

JULY 1966

USGA GREEN SECTION RECORD



A Publication on Turf Management
by the United States Golf Association



THE COMING OF THE CARTS

Here come the carts, by the truckload. Can the golfers be far behind?

USGA GREEN SECTION RECORD



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Nationwide Cart Survey

By William H. Bengeyfield, Western Director

By now, much of the golfing community accepts, perhaps grudgingly, the motorized golf cart. No longer is the most frequently-asked question on turf management concerned with damage from disease or insects but rather:

"What are other clubs doing about golf carts?"

It has become a real problem and real answers are hard to find. So far as we can determine, no nationwide study to provide answers to such questions has been conducted. Several local surveys have been undertaken and done well, but none on a national scale.

In an attempt to fill the void and contribute to a consensus on this subject, the five USGA Green Section Offices conducted a sampling of courses in their geographical areas: the Northeast; the Southeast; Midwest; Southwest and Western regions. The results show development of interesting patterns, certain precepts emerging and, although each club will always have cart problems peculiar to itself, some standardization or comparison can now be made.

For those interested in "what the other clubs are doing" about golf carts, the following summarization of the Green Section survey has been prepared. Perhaps the survey will be most helpful as a guide in determining what action might be taken at your course to better plan and develop golf cart utilization and potential there.

QUESTION: *What percentage of golfers uses carts on your course?*

The range of answers is extremely

wide. The greatest number of "carted golfers" was found in the West (where 60 to 70 percent of golfers use them) and the Southwest (60 percent). The South was next (30 to 60 percent), followed by the Midwest (30 percent) and the East (20 percent). However, each of the last three areas reported an expected increase in "cart use rate" this year and predicted the trend will continue for the next several years.

QUESTION: *Are the carts (a) club owned, (b) privately owned, (c) other type of ownership?*

Club ownership exceeds all other types although a "rental lease" arrangement is almost as popular. One club President reported:

"We have learned from experience that the maintenance and replacement of golf carts is a business in itself. Consequently, we now have a contract with a distributor who supplies all necessary carts. New carts are furnished no less than every three years. The lessor has complete responsibility in all areas although the club does supply storage room. There are no other expenses to the club.

Our arrangement is 60 percent to the distributor and 40 percent to the club. Of this gross figure, the club allows one dollar a round to the golf professional. We believe the club is better off to take what amounts to a smaller guaranteed net profit rather than insert itself into the golf cart business. It has proven very satis-

factory to our Board of Directors."

The early day arrangement of professionally owned or privately owned carts is definitely on the decline. This arrangement is difficult to police and enforcement of cart rules is onerous. Where the practice still prevails however, most clubs now collect a fixed monthly rate from the cart owner. Nevertheless, a gradual phase-out of this type of ownership is underway.

QUESTION: *How many golf carts are used on your course?*

Pick a number from 1 to 250 and you would be right! The range is far and wide. However, the present "level off" figure is in the neighborhood of 50 to 60 carts for an 18-hole course. During weekends and other periods of heavy play, they'll make the round twice a day. In our opinion, this presents a very real and substantial problem in turfgrass management.

QUESTION: *Does the club provide storage facilities?*

Yes, clubs generally provide storage facilities for all carts. In a few instances, privately owned carts must be privately stored.

QUESTION: *What are the storage charges per month?*

Storage charges vary considerably. Apparently clubs find them hard to tie down. In many cases, they are included with maintenance charges (see below). In any event, of those clubs reporting on this item, storage ranged from \$2 to \$15 per month per cart.

QUESTION: *What are the maintenance charges per month?*

Most clubs report a "storage and maintenance" charge somewhere be-

tween \$18 to \$25 per month. This figure includes labor, electricity and materials for watering and charging the batteries, keeping the carts clean and storing them as well. Battery replacement, new tires or other major items apparently are not included.

For cart maintenance alone, the figures ranged from \$3 to \$75 per month. The higher figure undoubtedly includes major items.

QUESTION: *How many employees are required for cart storage and maintenance?*

Of course the answer would depend on the size of the cart fleet, age and condition of carts, etc. However, answers ranged from one to five men. Most clubs reported one full-time man sometimes needing a part-time helper.

QUESTION: *What type of cart insurance would you recommend?*

Surprisingly, less than half of the clubs in the survey bothered to answer. Of those that did, the following excerpts have been taken:

"The best."

