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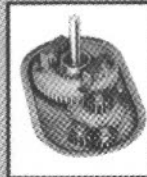
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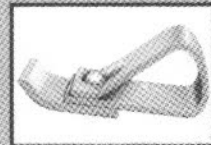
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The Forgotten Holidays: Memorial Day

By Monroe S. Miller

There are so many things I like about this business of golf course management that it would take more pages than this journal has to enumerate them. As one matures in the profession he quickly recognizes, however, that you must take the bad with the good. And there most definitely are some features and aspects that are at least uncomfortable if not actually bad. The worst of them is losing three important and fun holidays from our lives - Memorial Day, the Fourth of July and Labor Day.

These three summer holidays are great ones for golfers. At our Club there are a host of special events - simuttee starts on two of the three weekend days, couple tournaments, family golf and more. These require that we focus a lot of attention and a whole lot of work making the golf course as enjoyable as it can be for the players. The result is working in split shifts, putting in long hours and in essence, losing the true meaning of the holidays because of the effort expended. I don't like it.

Memorial Day should have special and deep meaning to Americans; too often it does not. Many associate the Day with the start of summer. It is the time of the great 500-mile auto race in Indianapolis. For some it merely marks the beginning of the vacation period - a weekend for fishing and camping and golf and lolling at the beach. Ask many about its significance and they cannot tell you.

But this certainly has not always been so. In its origins it had a far different and more serious significance. It all started two years after the Civil War. The New York Tribune carried a brief news paragraph reporting that "the women of Columbus, Mississippi have shown themselves impartial in their offerings made to the memory of the dead. They strewed flowers alike on the graves of the Confederate and of the National soldiers." Chauncey Depew, a famous orator of the time, described the effect of this act: "As the news of this touching tribute flashed over the North it roused, as nothing

else could have done, national amity and love and allayed sectional animosity and passion. Thus out of sorrows common alike to North and South came this beautiful custom."

And it did become a custom. In 1868 John A. Logan, who was the commander-in-chief of the Grand Army of the Republic (as the veterans of the Union Army were known) designated May 30th "for the purpose of strewing flowers or otherwise decorating the graves of comrades who died in defense of their country during the late rebellion, and whose bodies now lie in almost every city, village, or hamlet churchyard in the land;" and he expressed the hope that "it will be kept up from year to year." So the custom began and it quickly became an official holiday in most states, North and South alike. It was called Decoration Day until 1882 when the GAR decided it should be known as Memorial Day. I still recall my grandfathers calling it Decoration Day.

It is almost with a sense of guilt that I'm writing these thoughts; I've lost sight of the importance of Memorial Day in my recent adult years. Too much attention has been given to the golf course I'm responsible for - the preparation has consumed too much interest. But that was not true during my youth. In our town, Memorial Day was something very special. It meant a parade with veterans stuffed into military uniforms that no longer fit. It was a church service held to remind the congregation of what the day meant. It was an honor guard and a 21-gun salute honoring fallen comrades. And for two years while I was in high school I had the overwhelming privilege - indeed, honor - to recite the poem "In Flanders Field" before the crowd gathered in our community building. It is a beautiful poem that commemorates those men no longer with us:

*In Flanders Field the poppies grow
Between the crosses, row on row,
That mark our place; and in the sky
The larks, still loudly singing, fly*

Scarcely heard amid the guns below...

