

# FEED *systematically* to develop the grass you have

GRASS is a heavy feeder and must have an abundant supply of plant food for its proper development. When the available plant food in the soil dwindles, grass cannot maintain a healthy, vigorous growth. That is why you find thin spots on many fairways—the grass is under-nourished.

Follow a systematic maintenance program. Feed your course well. Give it the nitrogen, the phosphoric acid, the potash it needs in Armour's Special Turf Fertilizer—the complete fertilizer that's made especially for golf course use. Let Armour's Special Turf Fertilizer develop the grasses you have. Let it help you put the course in shape for heavy play.

Well-developed turf on fairways and greens means satisfied golfers—more play—greater revenue.

Write for the booklet, "Solving the Turf Problem." It tells how to use Armour's Special Turf Fertilizer to improve your golf course.

Twenty-one conveniently located plants insure prompt deliveries.



## *Armour Fertilizer Works*

*General Offices*

111 West Jackson Boulevard

Chicago, U. S. A.

there would be little need for artificial watering. There are no accurate figures available on water requirements of turf grasses, but I have calculated the approximate quantities of water used by grasses cut at fairway length. These data are given in Table 5. The amount of water required day by day varies with the weather as shown in the table. It is likely that the quantity required daily in extremely hot dry weather might even be double the average for July. However, even if 45 gallons of water were required

leaves, and the net result of close mowing is therefore shallow root development. If close mowing is accompanied by heavy nitrogen fertilization, root development is still further reduced, making the grass very susceptible to drought injury as well as other ailments. Close mowing on greens is unavoidable, but there is little need for mowing fairway closer than  $\frac{3}{4}$  of an inch. The drought injury suffered in 1930 by many golf courses was probably greatly increased by the practice of mowing closely, a custom which has become prevalent in recent years.

Table 5. Calculated Daily Water Requirements for Grass per 1,000 Sq. Ft.

	For Season April-October	For July Only
Massachusetts—		
Fertilized grass....	11.0 gals.	22.0 gals.
Unfertilized grass..	8.4 gals.	16.8 gals.
New York and Vermont—		
Average grass ....	16.0 gals.	32.0 gals.

Based on water requirements of Shantz & Piemeisel, *Jour. Agr. Res.* V. 34. 1927

Grass yields from pasture experiments. *Cornell Bul.* 424, *Vermont Bul.* 295, and *Jour. Amer. Soc. Agron.* V. 21, 686-699. 1929 (for Mass.).

daily to prevent wilting of the plants, a sandy soil should contain enough moisture in the surface inch to meet this need for 2 days.

Actually, the loss by evaporation on a sandy soil is probably as great as that of transpiration. Unless the roots have occupied layers of soil to a depth of 3 or 4 inches, daily artificial watering is a necessity on such soils, no matter whether the turf is on greens, tees or fairways. The moisture situation is not so critical on loamy soils because of their greater water-holding capacities, but considerable water is lost by runoff, percolation, and evaporation, and if root systems do not occupy more than the upper inch or two, severe injury may be expected in droughty periods.

Height of cut greatly influences root system development. All of the plant's food is made from water, minerals, and carbon dioxide gas. in the leaves of the plant. Close cutting removes a part of the leaves, and the closer the mowing the smaller is the leaf area remaining for the manufacture of food. New roots may be made only with food manufactured in the

## Moisture Supply and Quality of Turf

The greenkeeper is not so concerned with the quantity of grass produced as the quality. The supply of water has much effect on quality. When a watering system has been established making it easy to supplement natural rainfall by irrigation, the tendency is to use more water than is desirable. The ill effects of continued over-watering on soil conditions has been discussed, but the direct effect on the grass itself is perhaps still more important. The grass leaves are modified in both size, and ability to endure harsh treatment, by the quantity of water supplied during their development, as shown in Chart 4.

In general we may say that the smaller the supply of water during leaf growth, the smaller will be the individual leaves, but the greater will be the thickness of the cell walls, the greater the development

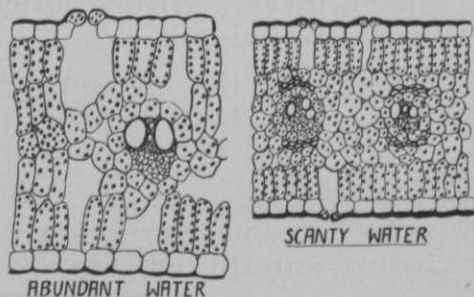


Chart 4.

of strengthening tissue and the lower will be the content of moisture. Grass developed with a relatively small supply of water will therefore be much better able to withstand the wear given turf on golf courses than that given an abundant supply. It is true that growth is slower with less moisture, but on the other hand the grass produced under such conditions will



## Thousands of Dollars invested in Greens . . . a Few Dollars will Save them from Destruction by Deadly Brown Patch

A carpet of green velvet—a perfect putting surface—that is what makes players proud of their golf club. It takes time and money to get turf into such perfect condition.