"Cart renter is responsible for cart and personal injury to himself and riders."

"Members should carry personal liability on their own carts. Clubs should carry primary on club owned and secondary (non-owner liability) on non-owned carts."

"As to cart insurance, we are covered under a floater type policy, covering fire, lightning, explosion, wind storms, flood, collisions, overturns, theft, hail, damage of vehicles, vandalism, etc. for 100 percent of value. As to body injury liability, we carry \$250,000 per person and \$1,000,000 per accident. As to property liability, we carry \$50,000."

"Maximum liability and personal in-



Erosion problems are accentuated at beginning of hardtop paths. Car, cart, and foot traffic wear the turf and a minor erosion problem could quickly develop into something big. Path leading away from No. 7 green at Woodbride Country Club, Woodbridge, Conn. the day after a heavy rainfall.

jury. Accident insurance to cart is not necessary."

"\$50,000/\$100,000 and \$5,000 property damage."

QUESTION: *Is there a specific committee (cart committee) for all cart policy decisions? This would include rules establishment and enforcement, cart charges, cart specifications, traffic control, path requirements, storage facilities, trade-ins, etc.*

One would think such a committee would be of increasing value to a club as more and more carts go into use and require more and more policy decisions. However, the majority of clubs (62 percent) indicated they do not have such a committee today. One replied, "Yes, we have a cart committee, but it's not too active." The club has 40 carts.

It would seem that a number of clubs depend on their Green, Grounds, Golf or Tournament Committee to

handle the cart problem and, undoubtedly these committees can do the job. However, the survey also shows the need for a closer and more realistic approach to cart income, costs, enforcement of rules, etc. than is now being accomplished at most clubs. Perhaps, in the future, the "Cart Committee" will come into greater prominence.

QUESTION: *Have you established standards or specifications for carts such as maximum weight, number of wheels, tire width, horns, radios, etc?*

"Yes: wide tires but no ornaments, horns, radios, etc." replied one co-operator. "No," said the majority (75 percent) and we are astounded at this reply.

Clubs that have established standards are concerned almost entirely with tire size. The eight or nine-inch tire is the most frequently found requirement. Next is the outlawing of

the gas cart. Five percent of co-operating clubs have so ruled. Total weight and number of wheels (important factors in soil compaction and wear) have received little attention.

QUESTION: *Are cart users required to take a caddie?*

The East, South and Midwest are the last caddie strongholds and even they are slipping away. In the Northeast, where caddie requirements are greatest, it's a 50-50 proposition this year. Half the clubs require a caddie to accompany carts (if caddies are available) while half do not. Throughout the Mid-Continent and Western states, the survey shows less than 20 percent will require caddies with carts today.

QUESTION: *Does the club expect a profit from carts, or only that they pay their own way, including the cost of repairing the damage they cause to the course?*

The replies to this question are too colorful not to pass along:

"Can't help but make a profit!"

"We expected a break-even arrangement, but we are enjoying the profit."

"With only 75 members, we expect no profit. However, the club could not hire a professional without cart proceeds going to him."

"We expect a profit, I'm sure."

"No, no profit expected. If there is one, it goes into the General Fund."

"We expect to make a profit of between \$20,000 to \$24,000 annually after all expenses."

"We expect a profit, but my personal opinion is that it does not cover the damage done."

QUESTION: *What percentage of cart income actually goes toward course maintenance?*

Despite the years of accumulated

evidence and thousands of written words proving the contrary, most clubs obviously feel the golf cart has done little or, at most, insignificant damage to their course. This is truly amazing! The survey shows only 25 percent of clubs allocating all, or at least a percentage, of cart income to course maintenance. Frequently the allocation is restricted to cart path development. One club actually replied, "carts do no damage."

Apparently, the trend is toward clubs placing any profit from carts into the "General Fund," where it immediately loses all identity. For the turf man, it is a frustrating predicament to discover golf cart money going into items such as new carpets and interior decorations for the clubhouse while an inadequate 50-year old irrigation system is continually breaking down, mowing and new maintenance equipment is sorely needed and through it all, the golf carts keep wearing out the turf near every green, tee, and along some fairways! If nothing else, the survey shows a great need for further stress and information to the membership on the subject of "Golf Cart Damage to the Course."