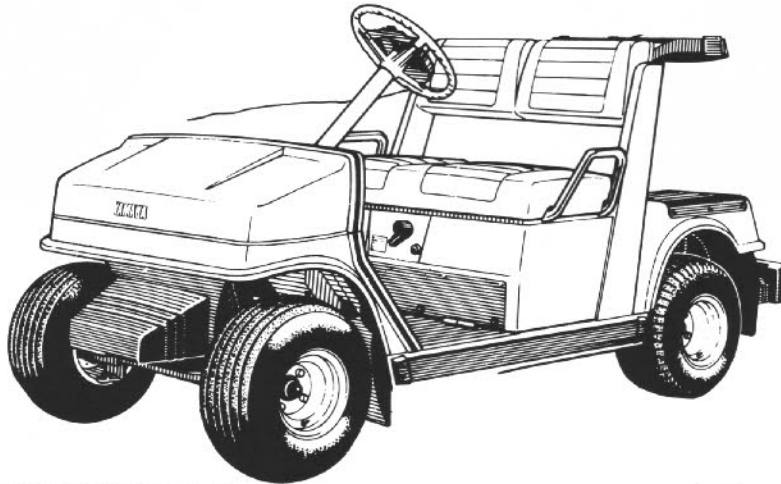
For those fulsomely self-righteous, cynical deprecators of patriotism who suggest that Memorial Day is little more than a glorification of the military, I remind that most of those fallen men we are honoring were very young and neither had a wish to die nor a career in military service. They were merely serving a call to service given them by their country, to defend freedom somewhere in the world. Their dreams and hopes for happiness in America were dashed and it seems little to ask to set aside this one day to keep alive the idealism they died for. It is only natural I feel this strongly. I am a proud veteran of military service. It does not matter to me that it was duty in our most unpopular conflict. What is important to me and others involved in that war is that we served, rather than moving to Canada or elsewhere to avoid responsibility of citizenship in this country. And I cannot forget seeing hundreds and hundreds of body bags flown in from the far reaches of Vietnam, on their way home - their final trip to anywhere. My family has a long history of volunteering or answering the summons of our government for military service. My father and uncles and theirs before, clear back to the 1700's when many of mine were fighting as revolutionaries and minutemen at Lexington and Concord.

My father's young brother gave the ultimate in conflict when German artillery took his life in France at the tender age of 18. The world lost a wonderful young man when Malcolm Miller was killed in World War II - it took him and millions like him. Is it asking too much to honor their memory for one day of the year?

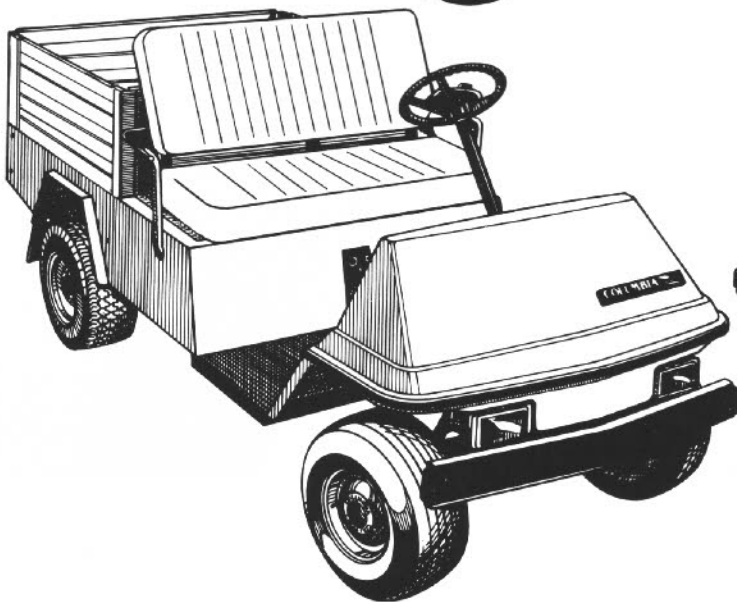
Our golf course will be ready this year, as in other years, for all the pleasure the game can give on this Memorial Day weekend. The lilacs will be beautiful, the earth will be warm and the flowers will be blooming. I am the lucky one, and so are you. We are here to enjoy them. Let us all tell the unlucky ones that we do care and do appreciate what they gave - their lives for our country in its lengthening history of freedom and justice. We should do no less.

Thank you,

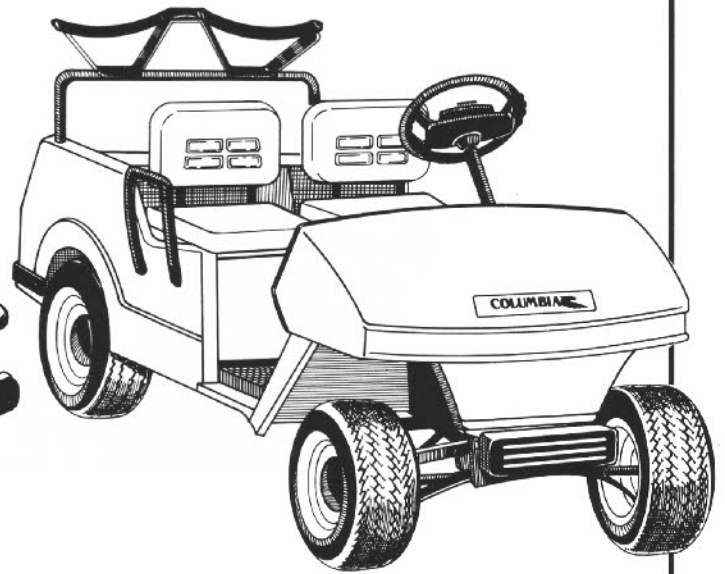
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Thirty Years—And Counting—On The Future