Then comes the deadly Brown Patch and works havoc. A very small investment will save all this.

Barbak 211—the perfect disinfectant will keep your greens free from Brown Patch. Tests of treated and untreated areas prove that Brown Patch will travel over an untreated area and come to a dead stop on the line precisely where Barbak 211 has been used.

As a preventative, Barbak 211 protects against Brown Patch for a longer period than ordinary disinfectants. One well-known greens-keeper places this at 42 days. As a cure, it checks the fungus immediately and quickly brings back a normal stand of turf.

Barbak 211 may be applied in solution or dry, mixed with a top dressing, sand or fertilizer and watered in. Write us for further facts.

AMERICAN CYANAMID SALES COMPANY, Inc.  
535 Fifth Avenue New York City

**Barbak**  
TWO • 211 • ELEVEN  
**TURF DISINFECTANT**



suffer much less when droughty periods occur, and will also be less susceptible to disease.

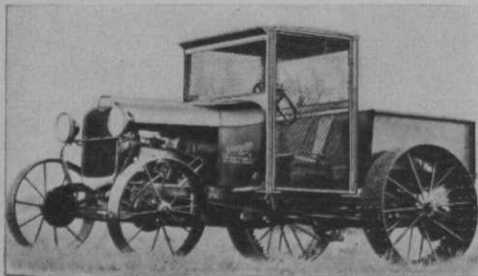
In watering one should always moisten the soil to a depth as great as that desired for the root system. Periodic moistening to a depth of 4 or 5 inches is far more desirable than daily sprinkling which penetrates only 1 or 2 inches. The ideal system of watering for the golf course should be one in which only enough moisture is provided for rather slow but hardy growth. Wilting should be avoided when possible, but it is better to run the risk of occasional wilting than to supply excessive moisture and produce soft tender turf susceptible to injuries of many kinds.

### STAUDE PRESENTS SAFETY-FIRST CAB FOR COURSE WORK

St. Paul, Minn.—Greenkeepers have long recognized the need of protection for the tractor operator against flying golf balls, time lost waiting for players to tee off, etc.

E. G. Staude Mak-a-Tractor Co., manufacturers of the Staude general utility golf course tractor, has recently placed on the market a steel wire mesh cab which gives full protection to the operator against accidents of this nature, besides permitting the operator to save time by going ahead with his work instead of having to wait for players to play off.

This time saving alone, to say nothing of the protection against accidents, is worth the \$50 cost for the cab. The cab also acts as a sunshade and the manufacturers claim



it can be attached quickly and easily to any Model "A" Staude tractor.

The 1931 Model "A" Staude golf course tractor has many improved features over any of their previous models, although there has been no increase in price, the makers remind the greenkeepers. Just a few of the improvements are: motor equipped with air cleaner, reinforced Ford frames, tractor wheels have rolled edge rims, pinions fitted with Alemite fittings, all steel cubic yard dump body has automatic tail gate, tractor lugs are case hardened, etc.

### E-Z-T IS NEW AID FOR PRACTICE AND TUITION

Toledo, O.—A perfect tee, easily and invariably, is the promise made by the new E-Z-T, being introduced by the International Golf Equipment Co.

Any number of golf balls up to 50 may be placed in a hopper, from which they are fed by a gravity control, to a flexible rubber tee, as fast as the golfer cares to drive them. The machine is operated by pushing a pedal with the golf club after each drive, to tee the next ball.

The tee is mounted on a flexible arm, and if the stroke happens to be too low, it instantly springs forward and out of the way as the club touches it. Surrounding the tee is a resilient mat of sponge rubber, moulded to resemble turf, with an inlaid band of tough black tread rubber, which describes the correct arc for perfect swing and follow through.

The E-Z-T makers point out that it relieves the pro of one of the most burden-



some features connected with lessons, as without a teeing device, he must take up practically half the study hour teeing balls and seeking tees. Now he can concentrate entirely on the pupil's adaptability to his teachings.