QUESTION: *What percentage of cart income should go toward course maintenance?*

The answer depends on just who is being asked. In our survey, golf course superintendents, green chairmen and professionals supplied most of the answers. Less than 10 percent replied, "No cart proceeds should go toward course maintenance." The remaining 90 percent felt that at least a percentage (from 18 percent to 90 percent) should be allotted. About half of those replying felt that all cart income should go toward course maintenance.

Two ladies crawled from beneath this overturned cart and escaped without serious injury. The operator did not know what caused her to turn over in this ravine.



QUESTION: Do you have a "trade-in plan," i.e. trade-in so many carts yearly?

Although this would seem to be a principle of good business management, only 25 percent of the clubs surveyed have developed a "trade-in" policy.

QUESTION: What is the useful life of a cart under your conditions?

For the Southwest and West, the average "cart life" at private courses ranged from three to four years. Not too surprisingly, in the Midwest and East (where 12 month cart use is rare), the average is from four to five years. Only one club reported a "two-year cart life" (Texas) while, at the other end of the scale, one club said ten years (Midwest) was long enough.

QUESTION: During adverse weather:

(a) Who determines if carts may be used?

Nationwide, 60 percent of the golf course superintendents make this determination. The next most frequently mentioned was the golf professional (15 percent), then the green

chairmen followed by other club officials.

(b) Who enforces the decision?

The golf professional is singled out for this task 40 percent of the time. The green chairman or similar committee chairman has the responsibility at 35 percent of the cooperating clubs followed by superintendents, general managers, and club officials for the remaining 25 percent.

(c) Who handles the complaints?

Although the individual's title varies considerably (green chairman, golf, rules, cart, complaint or grounds chairman), he's usually the one to handle this difficult task. The Board Members, including the President and Vice-President, come next in this survey. Among club employees, the golf professional was mentioned for this task most often (20 percent of the time) while the superintendent and general manager dealt with cart complaints less than 10 percent of the time.

SUMMARY

The 1966 Survey shows some very real needs in golf cart administration.

For example, there is an obvious need for some committee (whether it be called a "cart committee" or whether it be a sub-committee of one already established, such as the Green Committee) to take active responsibility in all phases of cart administration. This would include recommendations to the Board of Directors on purchasing, cart specifications, trade-ins, charges, storage and maintenance, cart rules and enforcement, safety, insurance needs, path locations and construction, and many other decisions required wherever carts are present. Such a committee

should become thoroughly familiar with the seen and unseen damage heavy cart traffic brings to the golf course. We would hope a recommendation would be made for all or at least some percentage of cart income being diverted to course maintenance—if not course improvement.

One point is certain. Carts are going to find greater and greater use in the coming years. The opportunity to use this phenomenon for the general good of the golf course is now at hand. Will the golfer, concerned with the condition of his course, allow it to slip by?

COMING EVENTS

August 8-9	Field Days Purdue University Lafayette, Indiana
August 12	Golf & Fine Turf Field Day Rutgers University New Brunswick, N. J.
August 15-16	Midwest Turf Field Days Purdue University Lafayette, Ind.
August 17-18	Penn State Field Day Pennsylvania State University University Park, Pa.
August 18	Regional Turfgrass Conference Belvedere Country Club Hot Springs, Ark.
August 21-26	American Society of Agronomy Oklahoma State University Stillwater, Oklahoma
August 26-26	Hawaiian Turfgrass Management Conf. University of Hawaii Honolulu, Hawaii
August 26-28	Turfgrass Sprinkler Irrigation Conf. University of Calif. Conference Center Lake Arrowhead, Calif.
September 13	Northern Michigan Turfgrass Conference Traverse City Country Club Traverse City, Michigan
September 28	Arizona Turfgrass Conference Randolph Park Tucson, Arizona

The Green Section on Golf Carts

HARDLY anyone is their champion. Few golfers openly and eagerly subscribe to their use. But as the fiberglass pole has been accepted in vaulting, the golf cart has found a home in the world of everyday golf. The traditionalists have lost this battle.

The cart has been condemned, restricted, banned and outlawed during the last 15 years. Still it persists, and actually gains in popularity each year. Over 25,000 were sold in 1965. The only conclusions one can draw are (1) The motorized cart obviously serves a useful purpose and (2) to criticize it is fashionable, but to use it is acceptable. No other piece of equipment has had the impact on golf or on golf course maintenance in the last 15 years as the motorized golf cart.