James M. Latham, Director
Great Lakes Region, USGA Green Section



Thirty Years

Just about this time of the year in 1957, the Midwestern Office of the USGA Green Section was opened by a brave young man named Jim Holmes. The first office away from the Green Section headquarters in Beltsville, Maryland, had been set up by Charlie Wilson in Davis, California some five years earlier. Offices in New Jersey, Texas and Georgia were established in between. There was some conjecture as to who would staff this office - Holmes or Latham. Since Holmes was more understandable to Yankee ears than Latham, he came here and I went back South, to move the Green Section's Southeastern office to Athens, Georgia.

In winning this assignment, Jim Holmes began evangelizing about topics which remain of major interest today. He agitated for and helped to build the first "Green Section Greens" in this area, if not in the country. Unfortunately, we did not know enough about the playing performance of sands at the time. Concrete grade sand can be agronomically acceptable, but it never "ages" well for shot receptivity.

Further, everyone expected the new greens to play just like the 30 year old greens on the other holes when they were at their best. They didn't. After all, nobody rebuilds a good green. This same parallel can be made today, although good quality sand-peat combinations do play extremely well early on. In spite of the artificiality of the growing medium, good greens are like good wines and do improve with age. (But they can also become vinegary if mishandled.)

Another of Holmes' innovations was disease identification in the field. We still have the laboratory microscope he carried around in the trunk of his car. Untold numbers of superintendents and their assistants got their first peak of plant disease causing organisms through that microscope. He delighted in showing off dollarspot and brown-patch organisms, but his real pleasure was Pythium and its rate of growth.

During these show and tell periods, he began to see some snake-like animals moving through the microscope view. They prompted his becoming interested in parasitic nematode damage to turf. He became a leading exponent of nematode awareness in the North even though the names seemed to be too difficult to pronounce, much less spell. Today, however, Tylenchorhynchus has no more fear of superintendents than Gaeumannomyces or Xiphenema than Xanthomonas.

A final chapter on this story is that Jim will team up with Carl Schwartzkopf, another former Green Section staffer here, to build a new course near Lansing, Michigan. I wonder who will be making book on agreement about sand type, peat quality, drainage specifications and the scale of other decisions. I'll lay odds that there will be few, if any, disagreements if the principles which both know so well are followed.

And Counting

The 1987 Season should now be foremost in everyone's mind since there was a bit of favorable weather early-on. Many fall jobs were postponed because of the wetness in September and should get ASAP treatment. Hopefully the poorly drained areas left undone last year have been marked for work now. In Milwaukee, at least, 1986 was the third wettest year on record, receiving 42.17 inches of rain. Unfortunately, those records don't include the beginning of the wetness problem in November of 1985.

If everything was marked or mapped during high water times, there should be no reason for a repetition of the same degree of damage the next time we have a January thaw or a wet and hot July. The rapid removal of water from the turf surface should remain a primary goal at every golf course. Drowned turf is just as dead as dehydrated turf, yet who has even hinted at a drainage system half as elaborate as a "modern" irrigation system? Nah - just cut a trench over there and dig a

hole to absorb the water. Even in clay!

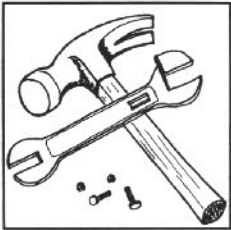
We must be slow learners, because almost every book, paper or lecture on golf course design or construction stresses drainage above all. And who has ever seen or smelled a Black Layer where drainage was unimpeded? Drainage encourages an adequate oxygen supply in the soil. Layering and compaction reduce drainage. There may be other problems but they are minor when compared to these two. Sulfides do not form in well aerated soils. They are usually formed by organisms or chemical reactions which take the oxygen out of sulfate ions under anaerobic conditions.

