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stamping out POA: A SUCCESS STORY

by W.D. HAVEN

SUPERINTENDENT, GOLF AND GROUNDS
THE GREENBRIER, WHITE SULPHUR SPRINGS, W. Va.

Anyone who has played golf on a course where the grass is more than half *Poa annua* knows how beautiful it can be one week and how ugly it can be the next. When the temperature rises and the *Poa* begins to die, there seems to be little that can be done to hold it. Some of Greenbrier's fairways were nearly 100 per cent *Poa*; none had less than 30 per cent. Over the years, we had

Just a few years ago Greenbrier's layout was over-run with *Poa*. But a well-planned and persistent program has reduced the *Poa* count on some fairways from 100 per cent to 5 per cent

The three-year-program called for calcium arsenate to weaken and eliminate the *Poa annua* while simultaneously seeding the kinds and varieties of grasses we wanted in place of the *Poa*.

We decided to reseed the tees and fairways with a mixture of the newest and latest varieties of Kentucky bluegrasses and the greens with Penncross bentgrass.

BEFORE:



tried every technique we knew to hold the *Poa* through the hot weather—cooling with water, spraying for disease, applying high phosphorous fertilizers, aerating and overseeding—but nothing we did worked. The seed we planted would not grow and successfully compete in the spring and fall. We even talked, but only talked, about plowing up the fairways and starting over.

Then, early in the golf season, on May 28, 1969, the 90 degree weather hit us and the *Poa* began dying fast. We had at least four more months of prime golf to go during which our three golf courses would be in dismal playing condition. We realized then that if our

courses were ever going to be first class, we had to get rid of the second class grass.

The disaster proved to be a blessing in disguise. Losing the *Poa* so early in the season gave us a unique opportunity to properly prepare to initiate whatever program we chose, at the right time, in early fall.

We began with a plan that included a definition of the problem, the material to be used, a description of the equipment we needed, timing of the treatments and some of the problems we were likely to encounter. The plan ran five pages and 1,700 words.

Greenbrier's management approved our plan. And we prepared to initiate it on August 1, 1969.

The first thing we did was buy three cutter seeders and a Gro-Lux fluorescent lamp, which was used to germinate the different grasses we planned to use in the presence of varying concentrations of calcium arsenate. The *Poa annua*, we found, was adversely affected by very low concentrations of calcium arsenate, whereas the Kentucky bluegrasses tolerated and grew vigorously in concentrations many times the amount that completely killed the *Poa annua* seed. Also, surprisingly, the bentgrasses tolerated even more calcium arsenate in the germinating process than the Kentucky bluegrasses.

On schedule, on August 1, we began cutting and seeding the fair-

ways. We set the seeders at about one-half inch because of thatch. But even at that depth the cutters did a lot of ripping and tearing on the humps and barely cut at all in some of the low spots. We seeded the bluegrasses at the rate of 40 to 50 pounds per acre. Our objective was to get the new grass established before the first application of calcium arsenate.

Because nothing was holding the thatch in place, it came up in strips at times and some soil was brought up in spots. In general, things seemed to be worse than before, from our golfers' viewpoint. However, the golfers kept playing and we kept cutting and working. It was like trying to carpet a ballroom while the guests were still dancing.

We prepared a small explanatory

It was made at the rate of 250 pounds per acre of 44 per cent granular. The new grass continued to germinate and grow. We applied another 250 pounds per acre in mid-October.

After the fairways were finished, we worked on the tees the same way, with the same applications of seed and calcium arsenate. On the greens, however, we decided to apply the calcium arsenate at much slower rates. In October and November, we aerated each green, top-dressed and seeded it with Penn-cross bentgrass at the rate of a half pound per 1,000 square feet. We then applied two pounds of 44 per cent granular calcium arsenate per 1,000 square feet and have continued that application each spring and fall on the greens.

fairway application rate. In some cases our tractor-drawn applicator had slowed down coming up on some approaches causing an over application of calcium arsenate.

Some of those approaches were 100 per cent *Poa*; we had eliminated most of it and they were very bare while the new grass was developing.

