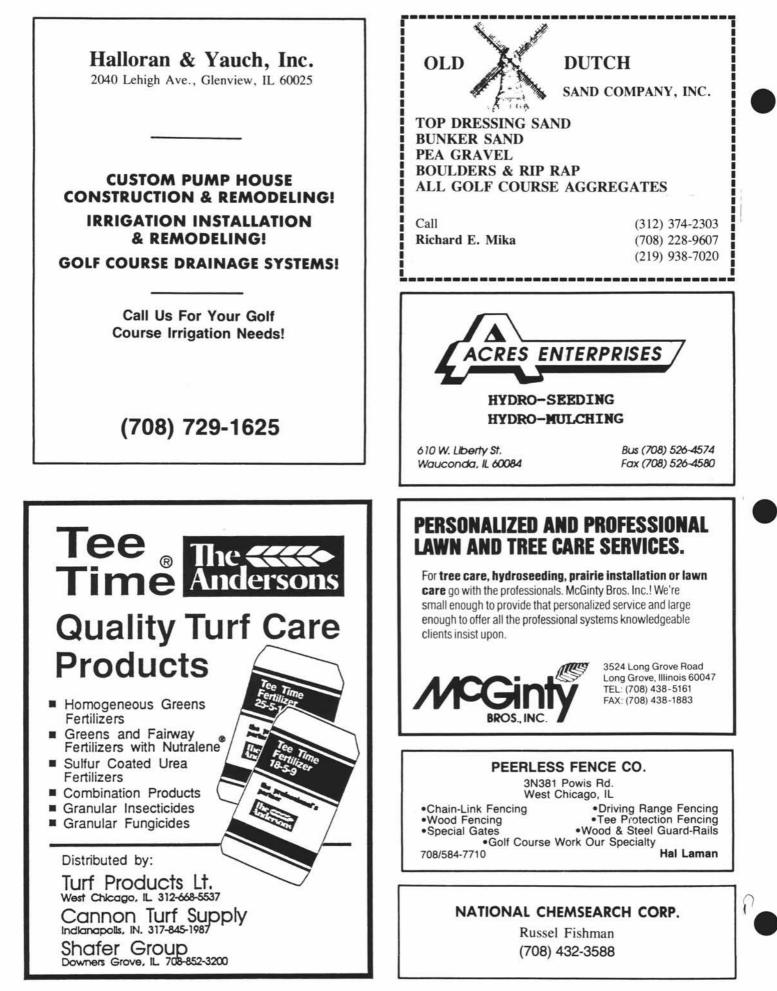




Selected

varieties of



#### (Lightning Protection cont'd.)

Lastly, if the shelter has any water service, electric service or telephone service, these systems must be tied to the lightning protection system. By equalizing the ground potential between all of these systems you will help reduce the risk of damage or injury. A lightning arrestor or transient voltage surge suppressor should be installed on the electric panel if one exists. These devices will help to prevent damage from surges or lightning induced over voltages through the electric service.

#### TREE PROTECTION

Tree lightning protection is a practice that has been done for a number of years to help protect that special tree which if hit and destroyed will change the play of a hole. In recent years courses have been protecting other valuable or beautiful trees just for aesthetic reasons. It should be noted that a protected tree should never be a place of refuge during a storm. If the protected tree is struck and the golfers are standing underneath or leaning against the tree, serious injury could result from side flashing or ground currents.

Tree protection is actually very similar to structural protection. If the tree is tall and slender, such as a tall pine, only one air terminal is usually needed. If the tree is larger and spread out over a large area, such as an oak or maple, more protection is necessary.

In every case an air terminal is installed at the highest point practical. This traditionally longer rod (24''-36'') is designed to take the strike at the highest point of the tree. Secondary branch air terminals are installed on lower major branches. It

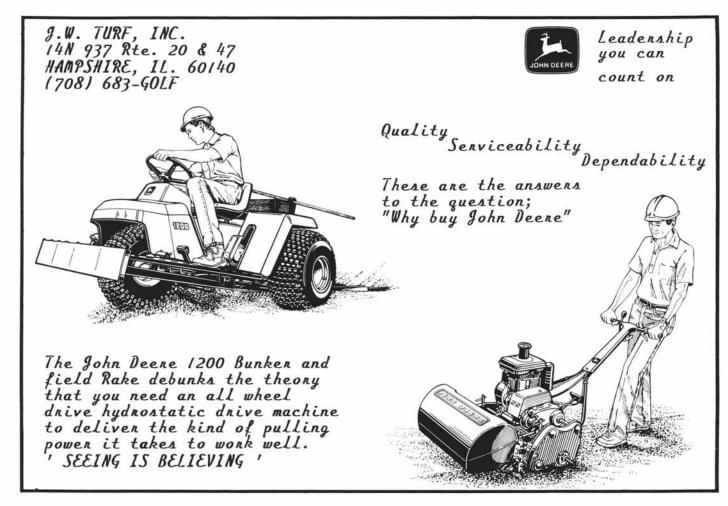
is not unusual to have one main and four or five secondary branch points. Unlike building protection, two down conductors are required only if the diameter of the tree is greater than 3'-0''.

While there are no code requirements for tree installations, there are code recommendations. Recommendations include excluding the use of aluminum in tree protection. Due to the amount of moisture held in trees, aluminum materials will tend to deteriorate when exposed to constant moisture. Air terminals are required. Many systems are installed and the installer will fray or unwind the cable strands at the tope of the tree. This typically is done by people who may know how to climb a tree, but know nothing about lightning protection.

