a sifted sample of soil until it is like a mix of mortar. If you have it in a pail, the moisture content is about right when you can draw a line across the surface with your finger and the line will still be visible after you have gently jarred the bottom of the pail against the floor a couple of times. Then trowel the mud into a container, a cigar box is OK, and allow it to dry thoroughly throughout. Make the brick about 1\(\frac{1}{4}\) inches thick. If the soil is suitable for putting greens a man of average strength will be able to crumble it between his thumb and forefinger. If he can't crumble it this way then it is too plastic and needs to be mixed with sand and organic matter to reduce the percentage of clay and silt (plastic materials) in the sample.

In this connection, raw organic matter, such as peat, is more effective than sand. We want a high percentage of fine organic matter in the soil for ideal plant growth but too much may create a problem.

Organic matter absorbs moisture readily and under dry conditions will rob the soil particles of moisture; some of the moisture absorbed by the organic particles will be held from the roots. Coarse organic matter in particular, will create an open, porous, well-ventilated soil which dries quickly except for the moisture held within the organic particles. Hence in dry periods the soil at the root zone may actually contain less available moisture for plants than if it had less organic matter. Also too much organic matter may create a very spongy putting surface when wet.

Some soils become even more compact with a slight amount of sand. You will have to experiment with the materials at hand, but I feel that a fairly safe rule is to first add \(\frac{1}{6}\) by volume of peat, then add \(\frac{1}{6}\) by volume of sand and continue in this way until you have overcome the extreme plasticity. You will probably mix four samples. 1. Add \(\frac{1}{6}\) peat. 2. Add \(\frac{1}{6}\) peat and \(\frac{1}{6}\) sand. 3. Add \(\frac{1}{6}\) peat and \(\frac{1}{6}\) sand. 4. Add \(\frac{1}{6}\) peat and \(\frac{1}{6}\) sand. One of these will feel just right and it is improbable you will have to go beyond the fourth sample even with anything but the stickiest of clays, if you are unfortunate to have nothing better for a base.

**Topdressing Trouble**

Having discovered a suitable, natural

---

**HARDWOOD FLAG POLES**

Made of the finest, seasoned, second growth, tough White Ash. Tapered from 1\(\frac{1}{2}\) at bottom to 3\(\frac{1}{4}\)\(\frac{1}{8}\) at top, and fitted with brass flanged ferrules to fit standard 1\(\frac{1}{2}\) cup. Sanded finish with prime coat of lead and oil and finished coat of finest white enamel. Available in 2 or 3 color combination.

Your inquiries and orders will be referred to a nearby distributor.

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 Builders of

**KNOCKDOWN**

bleachers

for sports events of all kinds.

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AMERICA'S NO. ONE GOLF-COURSE FERTILIZER

Order Agrico now—ask your regular source of supply, phone nearest A.A.C. Sales Office, or write to The American Agricultural Chemical Co., 50 Church Street, New York 7, N. Y.

June, 1946
or an artificial mixture, we should build the surface of the green with this to a depth of at least 4 inches and then continue to use the same material as topdressing. It is in this connection that many greenkeepers get into trouble. The surface soil is poor so they start to remedy the situation by applying so called corrective topdressings of such materials as coarse sand, pure organic materials and even fine cinders. These materials are extremely different in structure to the soil below and in time become buried by successive application until the layer of open and coarse material is at the root zone. Trouble then starts due to the effect of this material on capillary moisture. Capillarity works uninterruptedly through soil of uniform structure but it is a fact that has been frequently observed that if you change the soil structure at or near the limits of capillary movement the rise of water will abruptly cease and we find a dry layer buried in the soil. The roots then tend to stop at the dry layer and depend solely on the moisture in the relatively thin surface layer. This means that we have to maintain an extremely shallow-rooted turf which requires almost constant watering and feeding. Also in building greens the practice of laying down a sand or peat layer in the green serves no good purpose and if it happens to be near enough to the surface will act either to keep the surface unnaturally dry or wet depending upon the material and the rainfall or watering.