A small hand applicator was used to treat the missed strips and the bare approaches were reseeded several times.

As we got into the summer of 1970, we could see that we were gaining, but that we still had a long way to go. One surprise was the amount of bentgrass that began to appear as the *Poa* became weaker. We hadn't seeded it and we didn't know it was there. It was obvious

AFTER:



note, which we gave to each golfer as he went out to play. This helped him understand the reason for the conditions on the course and that we were not completely crazy. On August 19, we had cut and reseeded 53 fairways when hurricane Camille hit and dumped 3.08 inches of rain on us. Although we had put the seed down one-half inch, there was so much water movement it was apparent that some seed had washed away. We went over all the fairways again, using a broadcast type seeder at about 20 pounds an acre.

Two weeks later the new seed began to come up. We prepared to make our first application of calcium arsenate in mid-September.

We had considerable *Poa annua* in some greens and we didn't want to risk knocking it out too fast.

As the spring of 1970 came on, we could see that some of the new grass had been lost during the winter. This seemed to be true on the higher parts of the fairways and on some approaches.

The remaining *Poa annua* was off-color and lacked vigor. Some *Poa* had germinated in the cuts where the new grass had been lost during the winter. We could see also that we missed applying enough calcium arsenate in a strip about four to five feet wide on the approaches next to the green. This happened because we tried to avoid hitting the greens with the heavy

that we were going to have a bluegrass-bentgrass mix on all fairways.

We made our third application of calcium arsenate in mid-May, 1970, at the rate of 225 pounds per acre. As we approached midsummer, we could see where we were making progress, although to our golfers we still looked pretty poor. Some of the fairways that had been 30 to 40 per cent *Poa* were beginning to look very good, but the ones that had been all *Poa*, still had large areas where the *Poa* was gone and the new grass was sparse and immature.

The weather in September that year was a problem. Day after day it was foggy, hot and humid. Fusarium blight attacked the fair-

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TREES ON THE COURSE!

THE NEGLECTED INVESTMENT

by DOUGLAS LUTZ

Don't overlook tree purchases when allocating funds. Foliage improves the character and challenge of a course. But know how and what to buy to get the most out of your budget dollars

Ten dollars a week invested in a special tree purchase fund could provide any course in need of foliage with approximately 50 to 60 trees or shrubs a year. In most cases, \$600 to \$750 set aside from the purchase fund could solve most of the problems you may face if sparse conditions prevail at your course.

When planting trees or shrubs, golf courses most in need of foliage have the best opportunity for creative improvement. Clubs where undefined fairways tend to overlap, where the view from each tee is a broad expanse of open landscape unbroken by stands of trees, where the golfer simply blasts away because the only direction indicator is the distant green, should consider changing their images.

CREATING CHALLENGE

Wide open fairways are probably the least attractive feature of any golf course. Certainly, the least challenging. Many layouts, however, expect their members to remain satisfied year after year each time they step up to the first tee with the prospect of another dull round over the same unchallenging terrain. A well thought-out planting program could alter the faces of such courses.

It doesn't take any great expertise to do some analysis, tee to green, and to recognize that strategic foliage placement could turn any wide open hole into an attractive and truly demanding one. And the cost can be minimal, too.

A healthy six-foot tall silver maple that costs \$6, easily planted and maintained by the regular grounds crew, can reach luxurious growth in about 4½ years. Thirty-foot heights and 20-foot diameters are not uncommon in these few years. Many suburban home owners in the Northeastern states, buying the maple strains at their local nurseries, have enhanced their properties with just such plantings, usually on a do-it-yourself basis, too.

Generally, nurseries certify the good health of their trees by giving a one-year guarantee. Proper planting procedures and advice on growth potential are offered free of charge, if needed.

Courses built on former farmlands and on level terrain frequently lack trees. No matter how clever the designer may have been in routing play, placing traps or mounding greens, these layouts tend to be dull, unless a planting program was part of the original design concept.

