



The Green Section Staff Members contributing to this interview: from left—William G. Buchanan Duane Orullian, William H. Bengueyfield, F. Lee Record, James B. Moncrief, Alexander M. Radko, and Holman Griffin.

Triplex Putting Green Mowers

What weighs about 1,000 pounds; costs about \$3,300; comes in orange, yellow, or red, and somehow gains both supporters and detractors each day? The triplex putting green mower may be the greatest innovation in equipment since power machinery came to the golf course! But is it all good?

Just a year ago readers of the GREEN SECTION RECORD were promised a nationwide report on triplex putting green mowers by the Green Section Staff. The survey was delayed until now so that each Staff member would have an

opportunity to observe all makes of triplex mowers under field conditions and, with the added perspective of time, be better able to comment. Actually, it would be more comfortable to wait another year, but a report of this sort cannot be delayed forever.

The jury may still be out on many of the points raised in the following discussion, and opinions may well change. We publish the following report only in the belief that "current views are current news." We believe you will be interested in the comments, observations and

opinions of the Green Section agronomists today. The views are based on hundreds of personal contacts with golf course superintendents, Green Committee Chairmen, club professionals and others directly concerned. They are based on triplex putting green mower observations after weeks, months and years of use under all kinds of conditions. You may not find yourself in complete agreement, but we trust you will find the following exchange interesting, stimulating and thought-provoking.

The conversation took place in New York last January during the annual USGA Conference on Golf Course Management. Participating in the staff discussions were:

ALEXANDER M. RADKO, Eastern Director
WILLIAM G. BUCHANAN, Eastern Agronomist
HOLMAN M. GRIFFIN, Mid-Atlantic Director
JAMES B. MONCRIEF, Southern Director
LEE RECORD, Mid-Continent Director
WILLIAM H. BENGUEYFIELD, Western Director
G. DUANE ORULLIAN, Western Agronomist.

It was an afternoon of lively comment.

MODERATOR: *What percentage of courses will use the triplex mower on greens in 1971?*

RADKO: Most courses in the East either have used one, or plan to use one on greens full or part time this year. By the end of 1971, I would guess 75 per cent of our clubs will have one.

GRIFFIN: I really don't know, but I would have to estimate over 50 per cent.

BENGUEYFIELD: Yes, at least 50 per cent of the Western clubs we visit will be using the triplex this year. The number will surely increase for the next several years, especially in their use on tees. In fact, that's where I feel the present triplex putting green mowers are going to find their greatest use in the future—on tees!

MONCRIEF: There's no question their use on tees and collars is increasing daily. With the changing of mowing units now so easy, we will see the triplex used much more than on greens alone.

RADKO: But under present economic conditions, the new mowers may be too costly and perhaps too finely adjusted for some rough tee areas. And tee cleanup may also be necessary before mowing. However, as older equipment wears out, the greens triplex may well come into more prominent tee use. Everyone enjoys closely clipped tees.

BENGUEYFIELD: Yes, and the tees may be mowed more frequently and clippings removed. One man could do a superior job on tees and at no greater cost than most present practices.

MODERATOR: *How does the size and contours of greens affect the use of triplex green mowers—and tees too for that matter?*

RECORD: I'm sure there isn't a green or tee too small to mow with a triplex unit if there is an adequate collar on which to turn the machine.

ORULLIAN: Right. It's not the size of the green but what surrounds it; bunkers, steep slopes, trees, etc. that makes the difference.

BUCHANAN: As to mowing severe green contours, there could be a problem with the machine at the bottom of a steep slope where contours level off and a particular angle or direction of cut is involved. I don't believe these units can do a good mowing job on severely contoured greens.

RECORD: Especially when a brush is being used. On undulating and severely contoured surfaces, the brush treatment is very hard on the playing surface. Problems have developed here.

MODERATOR: *We are all familiar with the labor saving advantages of the triplex mowers, but are there any other advantages?*

GRIFFIN: Most of the advantages—and there are several—are really tied into labor saving and money saving considerations. But the new units also make golfers happier because the maintenance crew is not in the way as much.