During the evolution, members of the USGA Green Section Staff have seen carts under all conditions and spoken to literally thousands of individuals directly concerned. From this close personal contact with Green Chairmen, Golf Course Superintendents, Professionals and others "on the firing line," considered opinions and viewpoints have emerged. We thought you would be interested and therefore decided to print this candid conversation between Green Section Staff members on this always controversial, yet interesting topic. The discussion started in a hotel room last January in New York. Staff members participating in the discussion included:

Alexander M. Radko, Eastern Director.

Holman M. Griffin, Northeastern Agronomist.

Lee Record, Northeastern Agronomist.

James B. Moncrief, Southeastern Agronomist.

Dr. Marvin H. Ferguson, Mid-Continent Director.

James L. Holmes, Midwestern Agronomist.

William H. Bengeyfield, Western Director.

They had gathered for an afternoon of conversation and review.

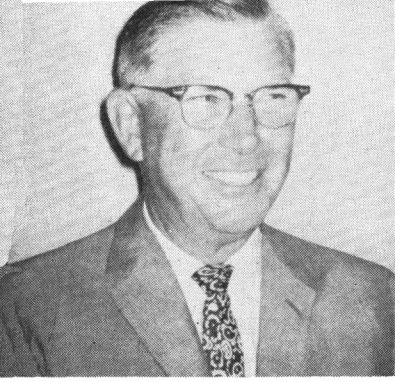
MODERATOR: In your travels and contacts with clubs, what percentage of them still outlaw the golf cart completely; what percentage allows some cart use (for example, for health reasons only) and what percentage has dropped all restrictions and allows unlimited use?

DR. FERGUSON: If any clubs have limitations, I am unaware of them.

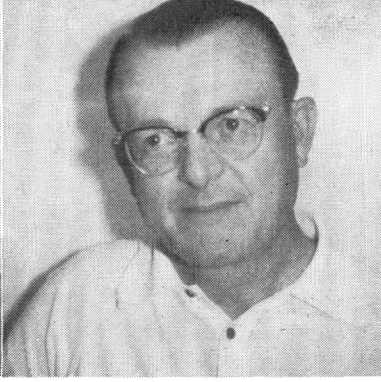
MONCRIEF: Well, the limitations are hard to find. I know of only one club which prohibits the use of all carts. Caddies are used extensively. Surprisingly, the club is in a golf resort area in Virginia.

HOLMES: I know of no clubs where the golf cart is completely outlawed. And really, when it gets right down to it, there are actually no clubs where "limited use" has prevailed. If a person wishes to use a cart badly enough, he will develop a sore toe or some such reason to get a doctor's OK. For all intents and purposes, unlimited cart use on all courses in the Midwest has or is abruptly becoming a reality.

RECORD: Yes, the barriers are



JAMES B. MONCRIEF



DR. MARVIN H. FERGUSON

coming down. There is only one club in my area still outlawing all carts. Overall, I find about 20 percent of the clubs still carry some type of limitation while 80 percent have unlimited cart use.

MONCRIEF: The main cart restriction I find occurs during adverse weather conditions, especially on courses constructed on clay soils. Those on sandy type soils are less restricted. Otherwise, if the carts are available, they can be used providing they adhere to the policies of the country club.

GRIFFIN: My figures would jibe closely with Lee Records'. What interests me, however, is the definite increase in the use of carts at clubs where they are available. Over 50 percent of the golfers will use a cart today and most of the interested parties expect the use rate to increase in the next few years. After that, there may be a gradual leveling off.

HOLMES: The trend is increased cart use, growing with leaps and bounds at every course I visit. The cart use rate as far as I can see definitely is not leveling off but is materially increasing.

RADKO: No question, cart use in general is on the increase, and clubs

having the greatest number, perhaps between 40 and 50 carts, are really doing a good cart business. In the East however, I think we have a leveling off point. It now seems to be between 40 and 50 carts for an 18-hole private course.

RECORD: The cart increase we're talking about, I believe, has been at those clubs not having carts in the past. The leveling off of carts is being noticed at those clubs that have been on the cart bandwagon from the start. From 15 to 30 percent of the golfers at courses I visit now use carts.

DR. FERGUSON: Well, although no one can deny the past increase in cart use, I think a "leveling off" is now in progress. Why? Simply because everyone who has an inclination to ride does so. My guess would be 60 percent of today's golfers use carts.