The topsoil of a green should therefore be blended into the sub-soil. This can be done in building a green but in correcting an old green we are faced with some difficulties. If the soil is particularly tight and hard I would recommend removing the sod (cut as thin as possible) and plowing and disking in the correct amounts of sand and organic matter that have been discovered by test.

But if the green has not got to such a bad condition then the surface should be raked and cut closely and as much of the prepared soil as possible incorporated by rubbing it into holes or cuts made with forks or other equipment now available to golf courses. Then start building up the surface with continued application of the correct soil mix.

Tiling Layout

The remaining question now is as to the depth and spacing of tile in a green. In deciding this we should keep in mind the points we have examined previously. We want to get rid of excess water quickly and we want to maintain a supply of capillary moisture. We have taken care of the soil structure and now comes the question of height of the free water table. Actually turf on putting greens depends upon comparatively shallow root system because of the extremely close cut. So if we allow 6 to 8 inches of desirable soil condition as an area for root growth we are probably safe. We should therefore strive to keep the free water table as close to the bottom of this area as possible. This means keeping the tile comparatively shallow, and so we will not have wet spots between the tile, the tile should be laid at a comparatively close interval.

In deciding this we have some data available mostly from the researches of the highway engineers. The data indicates that capillary water will rise about 5.5 inches in 1 day in peat, 11.5 inches in fine sand, 20 inches in silt and somewhat higher in most clays. At this point I wish we had some specific data applicable to putting green soil conditions. But failing this we will have to depend upon judgment. I'll hazard a guess that since our ideal putting green soils are made up of a mixture of these materials we can get along fairly well on the average of these until we will have to depend upon judgment, at about 15 inches. Therefore I would place the bottom of the tile about that depth in the soil and space them as close as 10 feet apart, depending somewhat on the surface character of the green, or in other words spacing them that close where the surface water naturally concentrates and wider on the higher and more sloping areas.

A 4 inch tile is large enough under these conditions and I would use this size chiefly to allow more depth of soil over the tile itself. A grade of a few inches in 100 feet is sufficient and there is no need to set the tile in cinders or gravel under these circumstances, although it is better to pack and cover the tile with the topsoil to improve drainage to the tile lines. Some people like to put a thin layer of straw, cinders or gravel around the tile to keep sand and silt from getting into the tile before the soil has set. This practice is usually OK providing you keep this material well below the root zone so as not to create a super dry area immediately over the tile. As the purpose of a layer of this kind is to keep large quantities of soil from getting into the tile until the soil has settled, a fill of 1 or 2 inches over the tile in the trench is usually sufficient.

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GOLF'S BIGGEST BARGAIN

GOLFDOM

ONE DOLLAR A YEAR
East Is Wilson's Ad Manager,
Lotz Is Assistant

J. Victor East, with Wilson Sporting Goods Co. since 1941, has been named Wilson's advertising mgr. Assisting him will be William A. Lotz, who joined Wilson last March after two years' service with the USNR and many years in the advertising business.

East has had a long and varied background in sports. From 1902-21, while he was professional for the Royal Sydney GC and later the Royal Melbourne GC in Australia, he conducted his own business of manufacturing golf clubs. In 1906 he organized the PGA of Australia and became the first Sec-Treas. of that body. He made a world tour with Joe Kirkwood in 1921.

In 1922 East became pro for the Biltmore-Forest CC, Biltmore, N. C. While there he, with Fred Newnham organized the PGA of the Carolinas and was elected its pres. In 1924 he became pro, and subsequently mgr., of the Longmeadow (Mass.) CC. After that, until 1941, he was retained by A. G. Spalding & Bros. as golf club designer, divisional manager in charge of golf club production, and executive in the production department of tennis, squash and badminton equipment.

Lotz's career in advertising began in 1929, when he joined the McJunkin Advertising Co. His other affiliations have been with: Gentry Printing Co., assistant superintendent; W. L. Stensgaard & Assoc., Inc., assistant art director and later service manager in charge of retainer accounts; Wilson & Co., Inc., production and sales promotion; Erla-Sentinel Radio Corp., advertising manager; Burton & Browne Advertising, account executive and copywriter.

