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Shave strokes from your game with the accuracy of Acushnet Titleist irons. The secret's in their square-toe design which provides easy, fast visual alignment. The club head practically falls into place at a right angle to the desired line of flight. This, plus Titleist's precision balance, immediately gives you that positive feel... sets you up confidently for your shot. Test a few Titleist irons. You'll see and feel the difference right away. Like all Acushnet equipment, you'll find them at your golf course pro shop only.

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With a Gran Cushman fleet at the Club, he can relax and concentrate on the game. Because Cushman’s the dependable one. Built with extra quality throughout to give hour after hour of deluxe service. And backed by service and parts from a nearby Cushman Distributor who’s so much in the know that he’s “Mr. Golf Car.”

And that’s just the start. Because Gran Cushman—electric or gas—gives you the features you want. Individually adjustable bucket seats. Completely enclosed contact switch for smooth starts. Award-winning sports car styling. 1208 sq. in. of foot room. Automotive steering. Fore-and-aft glide riding suspension. Steel bumpers all 'round. Individually adjustable bag racks. Huge ball-drink-glove-tee compartment. 8.50 x 8 Terra Tires for comfort and turf protection. And carpeting everywhere—even in the glove compartment!

Yet that's not all the reasons for Gran Cushman. It's safer too—with an automatic seat brake that means it won't go 'til you sit. And a low center of gravity.

But the best reason comes at trade-in time. A used Cushman is worth more. A lot more.

So count the Gran Cushman at your club. If there aren’t a lot, there should be. Just for your peace of mind. For details, call your Distributor. Or write to us.
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GRAFFIS

(Continued from page 10)

chological affect. Experiments using colorants were further extended at the Augusta National when the ponds were dyed.

When exhibitions and tournaments were televised in color, further use was made of the Pine Valley painting idea. And a couple of years ago came colored sand for bunkers. The most colorful scenic tour of golf courses I have ever seen was the slide showing with comments on Philadelphia area golf courses at a Golf Course Superintendents Assn. of America convention. If the GCSAA could produce a series in several districts for showing at golf clubs or as a TV travel feature with comments by noted superintendents, it would have a tremendous public relations impact. But maybe there's no one around who could conduct tours like Steiniger.

Gifts of scholarships by tournament professionals are proving to be about the best public relations that could be imagined. Bert Yancey carried the idea into Argentina and gave his Argentina Masters $2,500 first prize to the Argentina PGA for scholarships. Arnold Palmer presents a four-year scholarship at Wake Forest as a memorial to his college roommate, Bud Worsham, killed in an automobile crash.

The scholarship gifts also have favorable tax angles. There has been talk about prize winners of the Tournament Players Division contributing to the tax-exempt PGA National Golf Day fund, about 25 per cent of which goes to caddie scholarships, a considerable grant to veterans hospital work and other welfare and educational operations in golf. Home pros hope to raise $200,000 with the 1970 National Golf Day campaign, according to Dugan Aycock, Lexington (N.C.) CC professional and chairman National Golf Day committee. It's the biggest public service project conducted by professional athletes. There has been an embarrassing failure of the celebrated playing pros to get into National Golf Day action due to the lack of "communications."

Dallas Golf Assn. named its scholarship foundation in honor of the late Graham Ross, professional at Dallas AC GC for many years, a pro for 36 years, an official of Texas and national PGA and coach of Southern Methodist University golf teams. His 1954 team won the National Collegiate Athletic Assn. championship and all members of that team went on to graduate schools. He was one of the finest gentlemen sportsmen the Lord ever made.

Maryland Golf Assn. is sponsoring two new scholarships at the University of Maryland, Department of Agronomy, granting $500 each to students studying turfgrass.

John J. Lawlor, 19, formerly a caddie at Beverly CC (Chicago District) and John Sloan, formerly a caddie at Evanston (Ill.) CC are Evans scholars selected as first year's winners of the Charles Bartlett Memorial Award. A tournament conducted annually by Northern Illinois Men's GA and the Chicagoland GA finances the tribute to Bartlett, golf editor of the Chicago Tribune for 37 years and secretary of the Golf Writers Assn. from its formation until his death two years ago.