BENGEYFIELD: Yes, 60 to 70 percent in the West. Although, I've heard of one retired California couple who use their private golf cart to drive from their home to the course and then they proceed over the 18 holes on foot! I doubt if we can count on this as a trend however. Besides, golf cart use is becoming an important source of additional revenue for many clubs.



WILLIAM H. BENGEYFIELD



JAMES L. HOLMES

MONCRIEF: In the South, we expect an increased use and an increased income from carts for the next five years at least. At the present time, I would say somewhere between 30 to 60 percent of all golfers use a cart.

BENGEYFIELD: Caddies were mentioned a moment ago. I wonder if you would agree that, at most clubs at least, the old "caddie yard" has now become the "cart storage yard." Any comments?

RADKO: The caddie is going the way of the "vanishing American." Draw your own analogy—automation in bowling did away with the pin boys, golf carts will eventually do away with the caddie. We already feel the pressure of the "vanishing caddie" at some clubs. Boys don't like to go to a club and wait to see if the player is going to choose him, or the cart. With more carts, fewer caddies will "make the loop." If you now have one caddie and two carts in a foursome, it stands to reason that fewer caddies will make less money each year, and as carts increase, caddies decrease.

MONCRIEF: The use of carts in the South has sabotaged the use of caddies. Caddies can make more money on regular jobs in many instances.

DR. FERGUSON: I think it's the other way around. Shortage of caddies and the uncertainty of supply has boosted cart use.

RECORD: I agree. Caddies have been reduced greatly—not by carts, but lack of available men. Carts have been introduced at several courses due to this manpower shortage.

GRIFFIN: Because good caddies are becoming increasingly hard to find, at some clubs at least, golf carts have come to the fore. For the occasional tournament however, there still seems to be plenty of caddies around.

HOLMES: Golf carts have killed the caddie as we once knew him. I believe the Western Golf Association and other golf associations with caddie funds had better begin to worry just exactly how they are going to get carts through college on scholarships. There are still three or four clubs in the greater Chicago area which insist caddies go out with or without carts whenever caddies are available. However, the trend is breaking down and I foresee the time in the near future when it no longer will be necessary take caddies, even at the old "traditional clubs." Further, there are at least two courses in the Chicago area which require golfers to take carts and are opposed

to having caddies of any kind around the clubhouse or in the general clubhouse area.

MODERATOR: As a guesstimate, how many carts can a club have before noticeable wear and cart path damage starts to occur?

DR. FERGUSON: This is a hard one to answer. Too many modifying factors are involved. I'd say 20 or less probably wouldn't do noticeable damage if they are driven sensibly, i.e. have big tires, etc.

GRIFFIN: I have observed this particular point for a couple of years and find that with 20 carts or less used once a day each, most clubs seem to get along fairly well under good maintenance. With 20 or more, damage is increasingly evident.

HOLMES: As a guesstimate, a club must have exactly one cart before noticeable wear and cart path damage starts to occur. This is kind of like the straw that broke the camel's back. It is the last straw. Concurrently, it is the first cart that begins the "noticeable cart damage."

RADKO: Depending on the size of the cart, terrain, and architecture of the course, I'd say normally between 10 and 20 carts can cause damage. There are extreme cases where excessive low, wet areas exist, where numerous deep sand traps exist, where greens and tees are elevated and unaccessible to easy approach, etc. These are the clubs that suffer the most.

RECORD: I have been told by superintendents that damage is approximately the same with six carts as it is with 12 to 18. The increased number of carts

seems to lengthen the already damaged areas. I would imagine on a given day, one cart could cause as much havoc under wet conditions as 12 carts could under normal conditions.

MONCRIEF: There's another point to consider too. The course which is built on clay soil may show damage from 5 to 10 carts while a course built on sandy loam may support 20 carts before showing the same amount of damage. An estimate of 10 to 15 carts will start showing cart damage unless maintenance practices counteract the wear they create.

BENGEYFIELD: Where we do have carts—of any kind—we must have a larger budget. The more carts, the more money needed. It's that simple.

MODERATOR: In your opinion then should carts be restricted to roughs only or should carts be allowed to roam throughout the course except on tees, greens and approaches? Is the day coming when cart paths will be needed from the first tee through the 18th green?

