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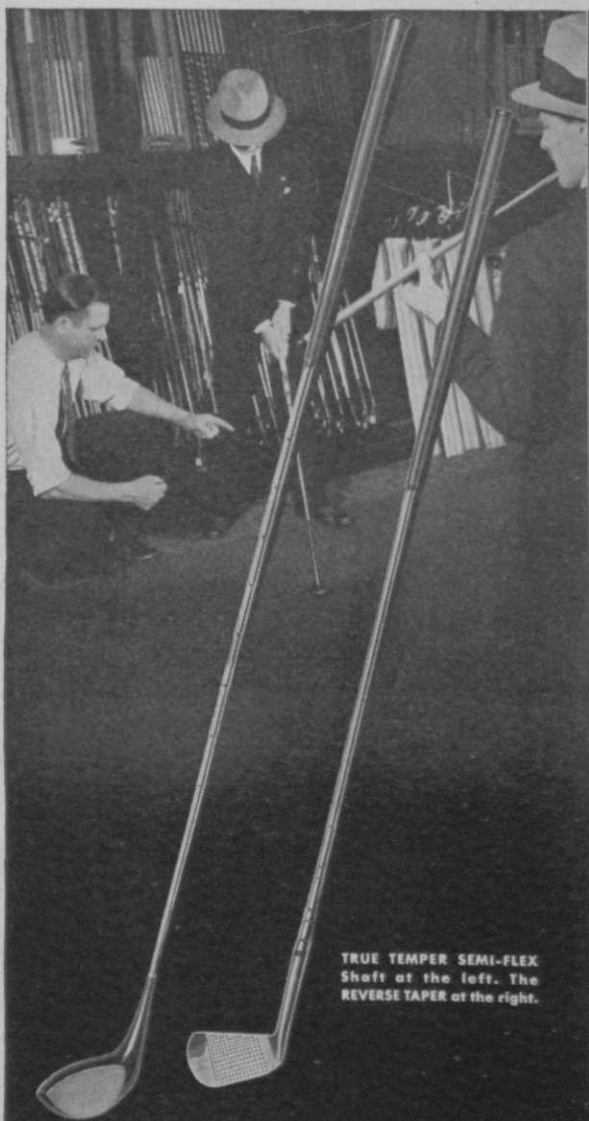
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**TRUE TEMPER
STEP DOWN
STEEL SHAFTS**

PICKED UP IN THE ROUGH

By HERB GRAFFIS

SECTIONS OF THE PGA are appointing examining boards for conducting the PGA instruction research campaign. Presidents of sections are chairmen of these boards.

Since George Jacobus, president of the PGA, made it plain that the idea of the instruction effort is not to establish a hard-and-fast instruction ritual but rather to determine the fundamental principles and mechanical laws applying to playing, there has been considerable favorable interest in the enterprise.

USGA approval given to the research also has helped to stir up the pros. There is potentially much public interest and service in the idea, so it is hoped that the fellows will cooperate unselfishly and effectively in this plan for the promotion of the game and for pro effectiveness and profit.

* * *

DICK WILSON, whose contract as manager of the Delray Beach (Fla.) municipal golf course recently has been renewed for 5 years by the local council, has given an outstanding demonstration of making golf a civic asset.

Wilson, a Toomey and Flynn graduate, runs that Delray Beach 9-hole course so it is a strong attraction for winter residence in the community. He operates on little money but spends it so expertly and has developed such a lively and happy spirit among the players that the Delray Beach course has drawn many neighborly notables to the community.

Hotel and residence accommodations are sold out early in the season at Delray Beach. The Wilson operation of the municipal golf course is one of the main reasons.

* * *

JOE WHITEHEAD, superintendent of Middletown G. C., Cromwell, Conn., now has solved the problem of getting up out of the hay at dawn to see what hell happened to the course overnight.

Into the Whitehead family has arrived William Warren, the first born. He weighed in at 7 lbs., 15 ounces, Feb. 9. He is being trained by Mr. and Mrs. Whitehead to squawk for his morning bottle at a time

permitting White, Sr., to poke the milk into the infant's howling face and then make a complete inspection of the course prior to the arrival of the first men on the day shift.

You can't beat the ingenuity of these greenkeepers even by cutting the cost of an alarm clock out of the budget.

* * *

MORE OF A "willingness to please" attitude on the part of tournament sponsors and players than ever was in evidence before was shown during the California circuit this winter.

Unfortunately, "unusual" weather messed things up a bit with the schedules at Santa Monica and Los Angeles, but both events and others on the route were outstanding successes.

Pros who played in the California tournaments this year continued the circuit singing the praises of their hosts and jubilant that the California debut of the playing season was a certain indication of a great year in golf.

* * *

THE FIRST official international German and French golf matches will be held at Frankfort-on-Main, June 24.

There is some significance to this. We can't decide whether it means that the war is really over or another one is being worked up.