On The Future

The next 30 years in the Great Lakes Region may be no more revolutionary than the last. But that's just fine, since evolution means more solid development of desirable characteristics. Changes will occur, but of much less magnitude.

Perhaps the most likely thing will be no-fault (or at least no-gripe) year-round play. With functioning Green Section-style green construction, with continuous golf car roads (or reasonable turf-saving facsimiles), with the total and learned control of irrigation and drainage water and with hardier grass types, this goal is not unreachable.

Some of these required components are available today. Others may come out of the USGA/GCSAA Research Program if it continues to receive adequate financial support to achieve its goals. The other needs will be met by the industrial community if a demand is created. Note that this means that the bottom line financing comes from within the golf industry. If we are to create ultimate turf for optimum golf, we can no longer ride on the coattails of traditional agriculture. If we are to rely on state universities for help, then they must pay more heed to the needs of Urban Agriculture, where their major source of tax support (people) originates.



Reel Maintenance: Spin Grinding - "The Rest of the Story"

By Thomas R. Harrison

Over the years golf course superintendents have come across many innovations to make their work easier. The very nature of our work dictates some innovative talents or desires to improve the quality of our courses and to lessen the cost of maintaining them. For every operation on our course there are 10 sales people at our door with their rendition of how to make the job easier and save us money. At least 7 out of 10 of these people are selling poorly designed and poorly conceived products. I can think of dozens of these marginally designed pieces of equipment that I have seen over the years. Every company, whether they are in turf or not, has its good and its bad equipment to offer. A superintendent needs to use good judgement and common sense when evaluating new equipment and the preventive maintenance practices he will employ to make this equipment last.

Sometimes idea people, innovators as they indeed are, will try in vain to solve a problem with the sincerest of efforts. But the solution probably will not be there easily. Try as they may to make a difficult, time consuming job easier, the fact too often will be that the task will not be solved completely and easily at a reasonable cost. The subject that I am leading up to is the care and maintenance of fine cutting mower reels and, ultimately, do we spin or relief grind. How do we properly take care of high speed, low height of cut, high maintenance reels?

Since the advent of light weight fairway mowers, people have not done an adequate job of caring for the cutting heads. For too many years people tried running high frequency reels without the proper amount of preventive maintenance. When manufacturers delivered their first light weight mowers nobody bothered to explain to the purchaser the extra measures needed, on a daily basis, to keep the equipment running trouble free. When those first light weights did not keep their set as long as the old pull gangs did, people

started to blame the manufacturers. Rightly so the manufacturers and distributors were blamed, as they should have found in their field testing that these new light weight mowers need lots of extra care and that it is imperative that the purchasers were fully aware of this. The mowers need setting daily, and the cutting edge has to be kept at its optimum all year. The forgiveness factor, that is, "how rounded can the cutting edge of this reel and bedknife get before I have problems", is a lot less with the new light weights than the old gang mowers. The light weights require that the mowers be set daily with paper and that the leading edge of both reel and bedknife be kept reasonably sharp. Pinching the grass off with the old pull gangs at $\frac{3}{4}$ " was tolerable in August in years past but nowadays the light weights won't make it through on a marginal cutting edge. Pinched leaf blades with a higher frequency of cut, light weight mowing reel are a minor disaster.

Some superintendents have slowly come to realize that these mowers need more attention. They see that their mechanics need to be given more training and time to care for this equipment. As we are slowly coming around to accepting this added time requirement for preventive maintenance, we again are searching for ways to make it easier to maintain these new cutting edges.

Spin grinding, or truing up a reel by using the centerline of the reel shaft as the pivot point to set the grinding stone to create a perfect circle and thenceforth a true cylinder, is not a new concept. I remember Pete Miller teaching me 21 years ago how to set a reel on its reel shafts into an old Simplex grinder to true up a reel and remove any possibility of the reel having a conical shape. The present flurry of interest involving spin grinding and the push to purchase these expensive spin grinders is a tremendous tribute to free enterprise and the value of sales and marketing hype. Spin grinding is

a good way to remove the cone shape from a reel if the reel is conical. Other than that it is not a good practice to follow if it is the only care for a reel. In over 20 years of teaching people how to grind with the old Simplex grinders I have never had a man grind a reel off center to the point of the reel becoming conical. We check for a cone shape on every reel that goes into the grinder, but we have never had to compensate by spin grinding a reel on its center shafts.

