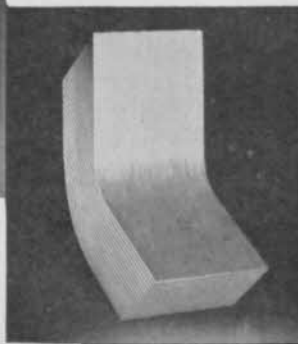
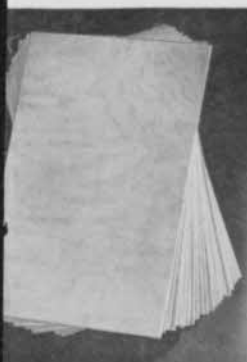


# Multi-ply Laminated Woods

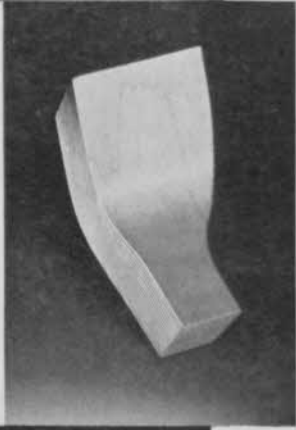
← **1** -- All MacGregor

*Speedwood*  
SPECIALTY WOOD PRODUCTS

Multiply Laminated Wood Heads are made from hand-selected maple.



← **2** -- Maple plies are resin bonded under extreme electro-heat pressure to form a laminated block from which the head is sculptured. Stronger than steel for weight.



← **3** -- Block is sawed into the approximate shape and size of the head in preparation for turning operations.



← **4** -- Giant turning lathe mechanically and precisely shapes block into a perfect replica of specified head model.



← **5** -- Innumerable hand-finishing operations on the head add the nth degree of beauty, refinement and durability. Positive "all-weather" resistance to moisture or temperature.

nodes that are above ground will sprout into leaves and new stolons, while the nodes under ground will sprout into roots as well as new stolons. The topdressing must not be thrown on with a shovel but must be laid on. If you have a topdressing spreader, fine; if not, drop it on as evenly as possible by working the material through the fingers. It is very true you can have quicker greens by not using any topdressing at all. Simply roll the stolons into dampened soil, but in so doing you run the danger of the stolons blowing or washing away before the tiny roots can adhere to the soil. Now, move the first row of boards back about one foot behind the second row of boards. This will give you a planting area of about two feet in width which is about all the average man can reach while doing his planting and proceed as stated before. First rake, 2nd plant, 3rd roll, 4th topdress, 5th roll again, and 6th move your boards back again.

It is very important that the stolons are scattered evenly. It is an exacting job because if planted too sparsely it will take longer for the growing stolons to cover the ground and if too thick the stolons will bulge when they stool out and then you have a job of rolling them down each morning until the roots take hold.

We suggest the stolons be planted to a thickness of ten bushels to a thousand square feet. At this rate the green will thicken out very rapidly before the weeds have a chance. You may save a little money at first by planting the stolons at the rate of eight or even six bushels per thousand square feet but it slows up the green and gives the weeds a chance, and any one who has had the experience of hand picking a green knows of the labor and expense involved. To get the correct thickness take a bushel of the chopped stolons and spread it evenly over a plot 10 x 10 ft., which is 100 sq. ft. This is at the rate of ten bushels per thousand square feet. After getting the knack of planting this area with this amount of stolons you could go ahead and plant all your greens feeling pretty sure you are planting to the correct thickness.

#### Use Fine Mist Spray

If the day is windy or warm or sunshiny, start spraying before the green is half planted. This spray should be an extremely fine mist, one through which rainbows can be seen. It isn't the amount of water put on the green that counts but the frequency of moisture, because, after all, you do not have to water over a depth of  $\frac{1}{4}$  inch, and at no time must the top layer of this soil become dry, not even for an hour, but must be kept moist for a period of at least four days. On the other hand don't over water as the topdressing will be washed off the stolons and rivulets will form on the green.