This is particularly true if, as is often the case, there are no other elements that add visual interest to the layout. Broad sweeps of open plain may have served the farmer well, but they pose serious problems for the course owner and operator. At these courses, where wide open spaces are the dominant feature of the landscape, obviously, the membership is being denied the pleasures and challenges to be found at other courses where the holes are defined by natural tree placements. Management should take into account the feelings of their members. Imagine the pleasant surprise of the bored membership if they found a straight-away par four, which for years was a sure birdie, gradually emerging into a dogleg of

formidable proportions. Such a hole could be reconfigured simply by planting. Heavy and costly construction need not be undertaken. An outlay of about \$100 to \$125, depending on local conditions and selection of trees, should cover the entire cost.

Five trees selected for their growth potential and course harmony and planted on a pre-planned location and time schedule will substantially affect the line of flight, thus creating an interesting dogleg from a short, straight par four. Total tree investment: \$35 to \$50!

A TYPICAL PROGRAM

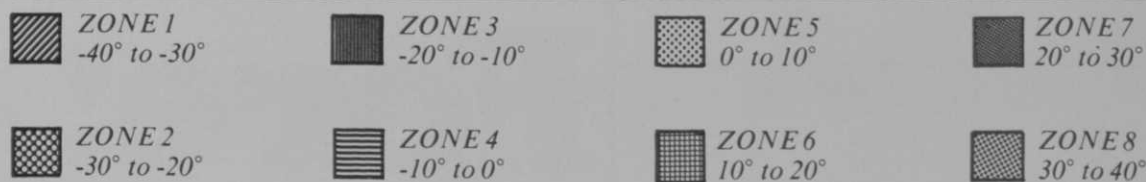
Here is a typical program that is adaptable for most locations. In year one, plant the fastest growing tree for your geographical area at the intended break of the dogleg, about one-third of a fairway width in from the light rough. During the next year, add four more trees of less potential height, three to further shape the hole and the fourth near the green to add a little sting at the tail. As the fairway is mowed, the operator will begin to cut fairway depth in a sweeping pattern into the light rough. Gradually, these cuts are swept deeper and deeper in a haphazard curve giving the effect of sliding the fairway over. If your course has a fairway bunker, or two, in the landing area for the drive, so much the better. The gang mower can swing close to the sand on the fairway side and the rough side will remain a serious

hazard. Placement, when the hole is completely altered, now becomes an interesting problem from several points of view. The hole remains open to a skillful driver. He accepts the dogleg challenge and fades his tee shot around the bend and out of trouble. If he is bold enough, he may select a lofted club and go over the newly-created dogleg break. In either case, he may still be in a position for a birdie, only now he'll have to earn it. Less proficient players have the option to attempt a straight shot and fall victim to the new bunker position or play short of it and remain in the fairway. Now, however, they are further from the green and must be on line in approaching because of the added trees partially fronting the green. New challenges are limitless with this completely revamped hole. Of the allotted \$100 to \$125, the actual tree purchase probably will only use up \$35 to \$50. The balance remains with which to rebuild the tee to conform its shape to the variations now available for your golfers. There should be enough money in this small budget to till and re-seed the fairway, if forcing it too far to the left runs its leading edge into heavy and unplayable rough.