* * *

"GOLF FACTS AND STATISTICS," giving general data on the extent of the golf club field and highlights of information regarding the PGA, is a booklet recently prepared by the pro organization and sent out to the association's publicity list of sports writers.

Copies of the booklet will be sent free by the PGA headquarters, First National Bank Bldg., Chicago.

* * *

ALDERWOOD C. C. (Portland, Ore.) has a live club mirrored in a brisk four page club magazine, the "Back Swing."

The magazine has been campaigning for members to give permanent or temporary employment to caddies who must contribute to the support of their families. During the off months for caddying at Alder-

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wood the campaign was effective in getting a number of the boys placed with members.

The idea of caddie ranks furnishing rookies for the members' business service is one that all clubs will do well to develop.

* * *

DICK AHLBRECHT, greenkeeper of the Hutchinson (Minn.) G. C. has reason for believing he has a future star in his family. His son who will be 6 in April, turns in scores of 40 frequently on the 2,682 yard, par 36, sand green course at Hutchinson.

Young Dick started to play when he was a little over 2 years old. All of the Ahlbrecht family play; Dick, Sr., the Mrs., three boys and the 8-year-old daughter. The baby, Louis, who is just over 2, already has started to bat the ball around.

* * *

GALLOPING HILL course, ably run by the Union County (N. J.) Park commission put in a special rate for winter play.

Although snow was on the ground half of January there were 500 who played the course.

Apparently golf has greater possibilities for winter play than many appreciate.

In 1933 there were 51,062 rounds played at Galloping Hill course. This was 3,299 less than in 1932 although official weather records showed 135 per cent more rain fell in April to September, 1933 inclusive, than in the same period in 1932.

* * *

IN JANUARY GOLFDOM we had some comment on the hit-and-run so-called professional golf shops that move into long-vacant stores, misrepresent merchandise and then move along after the suckers have been trimmed.

We had reference to cases in Chicago and New York that we had investigated and on which we had the dope cold.

Now we are advised that one outfit of "Professional Golf Shops" is strictly on the legitimate and has such pros as Charley Miller of Aberdeen, S. D., and J. O. Gibson, formerly of Fox Chapel, Pittsburgh, Pa., as branch managers.

These boys feel hurt, believing that GOLFDOM, mentioning the gospel truth about the racketeering false-front "pro shops" downtown, does their stores an injustice. None of the other pros at clubs who are interested in other legitimate downtown "pro golf shops" squawked.

GOLFDOM is first and foremost for the pro, but it also is definitely for other legitimate and honest operating retailers of golf goods against the racketeers of the hit-and-run type.

So, if we hurt the feelings of the pros who are at the *substantial* "Professional Golf Shops," operated as square-dealing establishments for supplying golf equipment, we are sorry and stand on our heads and bump our brows to show contrition.

It looks, again, like some legitimate operators share with the public and the pros at courses, the damage of hit-and-run stores masquerading as "Pro Golf Shops."

* * *

TOURNAMENT BUREAU of the PGA with Bob Harlow as engineer is stirring up more interest in tournaments than there has been for some years.

There are several signs that a revival of summer events is in prospect. With the National Open, the Western, Canadian, St. Paul, Glen Falls, Hershey, Tri-State, Nebraska and St. Louis already on as fixtures, and interest recently exhibited in such places as Columbus, O., and Waterloo, Ia., Harlow has the hunch that he can work up a circuit that will do much to promote golf.

The problem is to get enough ranking players to draw gates.

Some of the boys who have been unable to make profitable connections at clubs are hoping that a summer circuit can be established.

* * *

UNDOUBTEDLY the most significant golf news of the past month was the announcement that the Hitler government has made golf the national game of Germany.

Official recognition of golf's embracing benefits to all ages and classes has been evident in other countries only to the extent to which local branches of government have encouraged municipal golf courses. In the majority of cases these courses have been rather quickly amortized when competently run without political interference.

There are 65,300,000 people in Germany, according to the 1933 census, and only 42 golf courses. This figure of a golf course to every 1,500,000 people, compared with the United States proportion of a course to every 20,000 inhabitants, indicates that Germany is going to be the scene of a lot of golf business during the next few years.



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The "high spot" at the Chicago Sporting Goods Show. Sponsored by MacGregor, "The Greatest Name in Golf." Fashioned by Golfer-Craftsmen. Tested by them on their own MacGregor Golf Course.

Players and pros alike acclaim the TRU-WHIP a "Miracle Club." A North Carolina player writes, "TRU-WHIPS give me 10 to 40 yards more distance and I can hold the ball much straighter with these clubs." From Cincinnati comes this pro's verdict. "My first four rounds with TRU-WHIPS were played on three different courses with scores of 66, 67, 68 and 70. These clubs feel more like hickory than any I have ever used. I time my shots better with them and I am longer off the tee with them than I am with a stiff shaft."

Is it any wonder pros foresee a demand for this new club that will shatter all previous sales records?

