show facts that may warrant the use of the services of turf tool rental companies or franchised spray service companies or even helicopter spray services. After reviewing your Annual Equipment Utilization form you may consider rental equipment as an answer to your needs at a substantial savings in costs, particularly with respect to equipment that is used infrequently.This equipment is expensive, not only in initial cash outlay, insurance and interest, but it also takes up valuable space in your maintencance building during the periods when it is not in use.

We must constantly evaluate the effectiveness of the equipment we use in golf course maintenance, for today's newest design is tomorrow's obsolescence. By reviewing your equipment records you will find a great deal of your special equipment will fall into the category of "seldom used." Your records, together with your turf management requirements, will help you decide if ownership is really economical. (Sometimes rental cost of equipment is less than the interest cost of the funds required to make purchases of certain specialized, seldom-used equipment.)

If the services of equipment rental companies are not at hand and you must maintain a large fleet of equipment, you may consider offering your own equipment rental service. Always keep in mind that your own turf maintenance requirements have priority.

The golf course superintendent is responsible for many areas, but the old cliche still holds that a golf course superintendent does not supervise golf courses, he supervises people! Yes, people who work with a variety of equipment to perform many functions that, hopefully, assist him in presenting a golf course that is well-groomed.

In order to supervise your employees efficiently and monitor your over-all operation, a preventive maintenance system and a record system (other than those notes on pads provided by your friendly salesmen) are a must! As a rope is made strong by weaving and intertwining a series of individual strands, so the weaving and intertwining of your preventive maintenance, record system, and personal supervision gives your overall operation strength and efficiency. You see, you can do something about the "whether."

EMPLOYEE'S DAILY OPERATION AND MAINTENANCE LOG

AVALON LAKES GOLF COURSE DATE 7 JUNE 70

INSPECT EQUIPMENT PRIOR TO USE

Employee	Equipment Number	Job Number	Hours Labor	Hours Equipment	Fuel Oil	Remarks Repairs Required
ULP	A-17	0201	3	2 ½	2 gal	OK
BILL	A-18	0101	3	3	2 gal	OK
TOM	A-19	0101	3	2 ½	2 gal	HYD. LEAK R. MOWER (OK JOE. P.)
BONES	~~A-24~~ A40	0106	5	4 ½	10 gl.	OK BACK 9
BART	A-250		-	2 ½	-	OK
	A-80	0105	2	1 ½	2 gal	1-3-5 GREEN
ULP	A-21	0301	6	5	9 gal	L WING REEL HIT STONE
JOHN	~~A-25~~ A43	0401	10 ½	9 ½	10 g	OK
ZEKE	A-110	1101	2	1 ½	1 gal	OK
JDE	-	1010	2			
JDE	-	1011	3			
JOE	-	1012	3			
AL	-	3131	2			
AL	-	2011	6			
DEAN	-	1900	9			SUPERVISED ATHLETIC FIELD CONST. FOR CHURCH
Daily Total			59 ½		39 gal	

SERVICE EQUIPMENT PRIOR TO SECURING. REPORT ALL DISCREPANCIES NOTED.

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AVALON LAKES GOLF COURSE

Monthly Labor Utilization Record

MONTH JUNE - 70

Job Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Hours
0101	5	7	5	4	11	4	6	8	7	7	6		7	7	3	6	9	5	6	5	6	12	3	5		6	3		6	6		165
0105	6	3			3		2	2		12	7		8	2	8								3			4	5				10		75
0106					10	6	5										11			4		6	9									51
0201	9			2	9		3	2	4		15				17		8		7		11			3			9				110
0301	7	2			7		6							9				4		4		7			5			7		3	61
0401		9	13	6	10	4	10½	7	11			13			8				5			3½		4		4			2		110
1010	4	4	3	4	3	2	2		3		4		6		5		5		6		5		5		5		5		4	5		80
1011	11	12	11	8	11	5	3		11		10			6		16	20	14	11	10		12	8		8	5		10	9			211
1012		1			2		3																2			3		2			13
1101				6			2				3		1					4				1	3					3			23
1900							9																								9
2011							6				4						4						8				6				28
Daily Totals																															

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AVALON AND AVALON LAKES GOLF COURSES