This is so important that the best man on your force should be given the task of doing the spraying. Generally it is best to leave one man to spray on the first green while the second green is being planted and he can alternate his time between the two greens until a third green is ready for him. One man can take care of the spraying of three greens by just making the rounds. The first four days tells the story and is the most important. If the top layer of soil becomes dry and the tiny roots dry up the green is lost. After the first four days of almost constant and continuous spraying from before sunrise until after sunset you can slow up spraying to about every hour or so, depending upon the winds and the hot sun. If the weather is cool or the sky overcast it is natural that the ground will not dry out so quickly and you will not have to spray as often.

#### Roll Green Before Mowing

On the fourth day new shoots will show all over the green. There is nothing to do for the next two or three weeks except, of course, spray. Watch the greens carefully and whenever the new stolons become an inch or two long it is ready for another shot of ammonium sulfate at the rate of five or six pounds per thousand square feet. Use dry or mixed with damp sand, and be sure to wash off the blades. Whenever the stolons grow to a length of three or four inches they are ready for the first mowing. This may be three or four weeks after planting depending upon warm, growing nights and days. Before mowing roll the green to force as many of the stolons into the soil as possible and then mow, first with an ordinary mower, following it up with a putting green mower set to a height of  $\frac{1}{4}$  inch. Leave the clippings fall where they may, scattering some of the clippings that may be too thick over the places that are too thin. Then roll the clippings down and topdress with the same mixture of topdressing as stated before, and not over  $\frac{1}{8}$  inch thick. Do this once a week for four weeks. This is called "building sod." After this remove the clippings with a carrier and your green is ready for play. The last three topdressings should be dragged in to level and smooth the green. The program outlined is an eight week schedule but it may be slowed up a week or two or advanced a week or two, depending upon the warm days and nights.

Having progressed this far, lower the mower to  $\frac{3}{16}$  of an inch and change the topdressing mixture to more dirt and less sand.

Chopped stolons are preferred to shredded stolons because they lay almost flat on the ground and do not need nearly as much topdressing to hold them down until the roots take hold.

# Cut Maintenance Costs!



## Use the right DOW WEED KILLER!

### ESTERON 44

A powerful 2,4-D weed killer especially effective against woody plants and sprouts—also many difficult-to-kill perennial weeds, such as poison ivy. 1-pint, 1-gal., 5-gal. and 50-gal. sizes.

### 2-4 DOW WEED KILLER POWDER

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### 2-4 DOW WEED KILLER, FORMULA 40

Liquid form and especially suitable for low volume spraying. 5-gal. and 50-gal. sizes. Follow directions on label.

### DOW CONTACT WEED KILLER

"Chemical mower" for weeds along streams, ditch banks, fences and roads. Kills most annuals. Destroys weeds and grass above ground, leaves roots to prevent soil erosion. 10 and 50-gal. drums.

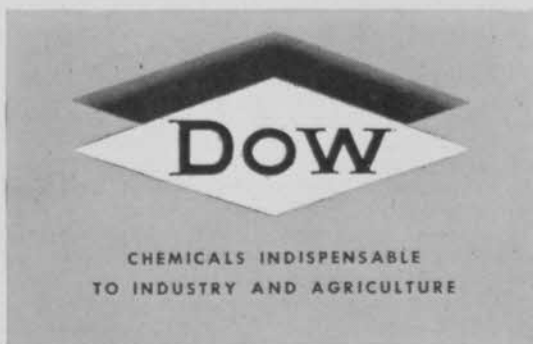
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# Soil Conditions Show Need For Aeration Program

Physical soil conditions affecting plant growth are being accorded recognition equal to that given to chemical factors. This is as it should be, for it is not possible to draw a sharp line between physical and chemical influences. Plant nutrition depends upon air as well as upon a proper balance of chemicals in the soil. Even soil fertility isn't just a chemical condition because the amount of available plant food depends upon the physical condition of the soil.

Desirable physical conditions include good drainage and porous soil structure. Good aeration results from proper drainage and loose soil, all of which sounds quite easy to achieve and maintain, but this is not so. It is not easy for the greenkeeping superintendent to maintain conditions of good aeration. For obvious reasons the problems in maintaining adequate aeration where soil is covered by sod are much greater than where less dense vegetation is grown. Last year's plant residues can't be plowed under, and undecomposed roots and creeping stems tend to form an airproof thatch at the surface of the ground. During some seasons excessive rainfall compacts the soil, causing poor circulation of air. On the golf course these conditions may be aggravated by heavy traffic and the necessary use of equipment while the soil is too wet.

