

★ **AUSTIN, MERION'S NEW PRO**—Fred Austin, 40-year-old former Army tech. sgt., becomes pro at Merion GC (Philadelphia district) March 1. He succeeded George Sayers, veteran clubmaker and teacher who had served at Merion for 32 years. Austin was for 15 years Ernie Jones' assistant at Women's National Golf and Tennis Club. Born in England, Austin began his golf career in Addington, near London. He resigned that pro post to join Jones. Sayers, who has opened his own clubmaking and sporting goods shop, became Merion pro when the championship East course was opened in 1913. He announced his resignation last November 17.

★ **SCOTTS GET FIRST DANISH POST-WAR SEED**—"One of the most enduring grasses for meager sunlight, trivialis bluegrass, is a native of Denmark," says O. M. Scott & Sons Co., Marysville, O. No other country has successfully grown it on a commercial basis. Early this year, the SS Anniston City appeared in New York harbor following a rough passage from Copenhagen. On board was a 50 ton lot of poa trivialis; its value before duty or recleaning being over \$50,000. It was the first shipment over. More is to fol-

low. The Danes had harvested the seed in the summer and fall of 1945.

A few years ago Rough Stalk Meadow grass was the common designation for poa trivialis but commercial handlers objected to the name because it seemed to carry an unfavorable implication. The blades of this grass are actually smooth and shiny. "Rough" did not seem to fit the occasion because the grass is anything but rough. Although not yet accepted under federal or state seed laws by the name trivialis bluegrass, it is likely to be when generally used in the trade. Trivialis bluegrass appears to hold up best in combination with other adaptable varieties.

MacGregor Golf, Inc., Dayton and Cincinnati, O., has appointed Paul Hargrave sales representative for the Southern territory of Texas, Oklahoma, Arkansas and North and Western Louisiana. Associated with the golf business since 1932, Hargrave will make his headquarters in Dallas, Texas, his home and birthplace. During the war he served with the famed First Cavalry Division, participating in the New Guinea, Admiralty Islands, Leyte and Luzon campaigns. Hargrave landed in Japan in September, 1945 and received his honorable discharge in the United States on November 18, 1945 as a captain.



Sold through golf pros only


PROS! Easy Profits

You can easily sell these high quality golf shoes at attractive profit without troubles of overhead, stock, or delivery.

Just put one pair of these shoes on your counter and watch the orders pour in. They're high grade throughout. Right-weight top quality oak soles... replaceable Phillips Screw-in spikes. Two comfortable models... plain toe blucher or saddle oxford. Immediate delivery on all sizes. Send coupon below for information on our exclusive protective deal for golf pros which insures easiest and quickest earnings with no trouble or costly overhead.

RETAIL PRICE \$9.75*

We carry the stock for you
*Approximate, depending on OPA Ceiling

Send Coupon Now 
for complete information

CORCORAN INCORPORATED
Stoughton, Massachusetts

Send me complete information on how I can make extra profits with your high-quality golf shoes.

Name

Club

Address

Here's a natural for boosting your **NET INCOME**

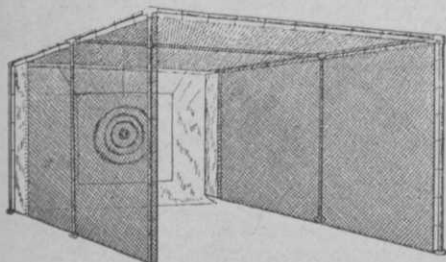


Outdoor nets will pay-off big at hundreds of alertly operated clubs this year!

There'll be plenty of play this season—that's for sure! But . . . your popularity and profits will depend on how well you handle the players.

AN EDERER GOLF NET

—will keep them happily occupied while waiting . . . will give 'em a chance to tune-up before they tee off . . . will help both pupil and pro when concentration is important in instruction . . . will keep balls handy when you're shy of shag boys . . . and, with a shelter cover, will enable you to keep your lesson appointments when weather goes sour.



**COMPACT, EASY TO INSTALL
OR MOVE**

Ederer's "INVINCIBLE" nets are made for golf, tennis, volley ball, badminton, etc.