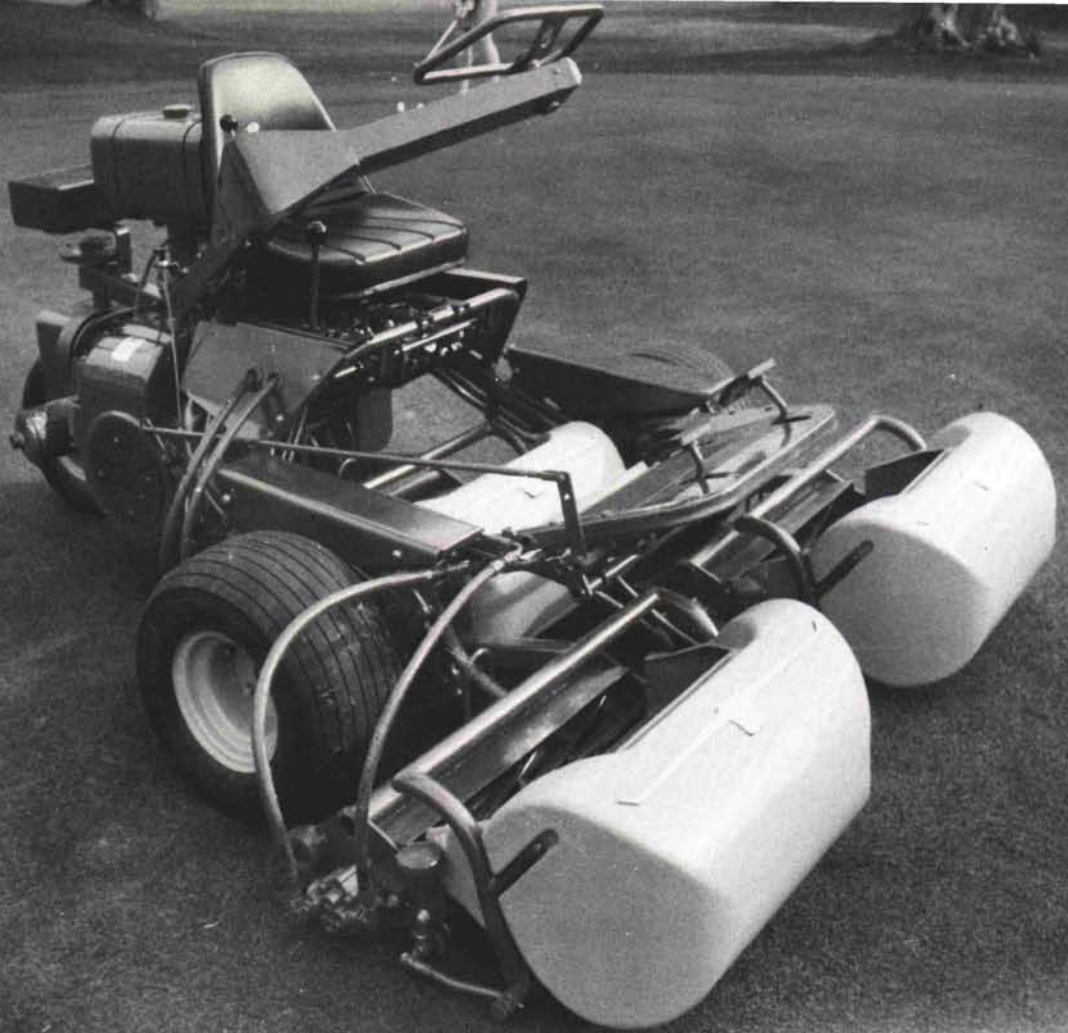
MONCRIEF: And that's an important point. Greens can be mowed faster and play is not held up.

RADKO: And it's a great machine to have in an emergency. It reduces the weekend labor requirement and pleases the weekend golfer. If for no other reason but to mow greens on Saturdays and Sundays, the triplex is well worth the investment.

BUCHANAN: I think too there will be a tendency to improve workmanship on the greens. Only *one* man will be operating the equipment and he'll be very good at it.