## Good Aeration Conditions

Excessive rainfall, the close growing habit of grass and heavy traffic are unpreventable factors which cause poor aeration. However, the greenkeeping superintendent can minimize this damage by providing conditions which contribute to good aeration. Construction that provides proper drainage, improvement of soil by the addition of coarse textured materials and mechanical loosening of the soil by forking, discing or aerifying, all help to provide desirable conditions. Good drainage improves aeration by carrying away excess water and letting the pores between soil particles become filled with air instead of water. Even so, the upper soil layer containing plant roots tends to become compacted by rainfall and traffic unless a program to combat the condition is followed.

It's a debatable question whether the physical effects of aeration are due to the presence of air or to the absence of

water. Growth begins earlier in the spring in well-drained, well-aerated soils because air warms up more readily than water. Heaving is less severe in well-aerated soil than in water logged soil. When an excessive amount of water freezes in the soil, it lifts up the sod just as frozen milk lifts the cap off the bottle. Fungus growth is favored by dampness, so grass grown in well-aerated soil is less likely to be injured by disease. Because of these things, a soil aeration program carried out in the fall makes for a better golf course in the spring.

## Root Growth Affected

Plants survive dry spells much better if soil is well-aerated. A deep layer of loose soil encourages the extensive root system that enables plants to live through periods of drought. Any available water readily penetrates down through the loose, porous structure of well-aerated soil and the grass greens up quickly after a rain.

The effects of aeration on root growth are striking. The increased root growth is partly due to mechanical loosening of the soil which also permits fertilizer to penetrate to the root zone. The presence of oxygen is also necessary for plant roots as has been demonstrated by water cultures. In this type of culture, plant foods are present in the solutions, and the vigorous growth which occurs in aerated solutions indicates the importance of an adequate supply of oxygen. Both plant foods and ample aeration are needed in order for plants to secure nourishment.

Perhaps the most important, and surely the least discussed, aspect of aeration is its effect upon the chemical and biological activities that take place in the soil. That is, the processes brought about by the soil microorganisms. Well-aerated soil is soil considered to be in a good, healthy condition. It's not so much that air tends to purify, but rather that air encourages the scavenger work of the microorganisms. Dead plant tissues serve as food for some of the organisms which live only in the presence of oxygen.

The presence of these invisible organisms in well aerated soil makes it possible to convert food chemicals into forms which can be readily absorbed by the roots of the grass and other small plants.

# Jacobsen

## POWER MOWERS

**SPECIALLY SUITED FOR  
GOLF COURSE WORK**

In addition to the Jacobsen Power Greens Mower, widely used by greenkeepers throughout the country, two other Jacobsen models are extensively used in grass-cutting work on golf courses.

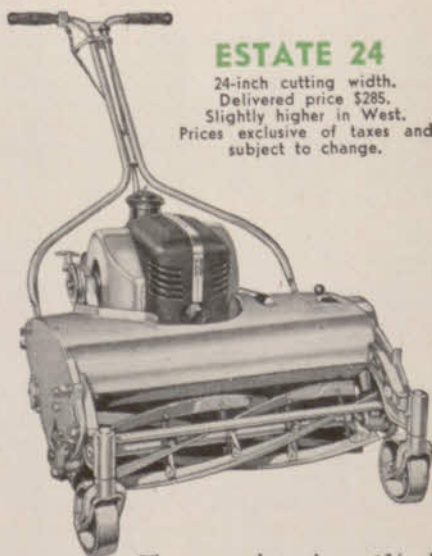


### LAWN KING

26-inch cutting width.  
Delivered price \$285.  
Slightly higher in West.  
Prices exclusive of taxes and  
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On open areas, hillsides, bunkers and general purpose mowing the fast, powerful Jacobsen Lawn King does the job smoothly, easily. Its capable, 1 $\frac{3}{4}$  hp. Jacobsen engine furnishes ample power for all requirements.