All the talk and print about high interest rates, gigantic labor and material costs, inflation, slowing construction of golf courses is accompanied by a record surge of huge golf course-real estate projects. High rise condominiums with golf courses as beautiful front yards are fast-selling deals now, but the usual Grade A type of home sites bordering courses are also going very well.

Boca Raton West now with 36 holes plans 36 more as new apartments are built in the Florida community west of the historic club once owned by Clarence Geist, with Tommy Armour as pro, and now a hotel-private home-golf course community. Sugar Creek

(Continued on page 16)
An unbeatable twosome.

Harley-Davidson gasoline and electric golf cars are unbeatable no matter how you score them. Both are so quiet, so reliable, and so profitable to operate, you'll wish you had ordered our cars seasons ago. The gas car has an exclusive instant ignition that eliminates idling. The electric car has an exclusive two-year warranty on all major electrical components including batteries. Both cars are available with tiller or steering wheel. Harley-Davidson gas or electric golf cars. The choice is difficult. But that's the way it is when you're comparing champions. Harley-Davidson Motor Co. Inc., Milwaukee, Wisconsin.

For more information circle number 180 on card
Ray Raynor moves to Cypress Creek CC, Boynton Beach, Fla., as golf director from near-by Pine Tree GC, where he was pro almost since the place opened.

Lot of switches in club manager jobs, too, *Plato Neocleous* now general manager Evanston (III.) CC from similar post at Birchwood CC, Westport, Conn. 

Dean Matthews at Bellrive CC, St. Louis, from manager job at Meridian Hills CC, Indianapolis. 

Paul Kaub succeeds him. 

William vanLierop left Shaker Heights, Ohio, CC to become general manager Baltimore CC.

National Airlines $200,000 tournament established a precedent with its gift to the United States Golf Assn. Green Section. No other tournament, except the USGA's Open has helped finance the technical organization that far more than any factor has accounted for the immense improvement in tournament playing conditions. 

Green Section chairman Henry H. Russell is a resident of Miami where NAL has its headquarters and L.B. Maytag, NAL president is a son of the late "Bud" Maytag, noted Iowa amateur years ago, and a delightful member at Augusta National and Broadmoor at Colorado Springs.

In the 19 years it has been in operation the USGA Green Section Visiting Service has made more than 16,000 service calls to USGA member clubs. Experienced superintendents and green committee members testify the service has been of immense value in course improvement and in time and money-savings. Increased operating expenses of the Visiting Service have cost the USGA $268,091 during the past five years. So, like every other item in course maintenance expense, the Green Section Visiting Service fees have been increased.

The new fees are: less than 18 holes, $250; 18 to 27 holes, $300; 36 holes, $325; for each regulation course in addition to 36 holes, $75. At private clubs that amounts to about $1 a year a member.
Jerry Palmer is one of the first to have total control of his watering system.

When he put in new sprinklers at Chula Vista Municipal Golf Course, he put in Buckner’s new CP-2 Dual Central Programmer. It makes all previous central controllers seem like crude prototypes.

Because the CP-2 Dual Central Programmer is so sophisticated, it doesn’t require expensive conventional field controllers. The less expensive, less complex FC-10 Field Controllers, along with the CP-2, give him complete control of the system from his “doghouse,” but cost less than a conventional automatic system would have. He doesn’t have to make the rounds of remote automatic sprinkler controllers, except for inspection. So he’ll save time and labor costs as well.

The revolutionary Buckner CP-2 Dual Central Programmer incorporates two independent sets of controls which operate up to 30 Field Controllers each. Palmer can operate it automatically, semi-automatically, or manually with 14-day programming and adjustable station timing.