ORULLIAN: Some superintendents have told me there is a savings on equipment parts as well. They believe it is less expensive to maintain one or two triplex units rather than six or eight conventional units.

RECORD: For a minute, let's go back to the labor saving aspect. I can't necessarily agree that mowing with a triplex is a total saving in labor. It may be labor-saving for the mowing operation, but an increase in other operations; vertical mowing, thatching, top-dressing, have become necessary where the triplex has been used exten-



The Toro Greensmaster

sively. This equipment has created additional problems during periods of the year when labor is short and cultural programs have to be carried out.

ORULLIAN: Yes, and the smaller the greens, the less economic advantage there may be to triplex use.

MODERATOR: *Okay. Let's talk about some of the disadvantages.*

RADKO: Grain, thatch and compaction are definitely increased with triplex mowers. How serious they may become only time will tell.

BENGEYFIELD: Since the spring of 1968, at least one triplex mower has been in use on the greens of a club in Palm Springs, Calif. At first everyone was pleased with the performance, including touring professionals. With time however, increased grain developed; tracking or worn wheel paths became noticeable on the green perimeter and the "quality of cut" definitely lessened. In fact, the conven-

tional, hand walking mowers are now used prior to the tour event and other important tournaments. I've seen the same results at course after course during the past three years. With time, the quality of cut definitely suffers.

BUCHANAN: Well, the quality of cut may not be quite as good, but it's better than first expected. Superintendents soon learn they must set the mowers about 1/16-inch *lower*, than the single unit mowers. However, I agree that the possibility of increased thatch and grain from continuous triplex use is real.

ORULLIAN: With vigorous bents such as Penncross, an increase in grain and thatch is most evident. Even *Poa annua* greens tend to have more puffiness and mat. I think part of the problem is associated with the cutting height adjustment of individual mowers, and some report that bedknife thickness is also a factor.

MONCRIEF: I hear pros and cons on this, but

so far I feel the quality of the putting surface is just as good with the triplex as with the walking single unit. If the equipment is functioning properly, mowing should be comparable.

MODERATOR: *Some mentioned "ridging" and wheel marks. Any comments?*

MONCRIEF: I've seen many instances where grass has thinned and not been able to take the wear and tear of the triplex, especially during July and August. Perhaps this is what you mean by "quality of cut." But in any event, perimeter areas have been damaged and walking mowers must then be used. Of course, alternating the mowing pattern or track will help avoid the problem.

ORULLIAN: On the other hand, I've seen heavy rutting of 1/4-inch deep or more persistently occur on tight turns near green perimeters. I haven't seen any unevenness on the green itself however. And soil compaction especially under wet, soggy conditions is another reason not to sell off the older, smaller mowing units.

GRIFFIN: Speaking of wet conditions, several superintendents report wet grass clippings

dropping on the green from wheels and rollers of triplex units. This is more of a problem than with the conventional green mower. Some wheel slipping and tearing of sod while transporting has also been reported under wet conditions and steep slopes. Of course neither of these problems occurs under dry conditions.