ANNUAL LABOR UTILIZATION RECORD

1970

Job Number	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	Total Hours Avalon	Total Hours Lakes
0101	20	96 86	186 148	199 165	195 175	206 162								
0105			28 84	62 75	110 100	97 110								
0106		26 20	26 38	12 51	32 57	16 32								
0201		49 48	100 78	108 110	95 96	89 97								
0301		19 17	102 63	85 61	93 48	41 36								
0401	4	20 3	138 175	139 110	149 113	80 86								
1101		40	65	72	25	52								
1010	100 140	110 150	50 72	20 60	30 100	70 60								
1011	25 27	30 32	70 80	90 111	110 200	115 160								
1012	7 11	5 5	10 10	11 13	10 12	12 14								

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AVALON LAKES GOLF COURSE

Monthly Equipment Utilization Record

MONTH JUNE 70

Equipment Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Hours
A-17	5			3	8		2½	10	4		8				10		4	1½	4			9				6			9			84
A-18	4	4	2	2	11	4	3	2	4	3	9		3	2	1	3	7	3	3	3	6	3	3	2		3	3		3	3		99
A-19	2	3	3	3			2½	2	3	4	2		4	3	5	3	3	3	2	5	1	1	2		3	3		2	3			67½
A-21					3		5			8			3		3		12	3				3	4		3			4				51
A-24		2			12		4½	13	3	6	11	4	5	6			3						1½		3	5				4		83
A-25					7		9½		3		11	5								1	3	2½			9	4				4	3	67
A-40					4½		4½										6			3	3		4		4	3				4		36
A-43		4½	4				9½					4											4									26
A-80	2	8	4				1½			3		2½				1		2					1									25
A-110		2	6	2	1½		1½		3			2				2		1			1		3	2				1	4			32
A-250					10	6	2½						11							4		6			5					1½		46

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AVALON AND AVALON LAKES GOLF COURSES

ANNUAL EQUIPMENT UTILIZATION RECORD

1970

Equipment Number	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	Total Hours Avalon	Total Hours Lakes
GREEN-K														
A-17	8	70	115	84	83									
GREEN-K														
A-18	7	43	96	99	96									
GREEN-K														
A-19			6	67½	78									
FUN-MOWER														
A-21		7	55	51	46									
TRACTOR		24	44	54	40									
A-24		18	89	83	29									
TRACTOR		22	12	7	13									
A-25	4	18	24	67	23									
SPRAYER		15	27	3	12									
A-40		33	12	36	32									
BLITZER														
A-43			17	26	6									
PUMP														
A-250				46	65	80								

USGA GREEN SECTION RECORD
MARCH, 1971

TURF TWISTERS

A BREAKTHROUGH

Question: Dutch Elm disease has reached Colorado and is ravaging our American Elms. Has any progress been made in its control? (Colorado)

Answer: The U.S. Forest Service believes a breakthrough may be in the making. Virgin female beetles produce a scent highly attractive to flying male and female elm bark beetles. If this scent can be produced synthetically, control of the destructive beetles may be possible.

Over the past 13 years, the Canadian Government has developed an elm believed to be resistant to Dutch Elm disease. It is known as the Quebec Elm and should be available commercially within a year. In the meantime, pruning and elimination (burning, burying or debarking) of all dead or dying elm wood is still the only effective control measure available to us. It's a tough problem.

IN IRRIGATION

Question: We are planning to install an automatic irrigation system this spring. What head spacing do you recommend? (Idaho)

Answer: Although there are a number of critical factors in automatic irrigation, head spacing is certainly one of them! We find that systems with 65-foot spacing consistently do the best job of uniform irrigation. Anything over 70 feet usually means some areas are going to be too wet and others too dry—regardless of the type of head, nozzle or pressure used. The wider the spacing (over 70 feet), the more irrigation problems one can expect.

FOR GOOD TURF MANAGEMENT

Question: We understand the Green Section maintains a list of recommended golf course architects. Would you please send us a current copy? (Washington, D.C.)

Answer: Although the United States Golf Association as a matter of policy will not recommend any particular architect to a prospective golf course builder, as a service it does maintain a list of all golf course architects known to the association in its New York City headquarters. The list is available upon request, but the USGA makes no claim that it is a complete list of everyone engaged in designing golf courses. The USGA does recommend, however, the booklet "Building Golf Holes for Good Turf Management," which was edited by the Green Section Staff.