Modern day light weight fairway mowers, and green and tee type mowers, all require the same type of consistent daily setting and adjustment. If the adjustment is done too tightly or too infrequently you will have problems. People tend to adjust these mowers too infrequently thus causing the reel to cut poorly and end up with a rounded leading edge on the reel blade and the bedknife blade. To compensate for this they then set the reel tighter to "make it cut". Or people will over-tighten the reel to bedknife adjustment in the first place because they do not know any better, eventually causing the bedknife to rifle. Finally, after starting down this path of poor mower care, the reel needs sharpening. Now this strikes terror into a lot of superintendents. Why sharpen a reel during the growing season? "Not if I can help it," some say. So we drag out the lapping machine to try to remove .020 inch of rounded, hardened steel. The results are poor at best. That much steel can be lapped off in 8 to 12 hours, maybe. Lapping was never meant to remove steel, but rather to hone the reel and bedknife together. If a rounded edge is lapped down too many times, the result is no relief between the reel and bedknife. A relief angle, or area of clearance behind the leading edge of the reel and bedknife blade, is critical to proper mower operation. That relief area is important for the quick removal of cut grass away from the low clearance contact point of the reel and bedknife. A spun ground system allows a maximum contact width between the reel and bedknife. When a blade of grass is cut by the leading edge of the reel and bedknife it then must pass backward through the reel and bedknife before exiting out onto the ground. If the tolerances between the reel and bedknife are 2% or less, or if the reel is set too tight, then the already cut grass blades are pinched between the reel and bedknife. Even though the

grass blade is cut by the leading edge it must physically fit between the reel blade and bedknife. With little or no clearance the grass blade gets pinched on its way out and causes binding. This pinching and binding very quickly take the reel out of set; that is, it widens the gap between the reel and bedknife to the point of poor cut. This widened gap consequently causes leaf blades to lay over the leading edge of the bedknife and reel causing these edges to become rounded. Now we're back to "a poor cut, let's set it tighter, we can't sharpen it now, let's lap it in" type of problem solving.

The proponents of spin grinding say they can sharpen a reel faster than relief grinding. And they are right. They can sharpen a reel faster than any other method. But the problem is that if the reel was ground with some relief to begin with, thus eliminating binding and loosening the set, you would not have to be grinding at all. A properly ground reel with relief, set with 2 sheets of thin (newsprint) paper on a daily basis, will outlast a spun ground reel by a 2 to 1 margin before needing major work. Time savings in using the spin grinder are erased because you will have to do it almost twice as often.

Superintendents who are having troubles with their quality of cut lasting and consequently their reel stock becoming rounded are making several basic mistakes. First, new reels come from most equipment manufacturers spun ground. Not because it provides the best cut, but because it is economically the best way to get the reel cylindrical and usable. We make the assumption that a newly delivered mower is ready to cut. It will cut adequately, but only for about 6 to 8 weeks. Then we start over-tightening, lapping, and complaining to the distributor about the lousy cut. Or we tell the distributor we have a bad set of bedknives or reel stock. I have seen poorly hardened steel in bedknives and reels only twice in 21 years. Newly delivered mowers, with spun ground reels, need to be reground with a slight relief grind, before they are used. They must then be set properly before doing any mowing. This proper setting, with paper, is critical because we have all at one time or another, tightened a reel down too tight to make it cut. This destroys the temper and cutting ability of any reel. There should never be any contact between a reel and bedknife. The air gap between them should be the thickness of one sheet

of newsprint. If you put 2 dry pieces of paper through the reel, it should cut one cleanly, and leave the other sheet intact. If it cuts two sheets, you're too tight, but usable. If the one sheet is cut ragged then think about a light lapping. Optimum is for the reel to cleanly cut one sheet and leave the other.

Lapping a reel with slight relief is easy and quick because there is minimal contact between reel and bedknife. This minimum land area makes minor removal of uneven steel easy. An uneven cutting, spun ground reel will take longer to lap in because you are wiping 6 times the width of contact area. You will have to lap longer, tighten the reel tighter and use more lapping compound.