On an exceedingly hot and humid day, the average pro is physically fatigued from stooping over the balls for his pupils. Many pros are subjected to severe headaches and often lay off teaching until evening. With E-Z-T at least fifty per cent of the physical exertion of either player or pro is eliminated. E-Z-T also supplies a turf or driving surface which will satisfy the most exacting type of player.

### SHALER OPENS CHICAGO OFFICE WITH ROBERTS

Chicago, Ill.—Edward G. Roberts, well known in the playing and course equipment business, has opened a Chicago office for the Shaler Co., of Milwaukee and Wau-pun, Wis. Roberts' quarters are at 998 Merchandise Mart. He has samples and stock of Shaler clubs, balls and bags.



# A Quick Bath!

**S**TIFF bristles . . . soapy water, revolving, twisting ball between brushes . . . it's done! Clean as a whistle in a moment's time and not one bit of paint removed. The old sand box is a thing of the past.

Your members want Lewis Washers because they see them and use them nearly everywhere they go. The caddies want them, too . . . because it takes but a moment to do a thoro job. Lewis Washers are low in cost and last almost indefinitely . . . yet they are invaluable aids to good, sound golf . . . they make lost balls easily found, they improve the appearance of the course. . . . .

*See your Distributor.*

### NEW LOW PRICES!

- 1 to 10 Washers . . . . . \$5.50 each
- 11 or more Washers . . . 5.00 "
- LEWIS Tee Stakes . . . 1.50 "
- Waste Container . . . . . 1.50 "
- Tee Data Plate . . . . . 1.50 "

Prices f. o. b. shipping point

### Operation

The ball is inserted in an oblique slot in the hard maple paddle. A few easy strokes scrub it clean between two stiff brushes. The oblique slot causes the ball to rotate on each stroke, cleaning every side thoroly. Only pure soap and water are used, no sand. A simple, sure, quick, method of washing golf balls.



**G. B. LEWIS COMPANY**  
Dept. GD 431, Watertown, Wis.





# Woodmont Bent Raking Tool Ends Green Misery

By R. W. ("Doc") TREACY

Pro and Grounds Supt., Woodmont C. C., West Allis, Wis.

**N**INE new greens were planted to Washington strain bent at Woodmont in the fall of 1926. They developed satisfactorily during the 1927 season and gave us no concern until November 21 when they were attacked by small brown-patch. Seven greens were affected. They healed up quickly the following spring and were in good condition until November 18th, when the same seven greens were attacked by brown-patch, this time more severely. As it was very cold at the time and within a few days a heavy fall of snow covered them for the winter, nothing was done to control the disease.

The greens made a good recovery in the spring of 1929 and were in good condition that summer. We had some of the dry, brown areas that caused so much trouble that year, but I don't believe they have anything to do with this story.

In the fall of 1929 the greens were rather densely matted, the result of trying to keep putting conditions as near as possible like the other nine, which were of mixed grasses.

During the latter part of August we began to experiment with half of one green to determine the best way to relieve this matted condition, also to see if it had anything to do with our annual visit of November brown-patch. After experimenting with a good many different kinds of brooms and rakes, we found that raking with spring-toothed raking tools, followed by mowing with a power machine seemed to give the quickest and best results. The half green thus treated was practically taken down to the ground. It started to recover immediately and by the time cold weather arrived was nicely covered again.

After play had stopped for the year, all the greens were given the same treatment. However, we found that it was too big a job to go over the whole nine as thoroughly as we had the half green. We also found that no matter what kind of a broom or rake was used and no matter

how carefully the work was done, the result was a sort of corrugated effect, and when we had finished the greens looked very much like wash-boards. I heard a good deal about them in the spring.

In the winter of 1929 the half green was riddled by brown-patch, which came again in November. The other greens, having very little green grass on them were not affected.

## Devises Raking Tool

When we began work last spring, I suggested to Frank Froelich, who handles the workmen on our course, that he use his mechanical ingenuity to devise a raking tool. After several disappointing efforts, Frank made one that would work about as we wanted it to, and after further changes and improvements have been made, we now have a tool that saves us time and money, and saves our boys from back-aches.

The tool consists of two pieces of hard maple, bolted together. They are 3¾ inches wide and 19 inches long. In the lower piece are set, through bored holes, four rows of 20-penny spikes, sharpened and staggered so that no two will be in line. To the ends are attached hangers, which can be adjusted up and down. They hold castor wheels taken from a mower. The hangers were made for us by a blacksmith. We found that the machine would dig in if used without adjustable wheels, also the depth of cut could not be controlled.

