The Monsters of Manchester

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TREES HAVE probably ruined more good golf holes and turf than any other single feature on the course! Do you agree with that? After all, trees play a prominent role on most American courses. They give definition and character to certain golf holes by guarding doglegs or greens, creating shots, directing lines of play, defining target areas, and protecting one hole from another.

If the trees have been properly selected, they will add great beauty to the golf course in spring, summer, and fall. They can differ in form, shape, and texture, and their seasonal changes provide aesthetic qualities that are often subliminal and sometimes startling. One usually hears all of these things from the advocates of trees. There is seldom a discouraging word.

But just as important as trees are to the golf course and to the game, they are often the source of serious problems. They can affect the way a hole is played as well as the quality of the grass. The long-term effects of an overzealous course beautification committee (which usually means a tree-planting program) are not usually seen until the trees become mature. Then, with the trees already established, it may require an act of Congress to remove trees that have been on the golf course "forever."

From a design point of view, most trees are innocent enough until they grow older and their overhanging branches limit the use of a tee or block the use of a normal approach shot into a green, because what was supposed to add character is now a formidable obstruction. As it grows older, it could mask the view of a strategic bunker. If it had been planted directly between the bunker and the green, it could create a situation known as double jeopardy.

None of the preceding cases is the planned result of the beautification committee or anyone else, but they can be easily found.

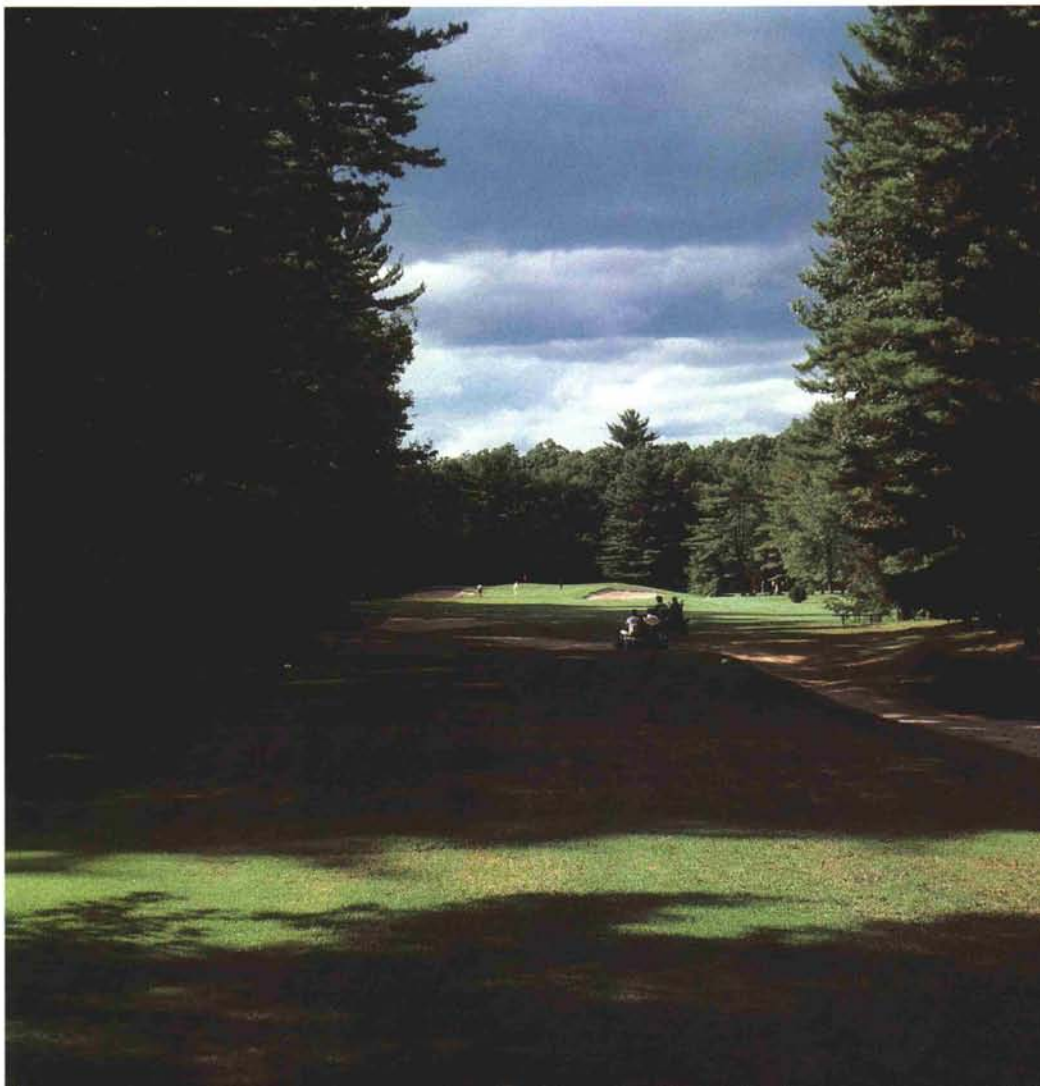
DESPITE HOW TREES can affect play, their greatest impact is, perhaps, on how they can affect turfgrass physiology. Trees can strike at turf from three angles. The negative effects can be from 1) overshading, 2) reduced air circulation, and 3) root competition. A turf manager can play the game with one or two strikes, but given all three, his turf is out.