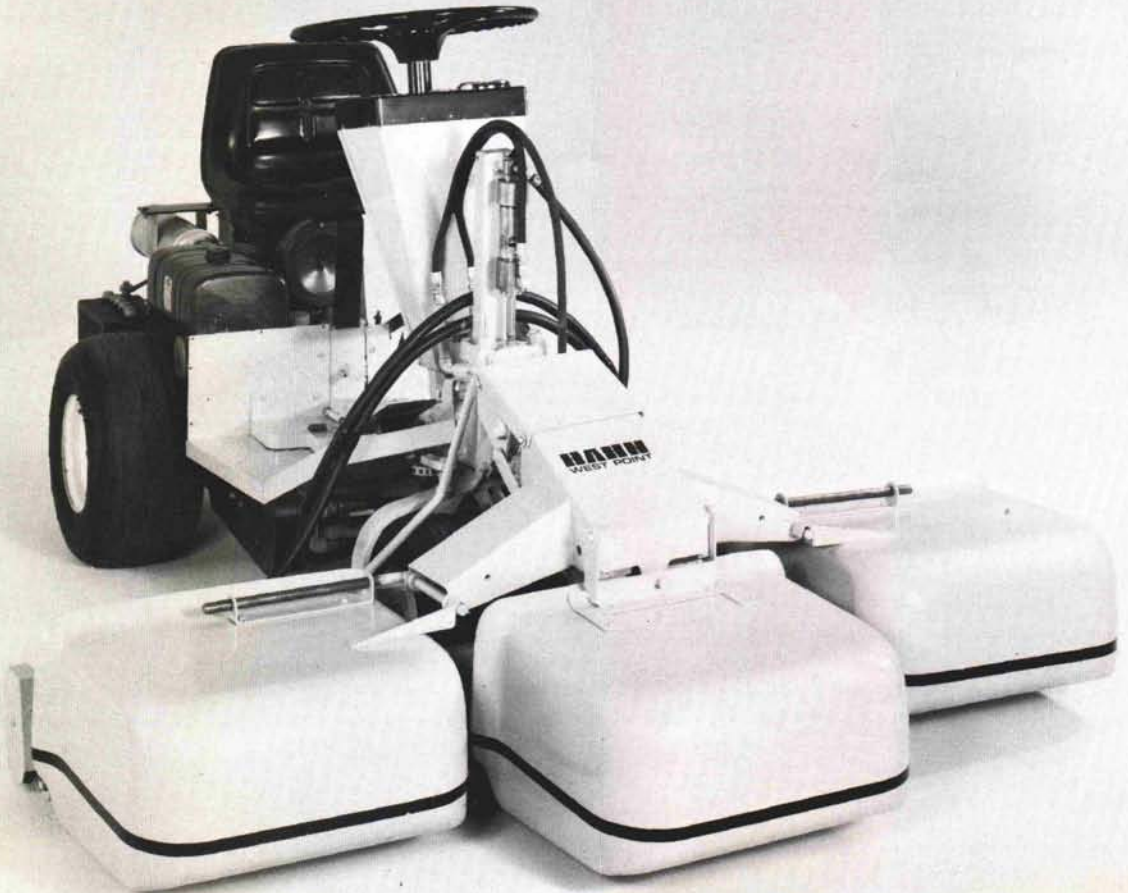
MODERATOR: *What type of mowing pattern, i.e., circular or row mowing, do you most frequently find?*

BUCHANAN: Striped or row mowing is by far the pattern most frequently used in the Northeast.

BENGEYFIELD: I doubt if any kind of circular mowing pattern will persist very long. It's the grain problem again. And of course, when you go to row mowing, you lose some of the time saving advantage earlier attributed to the triplex mowers. Instead of one man now mowing 18 greens in three hours (circular pattern), he may take four hours or more to follow a stripe or row mow pattern.

MONCRIEF: Row mowing is also the most popular procedure across the South. It may be a holdover from the old days, but changing the angle of cut from day to day

The Hahn-West Point Triplex Riding Greensmower





The Jacobsen Greensking Mower

still seems important in order to have good putting surfaces.

MODERATOR: *The problem of grain comes up again. Are present triplex brushes adequate?*

GRIFFIN: No! I probably haven't seen all the models, but those I have seen leave a lot to be desired. Certainly improvements and adjustments in brushes can be made.

ORULLIAN: Some superintendents have objected to one large brush in front. They prefer individual brushes located between the roller and the reel—not in front of the roller.

RADKO: My observation of triplex brushes has been limited, but I think another factor is involved in graininess, and it is concerned with the "floating reel." The principle is a good one, but it also presents some problems in grain and thatch buildup that should be discussed. The floating reel seems to ride up ever so slightly, and over a period of time grain and thatch accumulate.

RECORD: Agree! The so-called "floating

head," although it may reduce forces of compaction, has not produced a more thorough mowing job when compared to a "fixed head."

ORULLIAN: Most superintendents I have spoken with favor a floating reel but would like to see certain improvements made. For example, one man went so far as to put 3-pound weights on each mower to try to achieve a better mowing job.