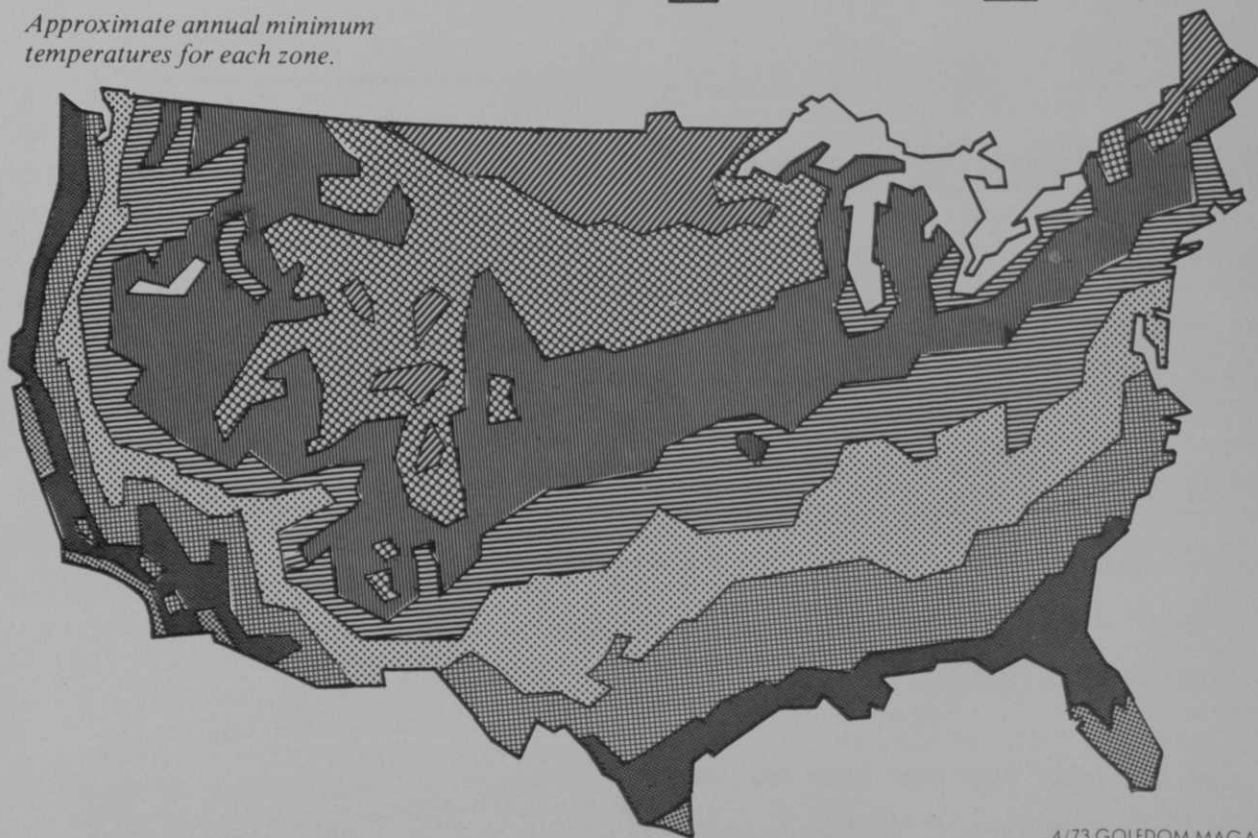
Normally, labor costs for planting and maintenance are part of the existing budget and the re-vamping must be undertaken as part of the over-all grounds crew work load.

There is financial evidence to support this contention. When you consider landscape contractor

continued on page 47



Approximate annual minimum temperatures for each zone.



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TREES from page 45

prices for tree installation, it becomes evident that the average club's purchasing fund soon would be depleted by such expenditures. There is no quarrel with rates charged by contractors. Indeed, if there is a healthy budget set aside for foliage and tree purchase, undoubtedly, a wise investment would be to use a professional landscape contractor. Cost differential between a do-it-yourself operation and hiring a contractor, however, may preclude thoughts about relying on any service other than your own crew.

TREE CHOICES

A flowering Japanese cherry tree, ranging from 10 to 12 feet high, may cost as much as \$170 from a contractor. This cost would include planting, staking to ensure root security against adverse storm affects and a one-year guarantee. By contrast, local nursery prices for a Japanese cherry tree, one to two years old with a height of five feet, range from \$5 to \$8.

At the do-it-yourself price any open green could be framed with these beautiful trees. In April when they blossom in white or pink flowers, they could add a striking accent to an otherwise uninviting approach shot.

Perhaps even more significant—

Japanese cherry trees have been successfully cultivated in a wide belt across the country and from the Great Lakes region to the northern half of Texas and Louisiana. They may flourish in such contrasting areas and climates as those found along Maine's coastline and throughout Nevada and Utah.