The effect of heavy shading causes physiological changes within the turfgrass plant that result in an overall deterioration in plant vigor and hardiness. A delicate structure and succulent growth are common characteristics of shaded turf. They also show a reduced tolerance to drought, heat, cold, and wear.

Overplanting trees can also significantly reduce the air circulation above a stand of grass. While an increase in carbon dioxide levels may be an advantage here, it is quickly countered by the negative effects of increasing relative humidity, dew point, and temperatures. Disease is enhanced when weak, succulent turf is subjected to these environmental conditions that work in the pathogen's favor. This problem is often expressed around greens and tees where tree plantings can quickly become congested and grass is mowed to its lowest limit.

While root competition is often subtle, it is equally detrimental to the growth of healthy turf. Shallow-rooted trees are fierce competitors for the available

The sixth tee trees called for a shot through the chute and dense shade for the tee.



Manchester's sixth tee in mid-April after reforestation work. Improved air circulation and more sunlight is now assured.

water and nutrients intended for the good of the turf. Trees such as willows, poplars, silver maples, and white pines show shallow-rooted characteristics and often grow next to greens and tees. When they are important to the overall scheme of things, the trees should be left and their roots pruned periodically. If the tree isn't important, removal could be the best thing to happen.

GOLF COURSE superintendents and green committees strive to achieve certain constants in playing conditions at their clubs. These are produced by establishing specific cutting heights, green speeds, irrigation cycles, bunker conditions and by setting up maintenance programs that provide consistent results. Like everything in nature, however, a golf course is dynamic and constantly changing from year to year. Most changes are subtle, but over the long haul they can have a dramatic impact on the immediate surroundings. Quite often trees are the monsters that create the negative changes.

This was the case at the Manchester Country Club, in Manchester, New Hampshire, where the board of directors and an enlightened green committee came to grips with the emotional dilemma of how to handle the conflict between trees and turf. Even though nothing was seriously wrong with the maintenance program, Manchester Country Club was perennially hit hard by winter kill that seemed to escalate each year. Robert Dunn, chairman of the green committee, and Jim Diorio, the golf course superintendent, explain further.

The Green Committee Chairman — Robert Dunn

"In the fall of 1984, the green committee and golf course superintendent selected 50 trees to be cut down during the winter. The trees lining the fairways were extending their branches to such an extent that tee shots were becoming much more than a challenge on certain holes. Up to this point, only a handful of trees had been removed for golf reasons since the club had been formed, in 1923. Trees were more than sacred, and the pruning done in 1984 was criticized. Most members seemed to believe we were significantly changing a Donald Ross course to something less than it was intended. Our only answer was that when the course was built, the number and height of trees was not a problem. Indeed, after reviewing old pictures of the course, we could see how much time had changed our tree population. In recent times, our club's reputation was for its magnificent trees rather than for its playing condition. We now believe, and we are convinced, that Donald Ross did not wish us to do a great job growing trees, but that grass should be our first priority.

"As winterkill in some of our fairways and greens became worse each year, the green committee decided to take a stand in the spring of 1985. On-site visits from the golf course architect Philip Wogan, University of New Hampshire's Dr. John Roberts, and the USGA agronomist Gary Watschke provided important information that was presented to the board of directors. The consensus was that cutting down 1,200 or more trees was the answer to growing grass. The board of directors turned it down.

"At the next meeting of the board, the green committee had the magic words — the USGA agronomist Gary Watschke and the forester Tom Ryan, of Monadnock Forest Products, would select which trees should be removed or pruned. These two professionals would compliment each other in their work and MCC would be best served under this approach. The board agreed.

"As the membership does not own the club, Jack Cullity, our President, had to get permission from the owners before we could move on this project. The owners approved, and the calls were made to Tom and Gary to find a suitable time in the fall of 1985 to select trees for removal. In mid-September two days were spent doing just this with help from green committee member Tom O'Neil and superintendent Diorio. Our President and myself were also in attendance. Each tree selected was sprayed with a yellow paint mark the size of an apple for proper identification in the winter.