This tool is attached to the front of a power mower in the usual way of brush attachments. It will remove 40 or 50 bushels of growth in two hours' time, tearing and cutting through the stolon growth without ridging or making corrugations in the green. We are very glad to have it and are glad to pass this information along so that everyone who needs such a machine can have it too. We consider it very highly because the brown-patch passed up the raked greens last fall.

# A Special Announcement to GREENKEEPERS

**F**ERTILIZER manufacturers frequently develop *apparently* improved fertilizers—but very often without taking into consideration the long time effect upon turf maintenance. They think *only* from their own selfish motive of *selling*—some by-product, or some concentrate from a deposit they own.

They do not consider the greenkeeper's *continuous* job of maintaining satisfactory greens and fairways year after year.

The exact *reverse* of such reasoning was responsible for the production of DRICONURE. We studied the *needs* of turf; the elements that would produce *continuously* vigorous and healthy stands. We sought a product that would constantly *build* as it fed, adding a natural *reserve* strength to the soil instead of giving false, temporary stimulation, with ultimate ruin.

And we found what we wanted—what would do the *best* job for turf maintenance—in one of the oldest of proved materials, one that has been used on turf for generations. DRICONURE is cow manure, absorbed by peat moss, dehydrated to give 5 times the strength of fresh or green cow manure; better and stronger than ever before; deodorized; absolutely free of weed seeds, filler or trash, by far the *safest* fertilizer, because, while it contains adequate quantities of nitrogen—it *will not burn*—Nature's Own Fertilizer—100% Organic.

You can use as much Driconure as you like, as often as you wish, and there will be no harmful after effect.

Think what this means—every bit of liquid has been absorbed by fine quality peat moss and is available for quick feeding immediately upon coming into contact

with soil moisture. Then the slow breaking down of the manure solids provides a source of long-term food. Then the peat-moss and manure humus *permanently* improve the physical condition of the soil. Never before have you been able to secure so much in a single fertilizer, and many greenkeepers, realizing this, have now started on a *build up* program with Driconure.

## NOT THE SAME

Although Driconure is composed partly of peat moss, the function is not the same as is the function of peat moss alone. Driconure is a fertilizer—and a most satisfactory one. GPM Peat Moss is a soil conditioner used in making perfect turf for fairways and unusually good greens. It contributes humus—more humus, over a longer period of time, than any other so-called humus material. It is cleaner, free of harmful mineral salts, and actually less expensive because its dry, pulverized form goes further, lasts longer.

GPM is being used by many successful golf course architects and greenkeepers and its continued use where humus without fertilizer is wanted, or as a carrier for concentrated fertilizers, will give better results than any other supposedly competitive material.

TRADE MARK  
GPM  
**PEAT MOSS**

*These two products—the greatest advancement in fertilizing methods in years, and the finest source of humus obtainable, help the greenkeeper to PERMANENTLY LOWER maintenance cost, improve ground texture and appearance. Complete details and prices on both will gladly be furnished on request.*

DRICONURE  
TRADE MARK



**ATKINS &**

BURLING SLIP  
near FRONT STREET

**&**

**DURBROW**

NEW YORK  
N. Y.



# P. G. A. Calls Halt on Playboys Getting Right Men in Wrong

By HERB GRAFFIS

**P**ROFESSIONALS competing in Open tournaments in which the P. G. A. tournament bureau has any voice will have to take the veil and wrap this symbol of virtue so closely around them that it becomes, to all appearances, part of their hides.

Charles Hall, president of the P. G. A., made this forecast in simple Anglo-Saxon words at a recent conference of P. G. A. officials. He outlined the reason for the forthcoming drastic edict in pointing out that professional golfers tournament conduct puts the entire pro body on the spot so far as public opinion is concerned. If the P. G. A. membership must innocently suffer from the misbehavior of a few of the frolicsome or the fiscal featherweights, the P. G. A. is going to have something to say and do about this acceptance of responsibility, Hall declares.

"Even preachers can go wrong without having all the country's clergy condemned," commented the vigorous and hard-boiled Hall, "but unbecoming performance of a pro golfer, no matter how infrequent, provokes adverse public comment that the other substantial professionals have to share. We were burdened with implied responsibility for the travelling caddies and for that account have ruled them out. Although the P. G. A. roster does not include all those whom the public considers as pros, we intend to make our action on control of tournament personnel such that it will be far reaching. The ensuing benefits will be enjoyed by the clubs and galleries together with the professional who really is representative of the principles of the P. G. A.," the pro's chief promises.