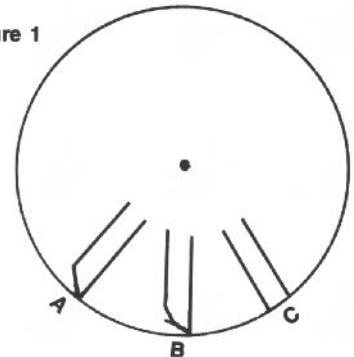
One of the other problems of using a spun ground system is reel life. Your reel life will be 40% less with a spun ground compared to a properly cared for and set relief ground reel. The reason is illustrated in Figures 2 through 5. Figure 2 shows a reel blade as it may enter the shop in late fall or any time when the leading edge has become too rounded. Figure 3 shows how the reel is ground during winter maintenance. The grinding stone must be set to duplicate the previous years relief angle but not take steel off to a point on the leading edge. Merely true up and add to the left over relief grind from the previous year. If you have no relief grind left from the previous year you are either setting your mowers too tight or not putting enough relief on to begin with. Figure 4 shows a lapped reel with a true, sharp leading edge and that the sharp edge was created by lapping off part of the old rounded leading edge. Figure 5 shows a spun ground reel entering the shop for winter. This spun reel will be spun ground until the rounded edge is removed to a sharp cutting point since it cannot be lapped. The difference is the removal of all the rounded edge in spin grinding while only removing part of the round in relief grinding. Relief grinding will, on the average, leave about .010 of an inch of steel extra on the bedknife each time grinding is necessary. This extra .010 of an inch each time you grind will significantly increase reel life. Multiply this times the extra number of times you will have to sharpen spun reels during the season and the savings could be considerable.

The computer printout by Express-Dual is an interesting piece of advertising. The printout, on face value if you quickly skip to the bottom line, is im-

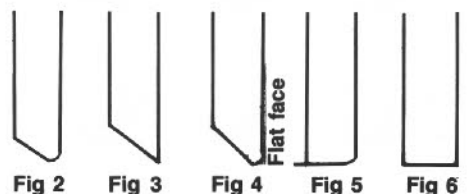
pressive. But if you really sit down with pen in hand and think about actual operating conditions, their concepts do not hold water. The numbers will not add up. They cannot acknowledge pinched grass between reel and bedknife. They state longer reel and bedknife life, which is not true. They will not admit to more frequent sharpening, compared to the lapping of a relief ground reel. Their tremendous cost savings are based on the assumption that spin grinding will give the best long term results, which they will not. They are trying to sell a product which is great for production in a manufacturing plant to create a true cylindrical reel, but it does not provide the best, long life cutting reel. The rounded edges, pinched grass, wider blade contact areas and personal experience tell me spin grinding is not going to provide the best long term quality cut. If spin grinding was that good, none of us would be complaining about how poor factory sharpened spun ground reels are when the last week in June rolls around.

To those that are unhappy with relief grinding and the increased maintenance with small reels, don't blame the manufacturers, distributors, or the quality of the steel. The fact of the matter is that there are no easy short cuts in good reel care. Relief grinding for the time being is still the best, season-long solution to proper reel maintenance. Spin grinding, unfortunately, is not the answer. Your knowledge and commitment to doing the job right will give the best results throughout the season.

Figure 1



A - straight relief grind
B - relief grind with back grind
C - spin grind

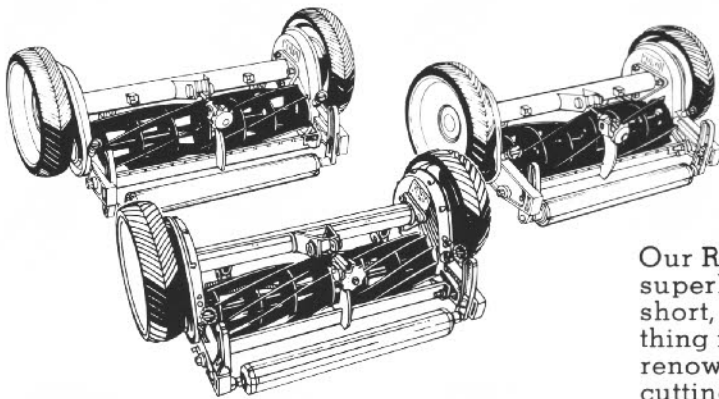


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Golf Course Maintenance: *Then and Now*

By Dr. David U. Cookson

Your editor has asked that I comment from the Player's Perspective on the changes in golf course maintenance that have occurred over the past 25 years as recounted by Tom Harrison elsewhere in this newsletter. I intend to first make a few general observations, then be a little more specific, and conclude with opinions as to what still needs to be accomplished.