A common myth about tree protection is that unless the cable is installed using a three inch stand-off fastener, the bark will burn if the tree is struck. Lightning protection systems are installed inside wall spaces in buildings every day. The problem is not with the cable fastened to the stud wall or tree bark, the problem is if the grounding system is poor creating the cable to heat up. A properly installed system will not generate enough heat to start a fire. Use the standoff if you want to allow for tree growth and movement, but if you are not concerned about this, regular fasteners are easier to install and are less obtrusive.

If you are considering lightning protection work for trees, and you would be more comfortable having your tree surgeon install the work, consider using a lightning protection professional to at least supervise the installation and provide the proper materials for the job.

(cont'd. page 24)



#### (Lightning Protection cont'd.)

The last area of protection out on the course is for the protection of your deep well pumps or wells. If you have the misfortune of losing a pump, check with the pump manufacturer, many times surge suppression can be installed on the pump prior to the installation. Consideration should be given to providing protection at the top of the well or at the controls for the well. If a UL listed transient voltage surge suppressor is installed at the top of well, you can help minimize damage that might occur due to line born surges.

Due to the number of golfers and spectators killed or injured every year on golf courses, this industry has been plagued with gizmos and gadgets that claim to prevent lightning, expand protection zones and even see lightning on a clear day. Unless a lightning protection system complies with the Underwriters Laboratories Safety Standard (UL 96A) or the Lightning Protection Code of the National Fire Protection Association (NFPA 780) it is not a nationally recognized or approved system.

Consideration for Lightning Protection off of the course should be given to the clubhouse, maintenance buildings, cart barns and other recreational structures such as a pool house. These types of structures are usually where the bulk of the people will run to when a storm blows up. Similar UL and NFPA guidelines as mentioned above should be followed.

The cart barn is one structure that is usually overlooked until a problem occurs. Two months ago in Lexington, Kentucky, 36 brand new golf carts were severely damaged when a nearby lightning strike destroyed the charging systems. Several cases have also been reported of superintendents losing entire fleets of equipment when the maintenance barn was struck and leveled.

Storm warning systems only work as good as the person monitoring them. Warning systems that work automatically and take the human decision element away from clearing the course are the best solution. These systems cost several thousands of dollars if properly installed and maintained. If you don't go this route, be leery of any new ideas on the market. Your best bet is to watch the weather and maintain strict safety policies on clearing the course.

#### Florida GCSA sets up hurricane relief fund

LAWRENCE, Kan., August 31, 1992 — A relief fund for south Florida-area golf course maintenance employees, whose homes were destroyed or damaged by Hurricane Andrew last week, has been established by the statewide Florida Golf Course Superintendents Association (FGCSA).

The fund was started with a \$1,000 donation from the Palm Beach GCSA, and offers of help have also been received from the Carolinas GCSA and Georgia GCSA.

The South Florida GCSA is responsible for locating those employees hardest hit by the storm.

Checks earmarked for the relief fund may be made payable to the FGCSA and mailed to their association office at 1760 Northwest Pine Lake Drive, Stuart, FL 34994. For further information, please contact Marie Roberts, Executive Secretary, FGCSA, (407) 692-9349.

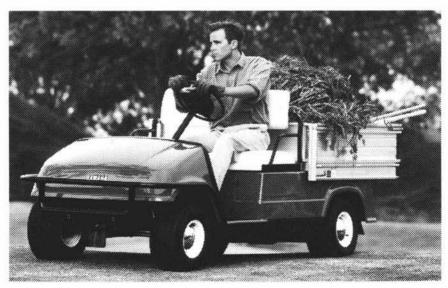
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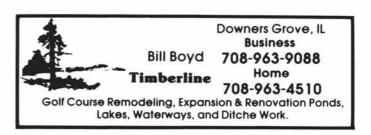
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> Dr. Fumio Kitamura From Landscape Management October 1898

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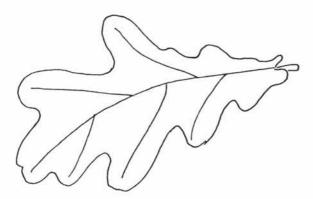
## Leaves, Limbs, Needles & Boughs

by Fred Opperman

Quercus robur (kwer'kus ro'ber) - English Oak

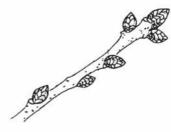
While in England this past summer, I saw many beautiful and large English Oaks growing on the many estates, farms and homes. This is not an american native oak, but it does quite well in the Chicago area. It is a fairly fast grower with a rounded head when mature.

Leaves: Alternate, simple 2 to 5'' long and  $\frac{3}{4}$  to  $\frac{2}{2}$ '' wide, obovate to obovate-oblong, auriculate base, dark green above, pale bluish green beneath; key feature, ear-lobe like leaf base; petiole short.



Buds: Imbricate, rounded plump, angled, <sup>1</sup>/<sub>4</sub>" chestnut brown, scales fringed with hairs.

Stem: Glabrous, reddish brown, often purplish, angled, similar to White Oak.



Size: Can reach 75 to 100' or more in height with a comparable spread; in our area averages 40 to 60' under landscape conditions.

Habit: Large, massize, broadly rounded, open headed tree with a short trunk, needs space to grow and spread.

Bark: Deeply furrowed and grayish black in maturity, in youth the bark is reddish brown.

Leaf Color: Dark green in summer, fall color is nil for the leaves either abscise green or change to brown.

This would be a good replacement for the Pin Oaks on the courses since it is more pH tolerant.

Tree Trivia: On the average, it takes 32 gallons of sap from sugar maples to produce one gallon of pure maple syrup.

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