The continental United States is divided into a series of eight planting zones (see map on page 45), which are based on annual minimum temperatures for each zone. Foliage that thrives in the Northern peninsula of Michigan might do well enhancing a New England course. The same trees and shrubs need not be overlooked when purchase planning is underway in the middle states, Iowa, Kansas, Nebraska and Missouri, as well as certain sections of Oregon and Washington. Planting zones follow an erratic pattern. Additionally, there is an overlapping of zones. Certain hardy species achieve healthy growth in western Montana (Zone 3) and can also be found in abundance in southern Alabama (Zone 6).

London plane, perhaps one of the hardiest of the tall deciduous trees, which are used extensively for street planting because of their resistance to carbon monoxide and other noxious gases, might be an excellent choice for municipal layouts. With

the exception of a few evergreens, London plane trees have been the exclusive choice for new plantings at New York City courses during the past few years. Courses close to heavily populated areas, where air pollution seriously challenges the health of existing trees, might look to this strain as replacement plantings. Consider, however, the cost of replacement.

The Vincent Marando Landscape Corp., which does a lot of replacement work in and around New York City, lists replacement planting for London planes at \$132 for a 2½ to three-inch caliper; \$144 for three to 3½ inch, and \$159 for 3½ to four inch. (Caliper measurement is trunk thickness.) These prices are competitive with other contractors in the metropolitan New York area. Contractor planting and replacement costs have risen 10 per cent in the past few years. Rising labor costs at the nursery level, which must be passed on to the purchaser as well as the contractor's own escalating overhead costs, have necessitated higher costs.

Proximity of trees and green can be a serious safety hazard. Errant tee and approach shots have been known to create havoc, particularly where wide open conditions prevail. Protection for your golfers by wise tree planting can help to define

continued



Finish of a long par four (1) that has all the elements needed to make an excellent approach shot: bunkers beautifully positioned; a stream cutting across the fairway; mounding around the putting surface. Picture the green backed by a stand of trees. The same hole could be spectacular with proper, inexpensive planting. Typical wide open condition from tee to green (2) that could benefit from strategic placement of inexpensive trees used to clearly define dogleg. Fast-growing member of evergreen family (3) dwarfs youngsters. Purchased as a seedling at local nursery for \$2.

TREES *continued*

these areas and to form guidelines for less experienced players. Golf is a game of directions. There must be route markers that help steer golf shots along the right paths.

Where limited space is available and screening between a tee and green might be advisable, poplars should be considered. Extremely fast growing, these popular trees rise in sharply vertical columnar shapes to heights of 80 to 90 feet. In a few years a two-year-old poplar can be counted on to dwarf golfers on a tee. There are poplars for every climate and soil condition, such as silver and white, which are apparently impervious to the ravages of seashore weather, and the balsam poplars, which seem to grow anywhere. The Lombardy poplar is probably the best known and most widely used screen tree in the United States, but is considered inferior to other members of its own family, such as the Balleana.

Serving the worthwhile purpose of providing protection by screening out misplaced shots and adding some privacy to the teeing ground, the poplar can accent an open landscape majestically. A stand of five, two-foot tall poplars may be as small an investment in safety and beauty as you are likely to find. At

\$2 each, the going price, they deserve every consideration.

The evergreen family offers some excellent choices for screening tees and framing greens. Ever popular Colorado blue spruce, used to define a level teeing ground, will add a colorful touch. Its blue gray shadings make an attractive contrast to the multi-green background of a course. The Western Maine Forest Nursery Company in Freyburg, Maine, can supply as many as 10, five to 10-inch tall, four-year old transplants for as little as \$3. Colorado blue spruce does not do well below the Ohio River Valley and along the Pacific coast. Other members of the spruce family, such as the Serbian, Alcock and the Norway spruce, which is the most widely planted cultivated coniferous evergreen in the United States, might be the choices for Southern climates.

Spruce can be counted on for heights of 15 to 20 feet in 10 years. Even if used to back a green that is approached from downhill, they will provide outstanding targets for approach shots.