Write for Folder and Price List

E. J. EDERER COMPANY

Invincible Sports Nets

HOME OFFICE: 540 ORLEANS ST. • CHICAGO

Short Course Needs

(Continued from Page 46)

the results obtained in other fields to turf problems. Any one who has been associated with the technical problems of turf production and who has had an opportunity to observe some of the startling results of such attempts, soon learns a certain amount of caution. And so, sometimes, the experienced superintendent does not get a clean cut answer to his practical problem. The best the beginner can possibly get is more confusion. Educational programs will function successfully as sources of technical information just so far as they are supported by good experimental evidence which is capable of direct application. The whole theory of conference programs, short courses and systematic training, will continue to be on trial until the answers given and the teaching attempted have back of them a sound body of carefully conducted research.

This entire subject of the present status of the Short Course as a training medium and source of technical information, and its future development, can be summed up very briefly and simply.

1st. The present conference type of short course is too limited to meet the needs of experienced superintendents who want fuller information on specific subjects. The development of local study groups is suggested as a supplement to it.

2nd. A short course of 2 to 12 weeks duration will not provide adequate training for the inexperienced man unless followed by progressively advanced work. A college training course of 2 full years, supplemented with required practical experience, is recommended, and active participation by the greenkeeping profession in the development of such a program is suggested.

3rd. The technical information, covered in varying degree in the different types of courses (the conference, limited period study group, and full time training course) should include:

- a. Fundamental Scientific Principles.
- b. Research Results.
- c. Solutions of Specialized Turf Problems.

4th. The maximum effectiveness of any type of training course will be achieved only when supported by a sound, well coordinated research program.

C I—BENT GRASS

For planting, fall of 1946—Send for Bulletin No. J-1195 Iowa Experimental Station, Ames, Iowa for further information on this wonderful bent, or to

WOODSIDE BENT GRASS NURSERIES
R. F. D. No. 4 — Des Moines 13, Iowa

Fairway Fertilizing Programs Need to Be Accented

The average golfer plays about 40% of his strokes on the fairways, regardless of how often he thinks he's in the hazards. From the players' viewpoint it's essential that the fairway turf provide good lines for the shots. During the war at many clubs the players haven't been playing golf, which is a game of playing the ball as it lies, but have been lifting the ball around the course to preferred lies.

This procedure removes a test of skill from the game and takes from it part of the competitive fascination. The preferred lie policy has nullified considerable of the basic charm of the game, and as far as preserving turf is concerned, always was a fallacy. Teeing the ball on a particularly good piece of turf, then hacking that away, is no logical manner of promoting growth of good turf.

These points have been getting consideration of good sportsmen of all scoring classes in golf. The attention that has been directed to the unnecessary damage of wartime lie rules in creating a widespread habit of practically teeing the ball on every shot through the fairway, fortunately now has reached a stage of action. Unless the preferred lie rules are abandoned and the bad general habit of nudging a ball onto a good lie is sharply curtailed the fundamental nature of golf will gradually weaken in the U. S.

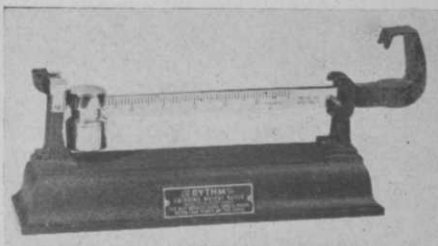
In returning golf to its proper platform of playing the ball as it lies it is certain that accent must be placed on the fairway fertilizing programs. Fairway improvement also is required for assuring pleasure in walking and getting a fair amount of true roll to his shots.

Attention that's been given to weed control also has turned the spotlight on fairway fertilization. Regardless of the effectiveness of weed eliminating chemicals the fact remains that when soil condition is favorable to growth of grass seed the grass is profuse enough to keep weeds at a minimum.

Numerous greenkeepers are of the opinion that too much emphasis has been placed on fairway watering in promoting growth of fairway turf, instead of a proper balance being maintained between fairway watering and fertilization. Post-war practice probably will be changed at many clubs to build up and retain the proper fertility.

In preparing a long-term plan for restoring a course to prewar condition, or for substantially improving it, think carefully and thoroughly about your fairway fertilizing program. It's the weak spot in maintenance programs that otherwise are excellent.—CKB.

Special Offering OF THE PATENTED LORYTHMIC SWINGING WEIGHT SCALE



Just a few prewar Lorythmic scales on hand. While they last, Pro shops may buy this \$30 scale for the special price of \$22.50. This scale is available only from Kenneth Smith. If you need a swinging weight scale, order now.

Ken SHOP SUPPLIES

Prepared Exclusively for Pros

FORM-A-COAT . . . Puts a professional finish on whippings. Forms a cap on ends of clubs.