BENGEYFIELD: It does seem important to have some force to hold the cutting edge into the turf, and I suppose the amount of force would vary with the type of grass, density, moisture content, etc.

BUCHANAN: For the laborer, the floating head reduces the danger of scalping and/or riding. For the superintendent, there seems little doubt that the floating head increases grain and thatch. For the golfer, the greens may putt slower, perhaps even less true. To the agronomist, it's really too early to fully judge the floating head. The disadvantages may easily be overcome with more vertical

mowing and top-dressing. We really don't have the answers.

MODERATOR: *In your opinion, how important is the skill of the operator and mechanic in the operation of triplex putting units?*

RADKO: All important! The more sophisticated the machine, the better the operator must be. The operator must be alert to every possibility and he must react immediately. Greens are prime turf areas: they must be carefully maintained, and good mowing technique is an important part of green care.

MONCRIEF: The triplex mower, although relatively easy to operate, needs a mature and experienced operator. As his operation proficiency improves, the mowing job also improves.

GRIFFIN: The skill of the mechanic is probably more important than that of the operator. This is a fine piece of machinery and needs top care.

RECORD: That may be true, but I have known many top mechanics who were poor operators. I think it's more of a team effort today.

MONCRIEF: There is no doubt that this is a more sophisticated piece of equipment. Both operator and mechanic must be more proficient.

MODERATOR: *Do most clubs using triplex mowers have a back-up mower for emergencies?*

BUCHANAN: As with all new machines, the golf course superintendent likes to play it safe. He will try new machinery, but he will keep the old piece ready just in case.

RECORD: Back-up mowers are definitely needed! Last year I found a number of clubs using the triplex units daily during the spring and fall when labor is short and the smaller walking mowers during the summer when the labor force is likely to be full. It seemed like a good procedure. However, a 3/16-inch height of cut on a triplex is not always a 3/16-inch height of cut on a single unit. During a changeover from one unit to another, serious scalping has occurred.

BENGEYFIELD: There is another type of mowing schedule that became popular last year. The triplex mower was used on the greens for two or three days and then the walking mower for one day (usually with a brush), and so on through the growing season. This procedure seems to take advantage of the best qualities of both machines; i.e., fewer total manhours spent in mowing, but also doing something about the grain and wheel wear problem.

MODERATOR: *We have all heard of the mechanical problems triplex mowers have had; hydraulic leaks, uniform adjustments of mowing units, tire pressure and other related tire problems, frame problems, etc. Any comments?*

GRIFFIN: Basically, all of the triplex mowers have been soundly engineered. The original problems have already been overcome, and this equipment will become even better in time. But any piece of complex machinery is bound to have a problem at one time or another.

MODERATOR: *In looking to the future then, can you suggest any improvements triplex putting green mower manufacturers should consider?*

RADKO: I really don't know. Perhaps the units could be reduced to a narrower width—say 16 to 18 inches. Perhaps this would cut down on the grain and thatch problem and provide an even smoother cut.

BENGEYFIELD: Some improvement might be made in collecting the clippings as they come off the reel and bedknife. A vacuum arrangement might be possible, then during transport to the next green the clippings could be blown out over the fairway or rough areas. We're still spending too much money and wasted time throwing away or removing grass clippings.

ORULLIAN: Perhaps something can be done to reduce total weight and improve weight distribution as well.

RECORD: Triplex units will improve when man realizes that the time element is not the key to successful putting green management. If the superintendent cannot economically cope with increased thatching, thinning and top-dressing, the triplex mower may have already reached its peak for use on greens.

MONCRIEF: These machines may have some disadvantages, but for many, the time saving advantage simply cannot be overlooked. The triplex is here to stay and they are going to get better.

GRIFFIN: Yes—improvements are going to be made. For example, the best features of the three mowers now available could be combined and the final product thereby improved. One of the early criticisms of Green Section-type greens was that they made green management too easy and anyone could do it. Maybe the same fellow who made that statement would like to comment on the triplex mower!

MODERATOR: *Maybe he would. Thank you gentlemen.*