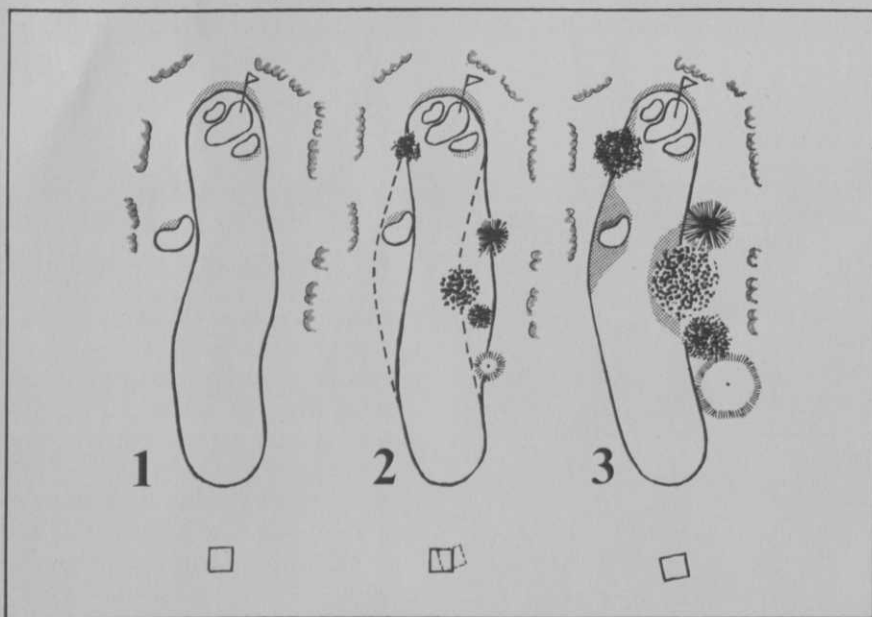
If evergreens are selected for planting, serious thought should be given to a seasonal problem that may arise. In an article on vandalism in *GOLFDOM*'s April, 1972, is-

sue, Tom Sams, course superintendent at the Aububon CC in Louisville, Ken., pointed to the loss each Christmas of half a dozen of his best 20-foot pines to stealing. It might be wise to locate evergreens in mid-course, away from easy accessibility along roadways.

Evergreens, or pines as they are commonly referred to, have been put to other good uses besides screening tees and framing greens. The Bey Lea GC in Ocean County, N.J., which was built on level to gently rolling farmland in an interesting layout by the Purdys, designers who have done much to alter New Jersey's facade, recently installed almost a hundred scrub pine along a black topped roadway. This busy thoroughfare parallels several holes, and until this recent innovation, was a source of consternation for golfer and driver alike. Decidedly a hazard for both. Teeing up almost in the face of oncoming high speed traffic must have played hell with many drives. Risking a smashed windshield must have crossed the minds of many regular motorists along this route. The six-foot tall pines, which are found in abundance in New Jersey's pine belt where Bea Ley is located, will grow into a tight "fence," easily able to do double duty in containing sliced tee shots and shutting out the distraction of moving traffic. Additionally, they now form a border for the part of the course most in need of planting: the wide open, almost level section.

TRANSPLANTING PROCEDURES

When Erling Larsen was building the Green Meadow CC in Lincoln Park, N.J., he ran into problems that might be said to be typical of courses etched into former farms. The relationship of the landing area for the drive at the 550-yard second hole and the tee ground of the 381-yard seventh presented special problems. The seventh tee is just beyond the crest of a slight rise that is not visible from the second tee. Looking to cut the dogleg at number two, golfers were driving into the vulnerable area of the seventh tee. Larsen's plan was to screen the tee with evergreens, counting on their tightly woven branches to trap the potentially dangerous shots. In fact,



1. Existing wide open short par four. Makeable birdie for most golfers.
2. Tree planting at young stages of growth begins to form hole into serious challenge. Dotted lines indicate extremity of mowing operation to "slide" fairway to left.
3. Four and a half years later, a completely revamped hole. From an ordinary, uninspiring short par four to an interesting and difficult dogleg.

Larsen thought he had solved the financial problems of planting when he was offered as many evergreens as he would care to remove from a neighbor's property. On investigation he found removal costs and transplanting to be prohibitive, so he had to forego this solution. At that time Green Meadow was a new course and planting had to take a back seat to other more urgent financial needs.