GOLF GRIP CONDITIONER Keeps leather grips soft and tacky. Small bottles for resale.

GOLF CLUB ADHESIVE . . . Cements grips in place. A flexible all purpose adhesive for your shop. Fast drying.

GOLF CLUB LACQUER . . . Protects the finish on wood heads. Easy to apply. No equipment needed; not even a brush. Dries in an hour.

GOLF BAG DRESSING . . . Preserves all types of leather bags. Easy to apply.
WHIPPING CORD, BUFFING SUPPLIES,
HICKORY SHAFTS

WRITE FOR HANDY
ORDER CARD

Kenneth Smith
GOLF CLUBS

HANDMADE To Fit You

Box 41, Kansas City 10, Missouri

2-4-D

2, 4-dichlorophenoxyacetic acid

Weed Killers

in Carbowax as a liquid concentrate

or the

Sodium salt, a fine dry powder.

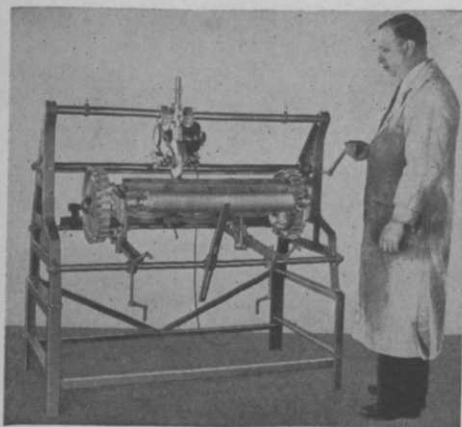
✓ Both instantly soluble in cold water.

✓ Available immediately in any quantity.

Kills Dandelion, Plantain, Pennywort, Clover and other turf weeds without injury to most grasses. Does not stain.

Sold by Golf Suppliers. If not yet available, write direct. Shipped anywhere.

VEITH CHEMICAL CO.
Fresno 4, California



CARPENTER MOWER GRINDER

Grinds bottom knife and reel blades . . . quickly and economically . . . on any power or hand lawn mower, including large power or tractor-drawn units. Precision contact of cutting blades assured. No experience needed . . . no attachments . . . no lapping. Many satisfied users.

Write for prices and name of nearest dealer.

THE GRAHAM MFG. CO.
10 BRIDGE STREET
East Greenwich, R. I.

Crude Rubber Balls After June 1

L. E. Coleman, Pres. Golf Ball Manufacturers Assn. announces that the Rubber Division of the C.P.A. is preparing to grant an allocation of crude rubber for the manufacture of rubber thread. Inasmuch as this allocation will be relatively small, the Rubber Thread Manufacturers have decided to utilize it for the present, for the manufacture of golf ball thread.

At a recent meeting of the Golf Ball Manufacturers Assn., it was the consensus of opinion of members present, that crude rubber golf balls will not be available before June 1st. The golfers of the nation will have to rely on synthetic rubber golf balls until that time. However, reports indicate that these synthetic rubber golf balls are giving relatively satisfactory performance.

The announcement, widely printed in newspapers, has been interpreted by overly-optimistic golfers as meaning there'll be fair-sized stocks of rubber balls by mid-summer. That will not be the case even when and if rubber for thread is released. Stocks of synthetic and reprocessed balls in 1946 will have to fill a demand which should be far larger than that of a normal year.

With good weather during the early part of the season the probability of shortage of synthetics and reprocessed balls may be acute. Golfers who pass up what chances they may have for pre-season purchases will regret their undue hope in a cautious and qualified promise.

Harry Candy, President of Peter Henderson, Dies

Harry Candy, head of Peter Henderson & Co., New York seed firm, died Jan. 2, at the age of 63 after a brief illness. Born in London he had served his apprenticeship with an English wholesale grower and came to this country in 1908. Starting as a clerk with Henderson 37 years ago he advanced steadily and in 1939 became president of the firm. He served as president of the N. Y. State Seed Assn. in 1937-38 and as president of the American Seed Trade Assn. in 1944. Mr. Candy was especially interested in the introduction of new strains of flowers and vegetables and contributed greatly toward the marketing of many improved varieties.

D'Angelo Says Pros Quit Game to Earn More

By **BOB JOHNSTON**

Jimmy D'Angelo, former Philadelphia district pro, believes he knows the real reason why so many pros have quit the game recently. And he has come up with a solution.