"The exact date for cutting was to be in late December or January, depending on turf conditions. The heavy equipment coming in and the number of trees coming down made it imperative that the ground be frozen. Snow cover would help. The work began the second week of January and continued until February 18, 1986. Our golf course superintendent was present throughout the

process, making certain everything was done just right. The lumber from the removed trees represented 270,000 board feet, producing an income of approximately $15,000 for the club. The owners had agreed this money could be spent on removal of stumps and the balance used for re-landscaping with more appropriate plants.

"Now that this most difficult part of the project is behind us, we can breathe a sigh of relief and look forward to playing golf under more favorable conditions. We know that, to many, the changes may not meet with their approval. Time will tell if the solution was correct, but we are convinced that the best interests of all members would be served and this gave us the strength to act. In 1987, after a year of growth and development in this new environment, we believe we have the quality golf course the membership wants."

The Superintendent — Jim Diorio

"As Mr. Dunn has indicated, we have undertaken an enormous tree cutting program at our club, removing nearly 1,200 trees. The majority were white pine ranging in caliper size from 5 to eight inches. We also removed a lot of red maple, red oak, and white oak. A substantial amount of marketable lumber was sold to the harvesting company, and approximately 650 cubic yards of wood chips, representing non-usable tops and trees too small for milling, were also removed. We cleaned up the branches and any tops that broke off when the trees fell.

"Undertaking such an extensive program and making such a major change in the perceived character of our course was not a project for me to handle alone. The USGA Green Section and Monadnock Forestry Products provided professional guidance that was necessary to achieve the results the majority of the membership was looking for. Men from these organizations, along with club officials, worked closely with me so we all would understand the whys and wherefores of what was happening.

"Foremost in our minds was to remove those trees which were hampering our efforts to produce quality turfgrass. Some of the trees we removed were as close as 15 feet from our greens and within eight feet of some tees. A majority of those we removed were on the east and south sides of the areas we were trying to improve. Many of these problem areas were receiving as little as one to two hours of sunlight daily. We were not only trying to increase exposure to di-

(Below) The fourth fairway at noon in early January. Dense shade covers entire fairway. Severe ice damage was normal.

(Bottom) After tree thinning, only the left edge of the fourth fairway was seriously damaged by late April. Perhaps more tree removal is needed.

rect sunlight, but also trying to provide for more air circulation by eliminating the stagnant pockets created by the dense trees.

"Perhaps the most severe problems with shading occur during winter and early spring. During mid-winter and early spring thaws, many of the problem areas would receive just enough direct sunlight to initiate snow melt, only to have it freeze as a layer of ice. Year after year ice layers formed on some of the greens, tees, and fairways, sometimes 18 inches thick. While the trees were being removed last winter, we were able to see the kind of results our work was going to produce. The increased sunlight provided a more rapid snow and ice melt, which minimized the amount of time our turf was subjected to this stress. In fact, our trouble greens were completely void of snow and ice by March 17th even though ice had been as much as 10 inches thick earlier in the winter. This is the earliest I have ever seen our greens free of ice and snow in eight years.

"Root competition was also severe in many of the areas. Root pruning around critical areas such as greens and tees is now a part of our periodic maintenance program. It is a relatively simple process that must be repeated only every three or four years. We have learned that the beneficial effects, in terms of better quality turf, are worth the effort.

"Another objective of this project was to improve our remaining woodlands. From a forestry point of view we were to:

1. Remove dead or poorly formed, slow growing species in both the understory and canopy.
2. Select superior trees and thin around them to stimulate their growth and seed production.
3. Harvest selected mature trees that were beginning to deteriorate.
4. Thin pole size stands to stimulate their growth and vigor.

The plan and the above actions should provide the following long-term results:

1. A stand of more vigorous, better growing trees that do not interfere with play or have a negative effect on desirable turf areas.
2. Better conditions for the regeneration of desired species.
3. A safer place for golfers (i.e. fewer dead branches to fall from tree tops).
4. A more aesthetically pleasing forest.
5. Easier cleanup of tree debris in the spring and fall.

"As could be expected, we had to handle a rather massive amount of debris left by the wood cutters. On February 3rd we put on a crew of 10 men to clean it up. While the snow was still on the ground, these men hand picked the larger branches and piled and burned them. While the burning was going on, we were pushing the smaller pieces of wood into piles with our front loader tractor and a leased Bobcat loader. We were able to do this with very minimal damage to the turf, because snow and ice still covered the course. After piling the loose pieces, we brought in our dump truck, loaded the debris and took it to the dump site. We were able to clean up about 75 percent of the smaller pieces in this manner.