On frosty or dewy mornings, he’ll be able to syringe the greens in 20 minutes. In about an hour, he can syringe the entire course — it’s ready for play. The syringe cycle of the CP-2 is infinitely variable, 1.7 to 5.0 minutes, and overrides all timing programmed in Field Controllers.

What if it starts to rain? With the "omit" switch, Palmer can stop all sprinkling, whether the CP-2 is on programmed irrigation or the syringe cycle. All Field Controllers will automatically return to “off.”

Learn more about how the amazing CP-2 Dual Central Programmer can give you total control of your watering. Call your Buckner distributor or send in this coupon, and we’ll arrange a demonstration.

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eliminates footings and ties... erected in two hours!

Span a creek or ravine up to 20 feet in width. Move from spot to spot or bring in during the winter. It's easy to assemble and quick too. And it can be assembled without footings or ties on uneven contours. Never needs painting because the entire unit is pre-treated and laminated for durability. This is the new Standard Porta-Span pedestrian bridge.

Arched beams are laminated boards with a permanent bond unaffected by temperature or moisture. A half-inch steel tie rod is welded to the beam plate to connect each end of the beam and prevent any give in the arch. The flooring is 2 x 6 Fir. All wood is pre-treated with a preservative and stained in redwood tone. The Porta-Span is rugged enough to carry 15 persons.

Hand rails are available as optional equipment. They are designed for easy attachment to the existing holes. Railing posts stand 29" above the bridge floor to provide hand grips. If you have a bridge problem, be sure to write today for complete details and FREE literature. Specify the length... 8', 12', 16' or 20' in length with 3' and 5' width bridges available. This is the economical way of solving your bridge problems... Standard's Porta-Span pedestrian bridges.

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For more information circle number 265 on card
Affects of antitranspirants on plant growth

Antitranspirants—uses and affects on plant life.

This paper is a preliminary report of research conducted by the authors concerning the affects of antitranspirants on water conservation and plant growth. The studies were conducted on creeping red fescue (Festuca rubra). Phenyl mercuric acetate (PMA) was sprayed on the foliage at concentrations ranging from $10^{-4}$ M to $10^{-3}$ M.

Results showed that the quantity of water transpired was reduced by 18 per cent when a moderate PMA concentration of $10^{-3.5}$ M was used. There was no significant reduction in shoot growth at this concentration. A high PMA concentration of $10^{-3}$ M resulted in a 30 per cent reduction in the amount of water lost by transpiration and also caused a 35 per cent reduction in the amount of shoot growth. Toxicity was evident at the higher rate of application. The authors indicate that tolerance to rates of PMA application will vary with the particular turfgrass species involved. This factor should be recognized and proper adjustments made to avoid potential phytotoxicity. The authors stress that this is a progress report and that further studies are needed on optimum concentrations, application methods and potential detrimental affects to the turfgrass plant.

Comments: An antitranspirant is a compound which is utilized to reduce the transpiration rate of plant foliage. Approximately 80 per cent of the water loss from transpiration occurs through the stomata, which are small pores or openings in the surface of turfgrass leaves. Phenyl mercuric acetate (PMA) is an antitranspirant which stimulates the closing of stomata. Stomata closure caused by PMA has been observed in a wide range of plant species including grasses, as has been reported in the above study. A 15 to 20 per cent reduction in the rate of water loss from creeping red fescue leaves is certainly significant, particularly when the water stress potential is high. Data such as is reported in the above paper suggests that the onset of turfgrass wilting can be delayed or even prevented by an application of PMA at the proper rate and time.

The stomata, through which water is lost by transpiration, are also the main pathways for carbon dioxide diffusion into the leaf where it is used as one of the essential raw materials in the vital photosynthetic process. If the stomatal-closing antitranspirant was completely effective in restricting carbon dioxide movement into the leaves, it could also reduce the photosynthetic process below minimal levels. However, data from this paper indicate that concentrations of PMA can be used which will significantly reduce the rate of transpirational water loss but will not close a sufficient (Continued on page 22)