"Look at a partial list of those who have left golf," Jimmy said. "Olin Dutra has gone with a chemical company; Paul Runyan is with a jewelry firm. Francis Scheiter quit Oklahoma CC, supposedly one of the best spots in the country. And now Steve Grady has resigned at Old York Road (Philadelphia district) to enter private business."

He didn't mention a chap named D'Angelo, now associated with a vacuum cleaner distributing agency in Philadelphia. But then, Jimmy—former National PGA vice president—hasn't quit the game entirely. He's helping Al MacDonald at Langhorne CC and for 10 weeks will conduct indoor golf classes at a nearby adult school.

"Know why so many of the pros are giving up golf?" Jimmy asked. "It's mostly for financial reasons. Many pros accept a job without any salary, figuring on cashing in on equipment sales and lessons. Others work for a small retaining fee. That system is wrong and it works to the detriment of both the pro and club member."

"Here's how to solve all that. In the Philadelphia district, for example, most clubs have memberships of between 250 and 300. If each member were assessed, say, \$10, that'd mean a guaranteed \$2,500 for the pro each year.

"To devote full attention to his job, a pro should be paid a minimum of \$5,000. He could count on about \$2,500 in lessons and sales to make up the difference. Or maybe members could be assessed \$25 a year, which would include a fixed number of lessons—maybe 10 or 12.

"Lessons are one of the most lucrative

For more Beautiful
GREENS and FAIRWAYS

Use **WHITNEY**
Super-Refined
LAWN SEED

Special Mixtures made
to your order. Write—

WHITNEY SEED CO., INC.
BUFFALO 5, N. Y.

TURF makes the course . . .
have it in top condition for 1946

WE SPECIALIZE IN GOLF TURF

GRASS SEED

SELECT VARIETIES — MIXTURES

CHEWINGS FESCUE	KENTUCKY BLUE GRASS
ASTORIA BENT	CANADA BLUE GRASS
SEASIDE BENT	PERENNIAL RYE GRASS
WHITE CLOVER	DOMESTIC RYE GRASS
FANCY RED TOP	ORCHARD GRASS

**FINE GOLF TURF SEED WILL BE
SCARCE**

Plan your needs now. Ask for Prices

J. OLIVER JOHNSON SEED CO.

946-960 W. HURON STREET

CHICAGO 22, ILL.

Phone: Monroe 6580

Write FOR THIS VALUABLE
BULLETIN Today . . .



McDOWELL
MANUFACTURING COMPANY
PITTSBURGH 9, PA.

William F. Gordon Company

GOLF COURSE CONSTRUCTION ENGINEERS

For twenty years a partner in the former firm of
Toomey & Flynn, Philadelphia, Penna.

DOYLESTOWN,
Penna.

BALA-CYNWYD,
Penna.

angles of the business. No pro could afford to give them all for free. If either one of these plans were adopted—and they've often been discussed here and throughout the nation—most of the golf pros' headaches would disappear.

"Due to the lack of an established income, most pros are unable to lay anything away for later years. When the average pro attains the age of 50, he's no longer wanted by the club and members begin to look around for an up-and-coming youngster," D'Angelo declared.

Jimmy continued on the same theme. "You probably don't realize it, but pros at the better clubs face terrific operating costs. They're expected to put up a front, to dress in \$15 slacks and \$10 sport shirts. That costs money, but members expect them to look the part.

"And remember, Philadelphia pros have only 7 months in which they can expect to do business. They usually order equipment for March 15 delivery. Bills are due on April 15, and if a spell of bad weather sets in, there are no sales and consequently no capital on hand. A guaranteed income would remedy that.

"Furthermore, most of your pros came up from caddie ranks; they never had any business training. I had to learn by trial

and error and I never knew—when I first took a pro job at 21—how important it is to discount a bill."

Although he hasn't held a pro post since leaving Muskogee (Okla.) CC in 1944, D'Angelo is extremely active in the PGA's Philadelphia Section. During the 15 seasons he held forth at Baederwood GC, in suburban Philadelphia, the 110-pound D'Angelo managed to hold his own among district shotmakers.

D'Angelo posted a 68 over the wind-whipped Holmesburg (now Poquessing) course to win the Northeast Open in 1942, beating out Sammy Byrd by a stroke. He was one of five who tied in the 1939 Philadelphia district PGA qualifying play at Paxon Hollow.