"We stopped burning on March 7th, when the snow melted. As the ice and snow left, we found we still had a rather substantial mess on our hands. A fair amount of wood was lying on and around eight fairways as well as on the three staging areas used by the loggers to load the timber and chip their waste. The remainder of our cleaning up was done by blowing the small debris into windrows and picking it up with the sweepers. All wet and soft areas required a great deal of hand raking and loading the wood into Cushmans for carting off.

"The majority of the membership seems to have understood what we were trying to accomplish and what the final goals are. Their initial reaction to the pruning has been one of surprise over the number of trees we removed, but also one of accepting the knowledge of the people involved in this project."

Having Tamed the Monsters

A Turfgrass Advisory Service visit to the Manchester Country Club on June 5, 1985, led the club to act on a tree removal program. The trees that had to be removed were clearly identified, and the reasons why they were causing problems were explained. On a return visit, in late April of 1986 (six weeks earlier than in 1985) the amount of healthy turf seemed to have increased by nearly 80% compared to what it was like in June of 1985. There was no question that taming the monstrous trees proved beneficial.

Obviously, many members were surprised to see the extent of this project. However, after inspecting the condition of the early season turf, nearly everyone agreed with the program. The membership is delighted to know golf can be played under acceptable conditions many weeks earlier in the season than before.

From a turf management point of view, the project had several objectives:

1. Improved exposure to direct sunlight allows for a quicker snow and ice melt. Therefore, winter damage may be greatly reduced, which means that much less ground must be reestablished from seed each spring.
2. Increased direct sunlight on greens and tees should help make the turf more deeply rooted, healthier, and competitive.
3. There will be less tendency for wilt, since the turf is now growing in full sunlight for most of the day. Turf grown in shade all morning then suddenly exposed to hot afternoon sun seems to wilt faster.
4. Because the turf is much less succulent, disease and insect pressures may be reduced. Also, since it is less succulent, it will wear better.
5. Spring and fall cleanup will be much easier because of less debris and better accessibility.
6. A healthy, more playable golf course, which translates to a happier membership.

It is clear that, to a large degree, the objectives have been met. The club will watch for further competition from other trees, and if more are found to be causing problems, they will be removed.

Careful planning is now needed with regard to re-landscaping some of the cleaned areas. Operating from a well-conceived landscape planting plan is imperative because when you are dealing with trees that may live for 50 to 150 years, continuity is essential. Attention should be given to selecting acceptable plants and placing them in proper perspective to tees and greens.

James Snow, Northeastern Director of the Green Section, wrote recently, "Trees near greens should have features that will not interfere with turfgrass growth. These include deep rooting, minimum shading, minimal litter, small leaves, strong branching, and good pest resistance. While few trees fulfill all of these requirements, the club should choose species with as many characteristics as possible. A tree may be deeply rooted, strong, long-lived, and litter free, yet cast deep shadows. This tree could still be acceptable if it is positioned so that the shadows don't fall on the putting surface until late afternoon. Also, modern equipment can deal with litter problems effectively, although it is still a nuisance. Severe tree root competition can be rectified as well with periodic root pruning. These practices do require extra expenses, and they can often be avoided through proper selection and placement of trees.

"Trees near greens may be any height, but high branching species are generally preferred. The outer foliage line at maturity should not be closer than 30 feet from the edge of the green. Rarely should tall, dense trees be planted on the east and south sides of putting greens. If they are, they should be spaced far enough apart to allow direct sunlight to reach the green during most of the day.

"Trees planted in the vicinity of tees may possess somewhat different characteristics from those located near greens. They may have lower branches and produce larger volumes of leaves. However, sufficient air circulation and exposure to sunlight is in direct proportion to the branching height above the teeing surface. Deeply rooted species are preferred so that root competition and the associated root pruning can be avoided.

"Trees may be placed closer to the back of the tee than in front as long as adequate clearance for shots hit from all teeing positions is maintained. For the same reasons, low hanging branches should be avoided on the trees planted near the front of the tee for the same reasons. Sunlight must reach the turf throughout most of the day to ensure dense, vigorous turf with sufficient recuperative potential. When they are properly placed, trees and tall shrubs can provide shaded havens, perfect for bench locations, and a full view of the fairway.

"Some golf course superintendents have had special training and formal education in landscape design and are capable of developing a proper plan. However, if the club is not so blessed, best results can be ensured by consulting with a golf course architect or a landscape architect with experience in golf course planting. They are educated in the principles of design and can bring out the best in the course. Their cost of services is quite small when it is averaged over the lifetime of the plantings they recommend."

Trees, turf, and golf can be compatible when attention to proper design, selection, and location of plant materials is given. Manchester Country Club is developing plans for re-landscaping those areas where complete clearing was required. Assurance is given to provide the proper sunlight, air circulation, and reduction of root competition around all greens and tees. The decisions have not been easily reached, but the success has been of great magnitude.

"Timber!" About $15,000 worth.