PROTECT YOUR LAWN AND TURF
from destructive DOLLAR SPOT
BROWN PATCH
COPPER SPOT

Quickly . . . Effectively with
PURATURF

YEARS of scientific experimentation have demonstrated the value of PURATURF as an effective turf fungicide. Always keep your lawn and turf in good condition by using PURATURF regularly, it will save labor and money.

Easy to use—This new organic turf fungicide is a liquid, mixes easily with water. No special equipment is necessary for application. Simply mix with required amount of water—stir and apply as directed. Send for complete details at once.

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MIDDLEPORT, NEW YORK
A product of
GALLOWHUR CHEMICAL CORPORATION
NEW YORK, N. Y.

PAGE FENCE
- Since 1883
- AMERICA'S FIRST WIRE FENCE

Choose from 4 Metals

- Your club can now have privacy and protection. It can have Page Chain Link Fence and keep trespassers out, safeguard against liability, provide opportunities for tournament revenues. It can choose this sturdy, long-lasting fence from four superior metals, selecting the one that is best for its own locality. Write for illustrated information and name of the local Page Fence erecting firm nearest you. Address PAGE FENCE ASSOCIATION, Headquarters: Monessen, Penna.

A PRODUCT OF PAGE STEEL & WIRE DIVISION
AMERICAN CHAIN & CABLE + BRIDGEPORT, CONN.
**PROVES WONDERFUL**
to promptly relieve misery
and kill cause* of
**ATHLETE’S FOOT**

Helps
Guard
Against
Re-Infection!

Here’s a product that really does what it claims. It’s a Doctor’s wonderfully soothing yet powerfully medicated liquid called Zemo. First applications relieve itching and burning between cracked, peeling toes and aid healing. Zemo actually kills on contact the vicious germs* that cause and spread this trouble. That’s why Zemo has such an amazing record of continuous success. First trial convinces. All drugstores.

ZEMO

**CLIPON STAND FITS ANY GOLF BAG**

Popular Model
For Light Bags
$10.80 per doz.

Heavy Duty Model
For Steady Golfers
$16.20 per doz.

IMMEDIATE DELIVERY

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799 Broadway, New York 3, N. Y.
West Coast Repr. R. C. King & Co., Seattle I

**PADDY SAYS:**

Yes, Lewis is the golf ball washer that every course should have at EVERY TEE! A clean ball means FEWER LOST BALLS — FASTER PLAY — LONGER DRIVES — MORE ACCURATE PUTTS.

G. B. LEWIS CO., Watertown, Wis.
PATTERN SPRINKLER IS NEW—A new sprinkler from which water can be directed to cover any desired pattern recently was introduced by Rain Bird Sprinkler Mfg. Co., Glendora, Calif. The area sprinkled may be square, rectangular, circular or any combination of angles and curves, and the Pattern sprinkler can be set to keep water off surfaces as desired. The distance water is thrown in each direction is controlled by adjustment of 18 vanes in the plate above the sprinkler head. Each vane can be depressed, raised or twisted to direct the water any desired distance. Successive vanes can be set to throw the stream progressively farther to reach into square corners, or depressed to keep spray off buildings, etc. The stream can be thrown as far as 40 ft. in one direction and held to a few feet in another. One type of this sprinkler moves around a complete circle while the other makes any part of a circle and reverses.

SHOE VENTILATOR FROM WAR—Dale Vent-O-Sole, Inc., 60 E. 42nd St., New York 17, is making a washable plastic shoe ventilator which is worn inside the shoe. The device was developed at request of Quartermasters’ Dept. during the war. Makers say “each step the wearer takes pumps air into the shoe, circulates it over the grid of woven plastic, evaporates moisture from the plastic surface and expels the moisture-laden air. It looks like it might be a good seller at pro shops.

NEW SPIKETOOTH HARROW—Len Rayner, Cooperstown, N. Y. has developed a scarifier that’ll have considerable use in course maintenance. The Rayner device is made of 7/16 in. spring steel links with tines $3$ in. long. It is flexible and...
fits all contours. It frees itself from clogging by a rippling motion while in operation. It also can be used for levelling by turning it on its back. There are two sizes of the Rayner device; one is 10 ft. by 8 ft. 6 in., weighs 275 lbs. and the other is 8 ft. by 8 ft. 6 in., weighs 225 lbs.