Now a gentleman farmer, D'Angelo recently purchased a 10-acre tract at Feasterville, four miles from Philmont CC.

★ SPALDING'S 69th REPORT—Sixty-ninth annual report of A. G. Spalding & Bros., Inc., for year ended Oct. 31, 1945, showed total transfer to Earned Surplus of \$882,483 compared with \$632,330 for previous year. Extensive progress in re-conversion after V-J day to civilian goods manufacture was reported.



JACK REDMOND

JACK REDMOND

World famous Golf Pro
Trick shot Star, says:

"Every golfer will want a
Clipon stand—it saves wear
and tear, that's why I use one."

Clipon stands fit any bag—
round or oval, canvas or leather.

\$1.50

\$2.25

Popular Model
For Light Bags

Heavy Duty Model
For Steady Golfers

New Money makers for Pros and Golf Stores
40% Discount

Write us for Jack Redmond's copyright instructions
"How to Train for Golf Daily." It's a free fea-
ture attraction and sales-getter for your counter.

CLIPON SPORTS EQUIPMENT INC.

799 Broadway, New York 3, N. Y.

West Coast Repr. R. C. King & Co., Seattle 1.



Record Meals at Wilshire

(Continued from Page 20)

were unable to secure a competent assistant chef, consequently, Pete felt that it would not be right for him to take a vacation. Under these conditions he has remained on the job night and day. We feel all of our members should know what a loyal member of our staff Pete Covich is."

Reference to Chef Covich's performance will be hailed by numerous club managers who lament that club officials and members don't often enough realize what a hard job it is to get and retain a first-class loyal chef in view of faults in working conditions, especially poor ventilation of club kitchens, and inadequate living quarters.

Good chefs are in such demand that a golf club can't often meet the wage competition for the sort of a star they want in the kitchen but have to depend on attractive living and working conditions to make up the difference in cash.

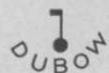
Several managers have suggested comparison of meals served per year with number of rounds of golf played per year at clubs as basic data for properly directing and adjusting golf club operations.

WESTERN GA NAMES KENNAN EXEC. VP.—The new and expanded program of the Western GA for improving club caddie service and extending the program of college scholarships to deserving caddies has been announced by James L. Garard, pres. "The Directors have appointed John C. Kennan as Executive VP, as the first step in the post-war program," said Garard.

Kennan will be on a full time basis with the western GA. He was recently placed on inactive duty at the rank of Commander, after 40 months of Naval Service. Prior to the war, Kennan spent 10 years as personnel officer at the University of Chicago.

"The Association," Garard added, "intends in 1946 to extend its college scholarship program under the terms of the National Caddie Scholarship Fund of the Western GA." Since 1930, the Association has sent 61 caddies to Northwestern University. The Evans Scholars at Northwestern University have played a vital part in the life and work of the University. Their records as students and as World War II veterans has been of impressive proportions; 53 of them being in military service, 39 as commissioned officers. Two were killed in action.

The
DUBOW
TRADEMARK



identifies

FINE GOLF CLUBS



Featuring

JOCK HUTCHISON and BETTY HICKS
CHAMPIONSHIP CLUBS

DESIGNED FOR BETTER SCORING

J. A. DUBOW MFG. CO.

1905-13 MILWAUKEE AVE.

CHICAGO 47, ILL.

AGAIN WE SAY IT WILL PAY YOU

To use only Grass Seed of "Known Quality" assuring you of minimum labor costs and saving important time. S & W Bents, for instance, are over 99% pure.

WE WILL HAVE MOWERS and ALL TYPES OF GOLF COURSE EQUIPMENT as they are made available. Write us your wants.

Special Formulas and Grasses
for Fairways and Other Areas.

Stump & Walter Co.

132-138 CHURCH ST. NEW YORK 8, N. Y.

"AGRICO DOES A REAL JOB FOR US AT PHILMONT"



says Arthur McKnight, of Philmont C. C., Bethayres, Pa., shown (left) on the 12th fairway of this well-known Club's North Course.

"When members compliment me on the course's excellent playing condition, I give Agrico and your soil service a full share of the credit," says Mr. McKnight—just as do many other well-known Greenkeepers who use Agrico Country Club Fertilizers on greens and fairways with outstanding results. Agrico is specially made for this purpose—it's 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 St., New York 7, N. Y.