There are, of course, many stories about the kid who went into the neighboring woods and pulled out of the earth an evergreen measuring up to his knees, took it home and planted it in the backyard only to have to grow into a fine specimen as he grew into adulthood. The success of such childhood endeavors have as often as not wound up on the bonfire during the spring clean-up. There is, however, a lesson to be learned from these young "green thumbs."

An occasional exploration into the wooded sections of your course will reveal the existence of interesting saplings that might be considered for transplanting. The balance of nature in the woods will not be disturbed by the removal of a few saplings. It is entirely possible that within the confines of your wooded areas you may find enough new growth to solve all your sparse area problems.

In order to ensure the good health of saplings you may decide to move, you would need approximately a year's lead time to prepare the tree for transplanting. Tag selections with an identifying piece of colored cloth for easy location a year later. Dig trenches about 18 inches long, slightly longer for trees larger than saplings, in several directions from the base of the tree. Fill with rich loose soil to provide a growing place for new roots. A year later, these new roots must be carefully removed along with the tree's larger root structure. The sapling may now be safely planted at the preselected place on the course. This procedure can be undertaken by the grounds crew thus serving a double purpose: Harmonious planting at little expense.

Young and vigorous saplings are recommended over larger trees because the bigger trees have had

more time in the growing process and frequently cannot withstand the shock of transplanting.

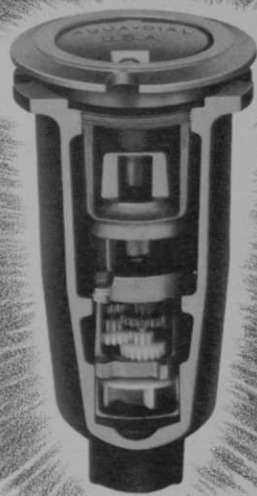
The purpose of the trenching operating to induce new root growth in a spread pattern is to ensure root security. The greatest danger to new growth and transplants is in having the tree affected by shifting winds. This will disturb the root growth, which must have a chance to secure itself if the tree is to live.

In replanting, there are certain procedures that must be observed to ensure the healthy growth of the

new tree. First and most important is that the hole must be generous. There must be no compromise with the room needed for the roots to take hold. The roots that reached out into the trenching you had prepared in the wooded settings must again be taken into consideration. No attempt should be made to curl the new roots to fit the hole. The natural path these roots have chosen to follow is the best assurance for stability against shifting winds. Most new roots are likely to grow downward, so the best earth should

continued on page 50

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be placed at the bottom on the hole. This soil should be enriched two or three feet below the surface using a mixture of at least one half to one third of its bulk in some form of well decomposed material, such as leaf mold, peat moss or compost. This may be your only opportunity to enrich the soil, so add about a pound of super phosphate to each bushel of the mixed earth. Any injured roots should be cut back to clean wood, but avoid unnecessary pruning. With the roots spread out in as natural a pattern as possible, fill them over with the prepared soil and tramp firmly. After filling the hole, water should be added and allowed to soak. Then more soil added, more water, and so on.

The next important step after planting is to wrap the trunk with special tree tape, consisting of two layers of crinkled kraft paper stuck together with asphalt. The trunk is wrapped in a spiral pattern from the base up to the first branches. It will expand as the tree grows. The purpose of this tape is to protect the bark from attack by insects, to conserve the moisture that might evaporate through the bark and to slow the transfer of the food from the soil, through the roots and up to the branches. Additionally, it might help against damage from animals and from any mechanical injuries.

As we have said, the greatest danger to new growth is swaying in the wind. This problem is overcome by staking. Two or three are recommended for a sapling. Avoid damage to the tree trunk by wrapping the binding wire around the trunk in a rubber casing, such as a section of cut garden hose. Naturally, stakes must be driven so as not to damage the newly-planted roots.

The few species mentioned herein represent only a minute sampling of the varied plant life available in the United States. Price ranges are almost as varied. There are trees for every location, every climate and every course in need of improvement. Sparse conditions need not be the dominant feature at any club.

All it takes to alter the face of any course is a little planting, a little ingenuity and, fortunately, a very small share of your purchase fund. □