HOLMES: Most of the clubs I call on have gone through the gambit of restricting carts to rough only. After a time, they observed that a bare and dusty road developed on either side of the fairway. Therefore, it is currently considered proper practice to allow carts to roam throughout the golf course. However, it must be added that asphalt cart paths are being installed in traffic funnel areas on practically every golf course on which I call.

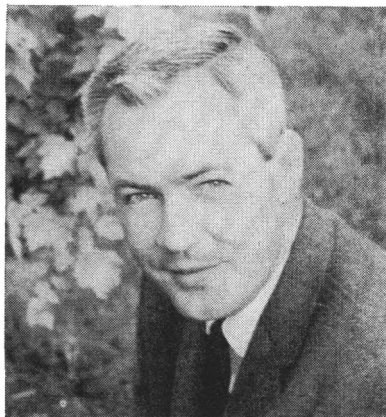
RADKO: Carts should not be restricted to roughs alone, they should be allowed throughout except on tees, greens and approaches. In my opinion,

asphalt roads throughout the course are not only ugly, but they don't seem to speed up play. If a cart has to stay on the blacktop road and the players walk to their ball on each fairway, I say forget it! They are not only wasting time, but they are not getting full enjoyment out of the game. Many times they take one or two clubs to their ball and find they have the wrong club and, rather than go back for the right club, they use the one that they brought. Surveying a shot from an asphalt path is quite different from surveying it where the ball actually lies.

BENGEYFIELD: I know of one club where, on Par 4 and Par 5 holes, golfers are allowed to use their cart from the tee path area directly to where their ball lies. Then, after their shot, they must immediately leave the fairway and get on a paved path in the rough. It works out fairly well.

DR. FERGUSON: Carts should be allowed to roam throughout except on tees, greens, and approaches. Mr. Richard Tufts put it best when he said that "the inherent inaccuracy of the golfer will serve to distribute the traffic." Paths in roughs probably would be useful in bad weather.

BENGEYFIELD: I like your point about paths and bad weather. Where golf is played 12 months of the year, cart paths are almost essential during the "rainy season" or the "dormant season." If the weather is tolerable for golf, some members will want to play and they will insist on using a golf cart. Others will not play and will not use any of the clubhouse facilities because the course is "closed" to carts. Both the member AND the club are losers. Therefore, I believe we will someday see cart paths from the first



HOLMAN M. GRIFFIN



LEE RECORD



ALEXANDER M. RADKO

tee through the 18th green on most courses. We may not like them, but we will need them to survive.

MONCRIEF: In developing new courses, golf course architects should stress the handling of cart traffic and the freer use of carts throughout the course in their design. Probably there will always be restrictions on how close carts should come to the green. There is a tendency toward more courses building a cart system and cart freedom in relation to prevailing weather conditions. Furthermore, cart manufacturers could help in their advertising if they would show the carts away from the green, not close to it.

RECORD: If we restrict carts to roughs alone, we are defeating the primary reason for the cart. I believe cart paths should be developed as needed. Carts generally however, should have the freedom of the course. The superintendent should have complete control over their use. A strong turf management program is essential under these conditions. Weak turf areas show up regardless of the type of traffic and climatic conditions. An adequate budget is really the answer to meet these demands.

GRIFFIN: In my opinion, the restrictions placed on a cart would depend somewhat on the number of carts being used at a club. However, sooner or later, I believe all clubs will build paths for the carts.

MODERATOR: What is the trend today throughout the country in regard to gas carts vs. electric carts? Is there a significant difference in maintenance and operating costs, the acceptability of gas carts, the longevity of electric carts, etc.?

GRIFFIN: This seems to be a matter of personal preference. Gasoline carts make more noise but, under the eyes of a good gas engine maintenance man, they seem to be easier to maintain and keep in use. However, I am sure electric cart enthusiasts would and could use the same argument in their favor.

HOLMES: It seems to me that two or three years ago the new gas cart gained popularity in the Midwest. However, at the present time I would estimate the trend has reversed and electric carts are definitely in favor. At the present time it would seem to me that electric carts would continue to be the most used in this area. Approximately 90 to 95 percent of all carts here are electric.

MONCRIEF: There is no doubt that electric carts are still favored in the South and gas carts do not appear to be gaining in popularity. The main reasons for electric rather than gas cart use are: 1. Maintenance is cheaper and, 2. noise is less with the electric cart.

MODERATOR: Do you know of any unusual training techniques or guides for proper cart use?