AGRICO *Country Club Fertilizer*

YOU WILL WANT TO USE 2-4-D THIS SEASON

IN YOUR WEED CONTROL PROGRAM TESTED AND APPROVED BY LEADING AGRICULTURAL COLLEGES

Weedath GIVES **2-4-D**
TRADEMARK YOU

IN A PERFECTED FORMULA
WRITE OR WIRE DEPT. (M) NOW
FOR QUANTITY DISCOUNTS

HOWARD HANSON & CO. Beloit, Wis.
AGRICULTURAL CHEMICALS and HORMONES

Selective WEED KILLERS

LAWN SINOX for the control of clover and weeds in bent greens, and crab grass in blue grass without discoloration.

WEEDONE for the control of Dandelion, Plantain and Buckhorn in blue Grass areas; little discoloration. Weedone is the new 2,4-D Weed Killer.

Effective, inexpensive. Write for prices and directions.

PAULE BURDETT
Seeds—Fertilizers—Golf Course Supplies
P. O. Box 241, Lombard, Illinois

PGA Study Course

(Continued from Page 22)

pros who need the business education most are of a temperament to respond to correspondence schooling is problematical. Most of the veteran pro authorities are of the opinion that class-room sessions would draw men who most need the training because of the probable newspaper and radio publicity which would acquaint the golfing public with the existence of pro business classes and possibly bring some indirect influence to bear in assuring quite large attendance.

Aulbach welcomes advice and suggestions from pros and all others interested in the golf business, in supplying ideas from which the PGA educational plan eventually will be prepared. Letters should be addressed to George Aulbach, Amarillo Country club, Amarillo, Tex.

★ SEYMOUR WITH SPALDING—After a 2-year leave of absence from A. G. Spalding & Bros., Charles Seymour has returned to the company as a dealer and golf pro representative in Utah, Montana, Wyoming, Colorado, New Mexico, and a part of Texas. Joining Spalding in 1930, Seymour served 10 years with the firm's St. Louis and Kansas City offices. He was acting as manager of the first when it was closed in 1940. In 1941 he became the company's representative in the Rocky Mountain area.

★ HORTON BRISTOL SALES CORP., announce the reopening of their Chicago office in the same location occupied before the war, at 36 So. State St. The Chicago office again will be in charge of Joe Finn who has returned to the firm after engaging in war work.

PADDY SAYS:



"As usual
It's
LEWIS"



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.

Improve Postwar Turf

(Continued from Page 28)

across one or more fairways, particularly if bent or fescue predominate.

There are several inexpensive sets suitable for determining soil reaction quickly. The tests can be made on the ground by the greenkeeper, or samples can be collected and sent to the State Agricultural Experiment Station, or other reliable testing agencies.

Soils needing lime should be checked for available magnesium, especially on courses located along the Atlantic Seaboard. Many of the soils there are so low in magnesium that the superior results often obtained from dolomite limestone may be due to a direct effect of magnesium as a plant nutrient. When a dolomite is used, it should contain at least 20 to 30 percent of magnesium reported as magnesium oxide.

Some firms in the eastern part of the United States sell a mixture consisting of equal parts ground limestone and hydrated lime, and call it agricultural lime. It is a good material, somewhat higher in price than ground limestone because of the expense for making hydrate and the cost of mixing. The precautions that apply to hydrated lime apply to agricultural lime. An interval of several weeks should elapse between an application of it and a mixed chemical fertilizer, otherwise some of the ammonia in the fertilizer will be released as gaseous ammonia. Besides scorching the grass severely, it escapes into the air.

Besides the test for soil reaction, chemical tests for phosphorus, potash, magnesium, etc. are helpful. Existing methods are not satisfactory for nitrogen. Need for it can be judged by the condition of the turf, as well as the amount of clover and weeds. Samples from grassland areas should be taken to an exact depth of 2 inches. Chemical tests are meaningless unless the soil samples are collected correctly, and a dependable method of testing is used.

Nitrogen and phosphate are the two elements most needed by established turf. Potash is of lesser importance because clippings are not removed and because most soils contain large amounts of it. The poorer sands and the organic soils are the ones which may require potash in quantity.