Your Jacobsen distributor will be glad to give you the full story about our complete line of power and hand mowers.



### ESTATE 24

24-inch cutting width.  
Delivered price \$285.  
Slightly higher in West.  
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subject to change.

The smooth-cutting, 1 $\frac{3}{4}$  hp. Jacobsen Estate 24 power mower makes quick work of cutting tees and is a specialist on trimming jobs. With traction wheels behind cutting unit, it trims close to trees, shrubbery, buildings—greatly reduces tedious hand trimming. Differential drive permits sharp turns under power without scuffing or marring turf.

# Jacobsen

**MANUFACTURING COMPANY ★ RACINE, WISCONSIN**

SUBSIDIARIES

Worthington Mower Company, Stroudsburg, Pa.; Johnston Lawn Mower Corporation, Ottumwa, Iowa

Well-aerated soil is productive soil, also due to the presence of microorganisms. They convert nutrient chemicals into forms available to higher plants.

Not all the soil microorganisms are bacteria, but a good number of them are. Bacteria are single cell plant organisms which contain no chlorophyll. When conditions are favorable they reproduce very rapidly by simply splitting into two parts, each of which grows into a complete organism.

#### Effect of Decaying Matter

The decay of organic matter, the conversion of its nitrogen into simple ammonia compounds, and the further transformation of these compounds into nitrites and nitrates is probably one of the best examples of the known work of the soil microorganisms. The names of the microorganisms, which after all were merely pinned on them by man, are unimportant. It is the processes by which they maintain soil sanitation and fertility essential to the higher forms of plant life that are of interest to us.

It is not to be inferred that all microbial activity in the soil is of a beneficial nature. Although soil microorganisms cause decay and nitrification, soil microorganisms also cause putrefaction and denitrification. Both beneficial and detrimental organisms require warm temperatures and derive food from organic matter or simple inorganic compounds. The rate of aeration is the chief factor determining whether desirable or undesirable microorganisms will function in the soil.

#### Importance of Air

To understand why air is so important it is necessary to consider the nature of the chemical activities which take place. Decay is the chemical process called oxidation (which simply means combining elements or compounds with oxygen). Simple ammonia compounds are transformed into nitrites by oxidation. And it is the oxidation of nitrites that yields nitrates. Oxygen from air is essential for these oxidation processes brought about by soil microorganisms. Clay and even loam soils tend to become too compact for nitrification to take place as rapidly as is desirable, unless the soil is mechanically loosened from time to time. Nitrification is especially slow in soil covered by sod.

In the absence of adequate aeration, putrefaction, or decomposition of organic matter takes place. In this process decomposition is incomplete and certain offensive smelling compounds which are resistant to further decomposition are formed. None of these compounds can be utilized by higher plants, and many are actually poisonous.

A limited supply of oxygen encourages denitrification. When oxygen is deficient, anaerobic microorganisms compete with the higher plants for available nitrates. These microorganisms reduce nitrates to nitrites, and then to ammonia and gaseous nitrogen, which is lost into the air. Poor aeration can cause the denitrification of fertilizer.

The oxidation of simple sulfur compounds into sulfates which are available to higher plants is brought about by soil microorganisms. The process is similar to the nitrification cycle.

The assimilation of nitrogen from the atmosphere is usually associated with the bacteria that attach themselves to the roots of legumes. However, there are unattached nitrogen fixers at work in the soil. Attached and unattached nitrogen fixers are aerobic and are found in soil and sewage.

Soil microorganisms also produce organic acids and carbon dioxide which have a solvent action on soil minerals. Some organisms increase the solubility of phosphates. Others make minute quantities of certain nutrient elements available for higher plants. The fact that applied chemicals don't tend to be retained or accumulate to an extent where they might be poisonous to plants is believed partly due to the activities of microorganisms.

Excessive acidity or a low content of organic matter, as well as poor aeration, will reduce the number and activity of soil organisms. However, even under unfavorable conditions, microorganisms don't disappear from the soil altogether; they just go on a sit-down strike. They are in the soil and ready to resume work as soon as good working conditions are provided, therefore the need to be ever alert to the requirements of the soil and cognizant of the benefits that can be derived from proper aeration.