The tournament player as a public character is exposed to enlargement of his faults and an entirely subconscious acceptance of what innate merits he possesses. For that reason the pro who takes an unmanageable divot out of the alleged McCoy made available by a home-club host, or whose checks are played with too much of a back-spin, is hastily pronounced true to

type by the drumhead court martial of limber-tongued know-alls robed in their judicial Mother Hubbards.

Four instances of sterling semi-public souses were reported during the Open swing just ended. The benders were scarcely out of the vertical as judged by the standards set at almost any convention of solid law-abiding business men. Only one of the prominent victims of wines, liquors and cigars was a P. G. A. member, but the public doesn't know that, hence the mark is checked up against the association.

The pro organization is seriously considering furnishing to all groups holding Open events, a list of tournament playing members for whose conduct the P. G. A. stands sponsor. Others who are permitted to play in such events are accepted by the promoters of the events on the promoters' own responsibility. In the event of a P. G. A. member misbehaving, his name will be withdrawn from the accredited list for a length of time in keeping with the character of his naughtiness. The proposed procedure will be somewhat similar to organized baseball's practice of benching a player for marcelling the umpire with a bat, or other outbursts of sheer animal spirit.

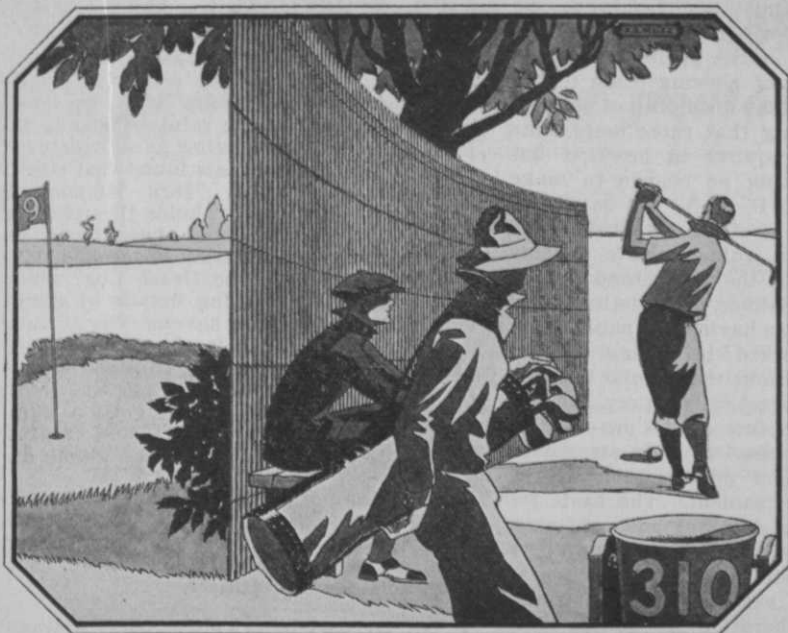
If the wanderer from the middle of the ethical fairway persists in being a bad boy, he will be doing a neat job of forfeiting his P. G. A. membership, the association's officials state.

## Quality Pros, P. G. A. Desire.

The decision to exercise control over the tournament personnel was prompted by no "holier than thou" attitude, but was directly caused by the P. G. A. intention to make the public realize that simply because a man isn't an amateur doesn't mean that he is a pro, as rated by the exacting appraisal of the P. G. A.

Making this distinction a matter of public knowledge and appreciation was one of the cardinal purposes of the Pirie regime and when Hall took the helm as president of the association the roster was at the point





# Solving Club Problems with DUBOIS

No. 2---  
Protecting  
Players on Tees

## DUBOIS PROTECTS PLAYERS *and* ADDS TO THE BEAUTY OF THE COURSE

Dubois solves one of the oldest and most vexing problems of golf; how to protect players driving off a tee from the wild shots of those playing behind them or on adjacent fairways. Dubois gives *absolute protection*, and with its quaint rustic charm adds greatly to the beauty of the course.

Dubois lends itself to a multitude of other uses, being made in heights from 18 inches to 10 feet.

It may be used to separate the more dangerous portions of adjoining fairways, or along boundary lines to prevent balls from going out of bounds and injuring passing pedestrians or motorists.

# DUBOIS

Reg. U. S. Pat. Off

THE ORIGINAL

## Woven Wood Fence

Made in France

DUBOIS FENCE & GARDEN CO., Inc., 101 Park Avenue, New York, N.Y.