The generous use of nitrogen is the key to denser turf on established fairways. Heavy rates are justified until turf of desired density is obtained. After that the rate can be reduced to the bare maintenance requirement. In crabgrass regions, major nitrogen fertilization should be in the fall with smaller doses in the spring so as not to encourage crabgrass. Farther

TESTED AND RECOMMENDED FERTILIZER DISTRIBUTOR



POSITIVE, UNIFORM DISTRIBUTION
PREVENTS "GRASS BURNS"
EASY TO CLEAN . . . PATENTED
ACCURATE RATE CONTROL

E. S. GANDRUD COMPANY
BOX 447G
OWATONNA, MINNESOTA
Originators and Manufacturers

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
Greens Maintenance Systems
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

R. H. Tractor Wheel SPUDS

quickest to put on or take off. Increase tractor efficiency and cultivate turf that's why more than half the U.S. and Canadian clubs use them. Durable and low priced.

Sample spud and circular on request; advise make of tractor and purpose for which intended.

Immediate shipment. If your Ford or equipment dealer cannot supply, write direct to

R. S. HORNER
Geneva, Ohio

MFR. OF SPUDS, FORDSON WHEELS, ETC.



HARDWOOD FLAG POLES

Made of the finest, seasoned, second growth, tough White Ash. Tapered from 1" at bottom to $\frac{3}{4}$ " at top, and fitted with flanged ferrules to fit standard $1\frac{1}{8}$ " 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 inquiry or order will be referred to our Distributor, nearest you.

LEAVITT CORP.

(Est. 1895)

URBANA, ILLINOIS

Builders of

KNOCKDOWN

bleachers

for sports events of all kinds.



lulose). This is the principal function of green leaves. The process is called photosynthesis, because it occurs only in daytime. The energy needed to cause carbon dioxide and water to unite comes from sunlight. But the two combine only in the presence of chlorophyll, which is the green substance in the leaf. The sugar is converted into starch, cellulose, fat, etc., or is elaborated into protein, chlorophyll and other complex substances by combining with nitrogen, phosphorous, sulfur, magnesium, iron, etc. So when considering or discussing the fertilizer requirements of turf, it is important to remember that the grass itself builds the primary raw product from which every other constituent is derived. Any fertilizer is effective only when the turf has enough leaf surface to produce needed carbohydrate.

The fact that about 95 percent of the dry weight of grass is carbohydrate, or its derivatives further exemplifies the importance of sugar manufacture in the leaf. Only 5 percent comes from the soil, or applied fertilizer.

From a practical standpoint, inherent differences in the growth habit of grasses should be taken into account in deciding upon height of cut. Kentucky blue grass, Canada blue grass, and the fescues creep by means of submerged stems. Their leaves grow erect. The bents and poa trivialis spread by means of surface runners. Their leaves tend to grow horizontally. Consequently, these grasses can be cut closer with impunity than the blue grasses or fescues. Too high cutting of creeping bent is actually detrimental. It favors development of an objectionable thick surface mat. During dry spells this mat impedes the penetration of applied water, and by trapping surplus water it causes the turf to rot during hot wet spells.

It is best not to cut Kentucky blue grass and fescue closer than 1 to $1\frac{1}{2}$ inches. The preferred practice is to approach the higher limit and not to cut continuously below an inch. Then the turf will become thin and will be invaded by clover, poa annua, crabgrass, and other weeds.

During spring and fall, when weather is cool and grass grows rapidly, no harm will result from somewhat closer cutting. But with the approach of summer, mowers should be raised and grass cut higher. The extra growth insulates and shades the

north, heavy spring feeding is feasible and desirable in addition to the fall application.

The need for phosphate has been over-emphasized by some. It should be used liberally on soils known to be deficient, or where reseeding is necessary. After one generous application, additional phosphate in quantity is not needed for three or four years at least. Ordinarily a fertilizer containing about half as much acid as nitrogen will suffice.

In this connection, the importance of using superphosphate, or a fertilizer high in phosphoric acid, before seeding, should be stressed. This applies to new grasslands as well as the reseeding of established turf.

There is much confusion about mowing, especially with respect to height of cut. Fairways are never cut close enough to suit exacting players. Grass cut at $\frac{1}{2}$ inch would suit them fine. Complete surrender to any such demand is suicidal except on bent grass fairways. Turf deterioration, together with weed and clover infestation inevitably follow continuous close-cutting, particularly when Kentucky blue grass or fescue predominate.

Turf must be cut high enough to allow grass to manufacture needed carbohydrates (principally sugar, starch, and cel-

M. J. SULKA

GOLF COURSES OF DISTINCTION
DESIGNED AND CONSTRUCTED

41 LEONARD AVENUE

ATLANTIC HIGHLANDS, N. J.