### Greenkeepers Annual Tourney; Medinah, Chicago, Oct. 4-5

National Greenkeeping Supts.' Assn. will hold their annual golf tournament at Medinah (Ill.) CC, Oct. 4 and 5. The greenkeepers expect a large field for their annual championship and the numerous sub-championship flights. They'll play the Medinah course on which the 1949 National Open will be played for the first time the top event of golf has been in the Chicago district since 1933 when Johnny Goodman nosed out Ralph Guldahl at North Shore CC.

Ray Gerber, 865 Hillside ave., Glen Ellyn, Ill., is chmn., championship committee. Entry blanks may be secured from him.

# THE PERFORATED FLEXI-GRIP ON THE 1948 *First Flight* GOLF CLUBS MAKES LEATHER GRIPS OBSOLETE

**CLUBS WITH LEATHER GRIPS CLOSED OUT AT 20% DISCOUNT!**

First Flight Clubs are going 100% to the Perforated Flexi-Grip because tests in all climates and all weathers prove that this Perforated Flexi-Grip is by far the best golf club grip ever made. This grip absorbs the shock of the drive and its tacky velvety feel gives complete relaxation and firm grip without tension. Watch the tournament players, they know!

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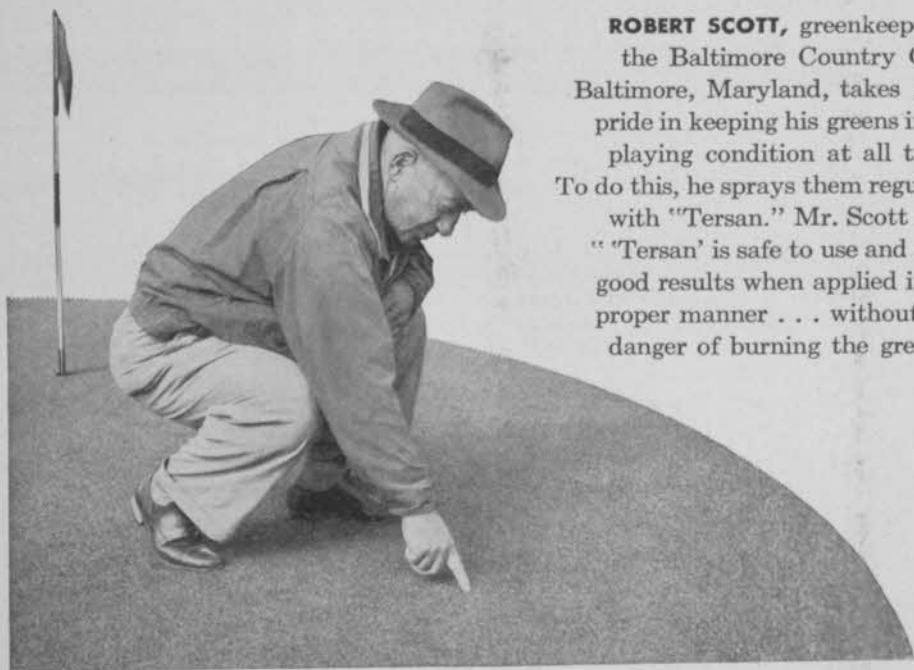
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# Baltimore Country Club

**ROBERT SCOTT**, greenkeeper at the Baltimore Country Club, Baltimore, Maryland, takes great pride in keeping his greens in top playing condition at all times. To do this, he sprays them regularly with "Tersan." Mr. Scott says, "Tersan" is safe to use and gives good results when applied in the proper manner . . . without any danger of burning the greens."



**A DIFFICULT APPROACH**—but smooth as a billiard table . . . once the ball is on the green. Regular applications of "Tersan" assure a smooth, true putting surface for championship playing on this 10th green at the Baltimore Country Club. To prevent dollar spot, brown patch and other fungous diseases, Mr. Scott uses "Tersan" fungicide on all his greens.



protects its greens with **TERSAN\***



**EVEN COVERAGE** of the "Tersan" solution assures complete disease control. Mr. Scott finds this four-nozzled sprayer gets the job done quickly and efficiently. Even inexperienced help can use "Tersan" because of its wide margin of safety. And "Tersan" will not shock, yellow, or retard grass growth—even in hot weather.