### MAIL THIS COUPON

for complete DUBOIS information and name of nearby Distributor, qualified to give advice on the many ways that Dubois can serve you.

DUBOIS FENCE & GARDEN CO., Inc. 101 Park Ave. New York, N. Y.		
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Address .....		
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Club .....	15-D	

When you mention GOLFDOM the advertiser knows you mean business

of purity permitting the officials to get tough when any member was guilty of conduct reflecting upon the profession. It is properly a matter of glowing pride to the pro organization that discipline of its personnel is something that rates more time in talk than it requires in practice, but they are overlooking no chance to make it known that the P. G. A. will stand for only the best in professional athletics.

There are some unique slants to this business of having the pros stand out as the Little Sir Galahads of athletics. The boys, it appears, are having the public push them over backward in trying to get straightened out about the popular misconception that the pros' rallying cry is "Hae ye gah a bo'lie?" One of the pro officials relates that a puritanical body strenuously protested against pros playing in the Agua Caliente tournament. The basis for complaint was that drinking and card playing and horse racing went on down there and true sportsmen wouldn't be parties to luring folks to such satanic pastimes. After lengthy deliberation this official came to the conclusion the pros might as well take the Agua Caliente \$25,000 and risk hereafter on sole blistering fairways, otherwise the newspaper men, the transportation company officials, and that part of the merry villagers who follow the crowd to play, would be in hell all by themselves. And what would hell be without a pro telling some pupil to hold his head steady day after day?

That shows the sort of things the pro organization is up against in being considered notaries to the chastity of those whose living depends on hacking the 1.55-1.68 into circular confines.

So it begins to look like a practical halo will be worn jauntily as part of the pro tournament costume in the near future. The P. G. A. in endorsing the style doesn't want to appear as a reformer, but as a reasonable ruler and a protector of the discreet and dependable professionals.

**A**LAYER of top-soil four inches thick is sufficient for creeping bent but make sure the base is free from stones and large roots that might interfere with changing the cup.

\* \* \*

**P**UTTING greens flat as a table-top are monotonous; greens with slopes so steep a ball cannot stop on them are unfair. Moderation in putting green contour, gentle slopes and low hummocks are the thing.

## BIRD FERTILIZER FACTORY MAKES INTERESTING STORY

New York City.—Greenkeepers and business men are finding the details of fertilizer manufacture by the white-breasted black cormorant of the rainless islands off Peru's coast as interesting as agricultural experts and ornithologists found that story.

A good-sized book, "Bird Islands of Peru," by R. C. Murphy, holds the reader's attention as it tells how these Peruvian birds contribute to fertility of far-off lands. A recent issue of "The Grace Log" gives some concise, interesting details of guano supply from these bird havens. The Nitrate Agencies Co., dealers in the U. S. supply of this fertilizer, was able to make a contract as sole importers of the product only after a several years' conservation campaign by the Peruvian government assured the future of the birds and the guano deposits.

One colony of these birds consumes nearly 1,000 tons of fish daily. The Nitrate Agencies Co. use this Peruvian guano as the base in compounding a balanced, complete golf course fertilizer.

## U. S. RUBBER MAKES PRO-BOOST ITS NATIONAL AD THEME

In a bulletin to its salesmen, advising details of the company's 1931 advertising campaign, the United States Rubber Co. says, in part:

"This year in a series of smashing display advertisements—big ads packing a real punch—we will have three major issues to put across."

After telling of the work to be done in reaching the largest possible number of golfers, pros and golf officials, the bulletin states as the third purpose of the campaign:

"To plug the pro's game—to force an increase in his sale of golf balls—by telling millions of readers to 'go to your pro—he knows.' This slogan will be featured in every consumer advertisement."

## BARRETT TELLS OF ARCADIAN NITRATE OF SODA

New York City.—An interesting little circular from the Barrett Co. tells of Arcadian Nitrate of Soda, made at Hopewell, Va., by the fixation of atmospheric nitrogen. The process consists of producing ammonia by combining nitrogen of the air with hydrogen obtained from coal, the ammonium nitrogen then being converted to the nitrate form and combined with sodium from sodium carbonate to make sodium nitrate.

The product is guaranteed to contain 16 per cent nitrogen, equivalent to 19.45 per cent ammonia, all water soluble and available to plants. It is stored and shipped in 100-lb. and 200-lb. moisture-proof bags.