DR. FERGUSON: No, but I feel we need one new approach in the training of golf cart use. It is this—when a person drives an automobile, he usually pulls to the right and parks. This “instinct” or training seems to carry over to golf cart operation. Thus when a cart operator parks, he pulls off the path to the right. It’s murder on the turf alongside the path.

RECORD: An original idea just came to mind. I think the side of every

cart should have the following inscription: "Caution: cart riding may be hazardous to your health."

GRIFFIN: Lines, signs and fines just about sum up the guides for proper cart use. Many clubs use guide lines of one sort or another to direct carts. Others have operational instructions posted on the first tee or some other such area as well as in the carts themselves. Occasionally fines are imposed on members for misuse of carts. Some clubs use all three techniques.

MODERATOR: Do you have any ideas on how carts may be improved in regard to turf wear? I am thinking of things such as slower starts and less turning radius. Should we insist on four wheels and nine-inch tires?

DR. FERGUSON: We agree on the points in your question, i.e., slower starts, less turning radius, four wheels with nine-inch tires. From the safety standpoint however, the accelerator and brake should be more widely separated. Too often, a person intends to step on the brake but hits the accelerator. I speak from personal experience. I was rammed from behind last year.

BENGEYFIELD: Cart manufacturers must give greater attention to safer design. I'm sure the four-wheel cart will someday replace the three-wheeler. It is far more stable and this is extremely important, particularly on hilly courses.

Recently there's been renewed interest in single passenger golf carts. I wonder about these. Unless the newer models are radically different from the old, they're likely to be too unstable, too fast and too short in turning radius to satisfy me.

MONCRIEF: One of the many ways to reduce turf wear is a slower cart. This in turn will reduce quick starts, slow down the turns, and prevent players in carts from rushing up behind foursomes with comments of slow play. Use a minimum 9.50 x 8-inch tire which gives six pounds per square inch pressure on the ground.

HOLMES: I really do not have any concrete ideas on this one. I am not particularly in favor of the wide tire. It seems to me more damage is done at the time turf is commencing to wilt than at any other time. Certainly, with the wide tire, less damage is done in overwet soils. However, the wide tire is considerably more damaging during drought conditions because a larger area of turf is covered with the tire.

I think the ultimate improvement would be an air transport type cart that floats anywhere from three inches to three feet above the ground and swoops along on a cushion of air. Don't laugh, I think that this type of golfer transportation might be closer to a reality than we realize.

RADKO: That's the only answer. When they devise a car that rides an air cushion, I'll feel a lot better about the no wear and tear on turf, and I think you are right; the day is coming.

GRIFFIN: For the moment, I think a club should insist on wide tires but I don't see how the type of cart we know could be improved a great deal. To really do any good we will have to come up with some ideas and designs as new and different as the idea of using carts in the first place was a few years ago.

MODERATOR: Thank you, gentlemen.

TURF TWISTERS

AERIFYING NOT NECESSARY

Question: Most superintendents in this area aerify both spring and fall. Is this absolutely necessary? Our greens take water well, and the only complaint is that they are sometimes firm the second day after watering. We topdress twice a year and we use a spiking machine frequently. (COLORADO)

Answer: A lot of good golf greens were kept for a lot of years before the aerifier was invented. If your greens take water well and you have no noticeable compaction, then it seems that you might very well skip some of the times when you would normally aerify. The spiking machine will do a good job of keeping the surface open and your top-dressing operations will help.

If you've not seen the April issue of the USGA GOLF JOURNAL, you might look at the article on page 13. It is entitled "Firm Greens: Best for You and The Course."

CUP LOCATIONS

Question: Does the USGA have a ruling as to cup locations and how close a cup may be placed to the edge of a putting green? (WASHINGTON)

Answer: While many factors can affect cup location, the use of good judgment should be the first consideration. Ensure fair conditions, not tricky locations. For an area at least two or three feet in radius around the cup, the putting surface should be in good condition without any steep slopes or, if possible, any changes in the degree of slope. In other words, the green in the holing-out area should be as nearly level as possible and of uniform grade, but it does not have to be exactly level.

Next, the USGA tries to start, if possible, at least five paces away from the edge of the putting green. However, other factors must also be considered; bunker locations, the holding quality of the green, length of the shot to the green, design of the hole, etc. In no case should cups be located in tricky places or on sharp slopes where a ball can gather speed.