★ ANOTHER LIQUOR HEADACHE—Managers troubled by liquor control and license problems haven’t got the full headache unless they’re in Connecticut. There the liquor laws, to be fair to hotels and other licensees who pay as high as $1500 a year, require non-profit clubs which pay only $150 annual for a license, require that guests be registered before a drink can be served. The registration calls for date, full name, address and the name of member sponsoring. It is plenty tough to get members to register their guests.

★ E-Z TRIP MOLE TRAP—Edward Valentine of Wilson, Troutman Mfg. Co., Toledo, O. presents strong endorsements greenkeepers have given to the E-Z Trip mole trap after use on courses where moles have been a persistent problem. The trap is pressed down over the mole run and when the mole moves back or forth the hair-trigger trap springs the trap jaws. The trap is made of cold rolled steel. It is easy to see from quite a distance whether or not the trap has been sprung. Available from the makers, or golf course equipment dealers.

★ MOWER HAS UNIQUE FEATURES—H. T. Colling Co., 3412 Beekman St., Cincinnati, O. presents the 1947 model Mo-Eez lawnmower invented by E. H. Worthington, widely known in golf as a

When it is
GOLF PRINTING!

Specialists, for years to many of America’s largest and most exclusive courses, can best serve you, too.

Score Cards - - Charge Checks
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Caddie Cards - - Handicap Systems
Forms for Locker and Dining Rooms
and for the Professional.

Samples to your club for the asking.

VESTAL CO., 703 S. La Salle, Chicago
mower inventor and manufacturer. The Mo-Eez has a patented finger clip which permits immediate adjustment without tools, and a self-sharpening feature that keeps cutting blade in sharpening contact with cutting knives. No grease or other lubrication is required and the mower has a “free reeling” clutch.

IN THEIR NEW “GOLFER'S RAIN-CAPE”, Hutchins Mfg. Co., 945 N. Howard St., Akron O. is offering a compact popular priced item which should prove a lively pro shop seller. The new finger-tip length rain cape weighs 3 oz. is made of tough but pliable plastic film which will not stick together. The cape has full length sleeves with roomy shoulders and body to permit free swinging action and can be rolled into a 1½ by 3¾ in. pack. The new item carries an attractive profit margin for pros.

GOLFDOM
A Bargain in "Know How"
One Dollar a Year

WEEDS VANISH IF YOU USE 2-4D THIS SEASON
IN YOUR WEED CONTROL PROGRAM
TESTED AND APPROVED BY LEADING
AGRICULTURAL COLLEGES

IN A PERFECTED FORMULA
Packaged in 8 ounce, quart, gallon, 5 gallon and 50 gallon containers.

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FIRST!

FIRST IN COMMERCIALLY MARKETING OLD ORCHARD (C52) STRAIN
FIRST IN COMMERCIALLY MARKETING C7 STRAIN
FIRST IN COMMERCIALLY MARKETING C19 STRAIN

R. R. BOND — BOX 350, MADISON 1, WISCONSIN

June, 1946
McDOWELL IRRIGATION SYSTEM
—McDouell Mfg. Co., Pittsburgh, Pa., has a Portable Irrigation System it says is designed to give efficient fairway watering with a minimum of time, expense and labor. It can be laid over difficult and uneven terrain. The system consists of light weight 18 gauge galvanized tubing joined with quickly connectable patented couplings, eliminating handling of heavy and inconvenient equipment. Each tubing unit comes in standard 16 ft. lengths, weighing about 42 lbs., and is available in 2, 3, 4, and 6 inch diameters to accommodate any installation. The units are equipped with carrying handles, stabilizers to prevent rolling, and necessary sprinkler heads. The patented couplings permits fast engagement and disengagement of pipe with a minimum of effort. One system will furnish water coverage for fairways 125 ft. or wider, with 40 lbs. pressure. A sufficient take-off for sprinkling. Booster pumps, however, increase watering speed. McDowell engineers will plan a complete irrigation system for any club. For a bulletin describing the system in detail write the McDowell company.