The game of golf itself has evolved somewhat, which in turn has influenced golf course maintenance. A quarter century ago, golf carts were just beginning to be utilized, solid and hard cover balls were not yet invented, and general club play was at a much lower level of intensity. The effect of the golf cart on fairways and roughs is significant and obvious, the two piece ball rolls forever and will not stop on the green as quickly, and heavier play has forced the superintendent to be more imaginative in scheduling his projects and routine maintenance tasks; all of which subtly influences maintenance pressures on the superintendent. Despite increasing difficulties with compaction and turf wear due to the effects of the golf cart and increased play, I believe courses are generally in much better condition now than a generation ago, and improve gradually each year. Some of this is due to better equipment, and certainly more varied and effective pesticides and fungicides have played a role; but also increased turf research, better educated green superintendents, and the influence of television continually showing courses groomed to tournament standards has caused club members to promote better conditions at their own facilities. Today there is more emphasis on aesthetics; flower beds are in vogue, neatly trimmed clubhouse grounds extend onto the course, perhaps even to excess. At the same time, costs have escalated tremendously, requiring a lot more effort to balance managing the course

with the fiscal constraints demanded by green chairmen and boards of directors.

More specifically, there has been a substantial improvement in green maintenance. Speed is definitely increased, the green surfaces are smoother, thatch is less, and disease much less evident as a problem. This is due to less water usage, less fertilizer application, (as Tom Harrison has shown), but also to the triplex mower which has allowed greens to be mowed more often, and significantly too to better knowledge of proper green construction and topdressing practices. Along with this good news however are more complaints of greens not holding well, due to the lessened water use, and I think of more importance, the inability of the hard cover ball to "bite" the green. Some would not think the triplex mower a benefit, but I feel on balance and taking all clubs into account, it is a plus. There are some advantages for the club who can afford to use walking mowers daily, but the player appreciates the greens all mowed when play starts in the morning each day, and this was rare twenty years ago. Fairways too have improved, largely due to less use of water and better awareness of how to keep poa annua alive under stressful conditions. It was a rare course that played "summer rules" twenty years ago due to sparse areas in fairways from disease or poa decline, and many of our state fairways were kept shaggy and wet. On the other hand, roughs were probably better then than now, before the increased use of golf carts. Bunkers are now much better maintained generally with the availability of the mechanical rake, helped as well by better awareness of proper sand mixtures. Tees are generally cut shorter and have shared in the improvement of turf quality throughout the course. Many of these things have changed gradually and the golfer may not have noticed

unless he takes the time to reflect; but should conditions at any club revert toward what once was routine, the green superintendent is made quickly aware, making it obvious that golfers are definitely cognizant of the improvement in turf grass maintenance.

There is still a real difference between clubs in Wisconsin in terms of turf quality even though everyone has gotten better. This will probably always be so given differing resources of the different clubs, but "know how" can often make up a lot of the ground in disparity between two club's green budgets, and I would hope that the increasing knowledge of what works best will be more widely appreciated so that that all of our courses can be in near tournament condition most of the time. Obviously we need to learn still more about keeping poa healthy, or develop a better means of replacing it than currently exists. Better pesticides and fungicides will appear, and they are always needed. Oil will probably be short again sometime, and we need equipment that will utilize other fuels or energy sources cheaply. Most importantly, we need continued and enhanced education of our superintendents as new techniques become available. The Wisconsin Golf Course Superintendents Association is already putting great effort into this with good success, and this must always be encouraged.

To conclude, I think golf in Wisconsin in the eighties is better than in the sixties; we players recognize it but have become used to expecting more. This will not lessen the load of the green superintendent, but as knowledge advances and becomes widely disseminated, we will continue to make the same forward strides in the future as we have in the past.

David U. Cookson



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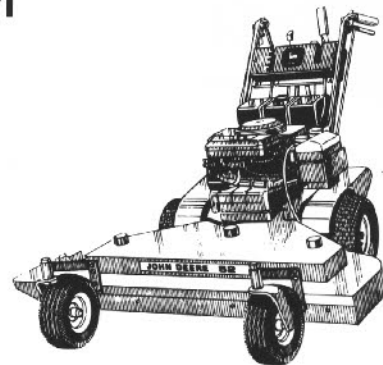
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