**A VELVET-SMOOTH** putting surface on all greens at Skokie Country Club is assured throughout the season by regular spray applications of "Tersan." Du Pont offers two other turf fungicides: Special Semesan\* for those who prefer a mercurial fungicide; and Du Pont F-531, a cadmium fungicide for effective dollar spot control.

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May, 1948



# Minnesota and Indiana Pros Meet to Study Business

By HERB GRAFFIS

Pro business clinics such as those conducted each spring by the Minnesota and Indiana PGA sections give the pros attending at least a month's start on their business. Problems that might not come under sharp scrutiny until the season was a month advanced are taken up, discussed and in some measure solved by these huddles. That's important in a comparatively short season business.

Frank McCormick, director of athletics, University of Minnesota, welcomed the Minnesota pros and manufacturers' men to Cooke Hall of the university April 5, and counted them in for a continuing and growing part in the state-wide development of golf through the university and high schools. This program is being handled by Les Bolstad, head of the university's golf. Bolstad had some of his students listening to the talks so they'd get a close-up of the pros' problems and how the pros are meeting them. It was smart propaganda work to have these university physical education students get part of the pro picture and go forth as pro publicity messengers.

Wallie Mund told his team-mates in Minnesota pro golf his methods of shop management, emphasizing that as it's the pay-off in the cash that's left after all the bills are paid, the score has to be kept on money all the time. Whether in long-range planning and operations or in provisions for inducing quick sales and harvest the net profit it's the dollar that controls operations of the pro department. The member or pay-play member is the No. 1 party because he's the source of the dollars, the realistic Mund detailed.

Harold Sieg related his experiences in building pro shop volume. Sieg said that he'd put more than 400 all-weather grips on members' clubs in his shop which was picking up a sleeper in shop gross and as far as he could see the grip revenue hadn't reduced interest and sales in new clubs.

Tom Crane, PGA executive sec., gave a highly interesting description at the Minnesota meeting and later at the Indiana session, of national PGA work. Crane's appearances on these programs did much to explain to members that the organization is endeavoring to serve the club pro along lines advocated by GOLFDOM for

years and is not devoting an undue proportion of its money, work and public ballyhoo to the fraction of one per cent of its members who are tournament winners. Crane did not detail PGA financial status which seems to be the mystery that accounts for much of the criticism by rank-and-file members but he did say that in the postwar recovery of the PGA roster income is substantial.

The veteran Jock Hendry went into an explanation and discussion of golf rules. Minnesota pros were keenly interested. They have the conviction that unless a pro thoroughly knows the rules and is an authority on them he is deficient in a major essential of his qualifications.

O. J. Noer was the headliner in the discussion on "The Golf Course from the Pro Standpoint," during which Len Mattson and others presented turf troubles which had come to their attention. Noer's address contributed to the fine understanding that generally prevails between Minnesota pros and greenkeepers. Noer also spoke at the concluding dinner of the conference at which pros and officials joined in a relaxing evening at the Town and Country club. Totton P. Heffelfinger of the USGA executive committee and Herb Graffis, GOLFDOM editor, were other speakers on the dinner program which was a get-together in a light mood before teeing off on the season.

## Lively Programs Pay Pros

Harold Clasen, in the afternoon session of the clinic, spoke on golf tournaments and events. Clasen said, "One of the important duties of a pro is to arouse interest in golf among his members and in this way make memberships more attractive. A good competitive schedule for all classes of players will prove very profitable to the pro." He urged that pros help committees arrange schedules of lively and comprehensive appeal and conduct the events. He distributed copies of his Northland CC schedule and sheets on which he gave details of his club's most successful events. Clasen also showed pictures and other details of methods he used in conducting tournaments.

Lee Harrington, Wilson Sporting Goods Co., gave a feature address at Minneapolis which he repeated in substance at the Hoosier pros' Indianapolis clinic. Har-