Jones Gets Painting
Bobby Jones, extreme right, Spalding vice-pres., examines Esquire painting depicting his famous final putt in the U. S. National Open Tournament June 29, 1929, at the Winged Foot Club where Jones tied Al Espinosa with a long putt and then went on to win the title. It was presented to him on sports program broadcast by Harry Wismer, seated, from Sta-
Buyers' Page

Check off your Supply & Equipment Needs. Tear out and mail this sheet to Golfdom, 407 S. Dearborn St., Chicago 5, Ill. You’ll get prices, literature and delivery information direct from the sources of supply.

### Golf Course

- **Architects**
- **Arsenate of lead**
- **Ball washers**
- **Bent grass stolons**
- **Brown-patch preventives**
- **Compost mixers**
- **Compost spreaders**
- **Cultivators:** f'way green
- **Drinking fountains**
- **Fencing**
- **Fertilizers**
- **Flags (greens)**
- **Flood lights**
- **Forks, Tubular Tine**

### Fungicides
- **Golf Course Const’n Engineers**
- **Harrow—(spring tooth)**
- **Hole cutters**
- **Hose, 3/4” or 1”**
- **Hose Couplings**
- **Insecticides**
- **Mole Traps**
- **Mowers:** putting green whirlwind tee fairway rough hand
- **Mower grinders**
- **Pipe, water**
- **Playground equipment**
- **Pumps (gals, per minute?...)**
- **Putting cups**
- **Scythes** (motor driven)
- **Seed:** fairway green

### Pro Shop

- **Bags:** canvas leather
- **Bag carts, for players**
- **Bag racks**
- **Bag stands**
- **Balls Driving range**
- **Ball markers**
- **Bandages, adhesive**
- **Braces for canvas bags**

### Club House

- **Adding machines**
- **Air conditioning equip.**
- **Athletes foot preventives**
- **Ath. foot prophylactic bath**
- **Bath slippers**
- **Cash registers**
- **China**
- **Disinfectants**
- **Fire protection equipment**
- **Floor coverings**
- **Furniture**

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### Send information

To: Name ____________________________________________

Club ______________________________________ Address ________________________________

Town ______________________________________ Zone (_____) State _____________________

June, 1946
Made of shock and wear resisting weatherproof material that offers firm footing, wet or dry, the mats are a full inch in thickness and measure 48-in. by 60-in. in length. The mats are reversible, affording four different teeing spaces and adding years to their life. "In this new tee mat," adds Warford, "we are told we have the answer to the time, trouble and cost of maintaining not only the tees of practice driving ranges but those at the hundreds of public and daily fee courses where peak load play and limited maintenance man-power make turf tee upkeep impractical from the standpoint of appearance, cost, safety and playing conditions." Complete details of the mat may be had from the makers.

ROEBLING'S NEW MOWER—A 30-in. power lawn mower, new in design and principle, that will cut and trim in one operation and cover half an acre an hour, is being made by John A. Roebling's Sons Company, Trenton, N. J. This Roebling Rotary Power mower has rotary action similar to that of two electric fans placed side by side and face down over the grass. The horizontal blades, whirling at high speed, reach up to the edge of posts, trees, fences and other obstructions. The mower is said to be able to cut all grasses or weeds, regardless of height, and to eliminate grass-matting and overlapping runs, since the wheels are behind and well inside the path of the cutting blades. The machine is delicately balanced for easy control and fingertip steering. Compact in size, it is one of the lightest 30-in. power mowers made. The four cutting blades of tough, heat-treated, shatterproof steel, are double-edged for double duty, are easily removable, easily sharpened and replaced. Cutting heights of the blades are adjustable from 1/4-in. to 2 1/4-in. in quarter-inch graduations.

A. G. Spalding & Bros. have chosen "Life" and "Saturday Evening Post" magazines to carry a series of important sports messages to 25,000,000 Americans (see Spalding's two-page announcement ad elsewhere in this issue). The first ad in this new campaign announces the return of the famous Spald-