The "Control Sleeve"

Distance *plus* accuracy is achieved in TRU-WHIP Clubs by means of the "Control Sleeve," which fits over the steel shaft and under the leather grip. It removes the usual whippy club wobble—stiffens the grip—puts the leverage where it belongs—gives

accurate control. The exclusive Control Sleeve is protected by patent pending.

Add to all this the fact that we're going to tell America's two million golfers about TRU-WHIPS with advertisements in leading National Magazines and you'll see the reason for stocking TRU-WHIPS now.

But get full particulars by mailing the coupon below. Lose no time in ordering your supply of TRU-WHIPS. If you don't carry MacGregors in stock, details of MacGregor's money-making franchise for 1934 will be sent to you by return mail. The important thing is to *get the coupon in the mail today*. The Crawford, McGregor & Canby Co., Dept. A-35, Dayton, Ohio.

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How to Fertilize GOLF TURF

By O. J. NOER*

BARNYARD manure, now displaced by more concentrated materials, was once the standard golf turf fertilizer. Its use presented few problems in turf maintenance. Manure still has its staunch supporters who believe that a return to its general use would be the Moses to lead golf clubs out of all turf management troubles.

With manure the procedure was simple and very little skill or knowledge was required, because there was little danger of producing bad effects. Results were satisfactory because golfers were easily satisfied. During this era fairway applications were made in the late fall after play ceased, and any remaining trash was removed in the spring before play was resumed. On greens compost rich in manure was prepared and used in top-dressing mixtures. Many supplied some or all the nutrient elements required for growth, the low content of soluble material prevented direct turf injury for burning, and minimized the danger of forcing rapid lush growth. Turf improvement was necessarily slow, play on fairways was impossible following its application, and there was also the possibility of introducing troublesome weeds, besides the danger of stimulating clover due to high proportion of potash.

Although low in actual plant food, manure at the moderate rate of 10 tons per acre, supplied 100 pounds actual nitrogen and potash and about half as much phosphoric acid. Failure to appreciate this fact accounted for early disappointments following attempts to duplicate results with a few hundred pounds per acre of fertilizer even though it contained 6 to 12 per cent of nitrogen and what seemed adequate quantities of other elements. Where other fertilizers were used on fairways in amounts sufficient to satisfy soil deficiencies, superior results have been obtained at less expense.

Where manure of good quality is obtainable, its use will continue as an ingredient of the compost included in top-dressing mixtures, but in some metropolitan dis-

tricts, manure will compel the use of humus substitutes for improvement of physical soil condition supplemented with fertilizer to supply needed plant food.

Lesson of the Acid Era

The use of ammonium sulphate started about 15 years ago, and gathered momentum until the disastrous season of 1928. Fairways received scant attention until recent years, so applications were confined largely to greens. Sulphate produced startling results and its virtues were preached at every gathering of greenkeepers and club officials charged with turf maintenance. Besides its effects in deepening green color and producing rapid growth, both almost immediately evident, there was a notable decrease in clover and weeds, attributed entirely to the increased soil acidity induced by ammonium sulphate. This period may be termed the acid era in turf maintenance.

The immediate effect of wholesale turf loss during the humid hot season of 1928 was general and unwarranted condemnation of ammonium sulphate. The zeal to increase soil acidity encouraged too generous use of sulphate, and turf loss resulted from too rapid growth with attendant weak soft leaves caused by the large quantities of immediately available nitrogen. In some instances soils either become too acid, or were depleted in the so-called basic elements, calcium and magnesium.

When reason finally prevailed, it was realized that a climax had been reached and that the trouble was actually a blessing in disguise. To overcome future disaster the use of sulphate was not necessarily abandoned, but mid-summer rates were reduced so as not to unduly force rapid growth. Soils were tested for acidity and where found too acid lime was applied to correct the condition, but at minimum rates so as not to encourage clover. The acid era in turf maintenance ended when it was realized that the pendulum had swung too far.

At present it is believed that first consideration must be given to practices which will insure development and main-

*N. A. G. A. convention address.

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You can have the regular old-time rectangular body if you want it. But are you sure you want something that's old-time?

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ISN'T it so, that the main trouble with all dump-body tractors has been the difficulty in removing the body, when using tractor for mowing? If the body was left on, it was right in the way of seeing the mowing cut.

Another bad feature was the difficulty in pushing up the hinged body, so it would dump. Took two men to do it. Besides which, there was the nuisance of a tail-board, plus the fact that a regular rectangular body didn't dump clean. That meant extra work.

This new Worthington practically dumps itself. The weight is so balanced on the rocker frame and track, that a release of

the hand lever, and over it goes. The body then rocks back in place and latches by simply starting up the tractor and then putting on the brakes and back she snaps.

But don't think simply because it all sounds so good that it may be more theoretical than practical. Over a period of years the rocker type of dump body has been given most severe tests for various operations. That's why we know so surely that the whole tractor body outfit is top-hole in every way. Besides, Worthington is back of it, and if not every way satisfactory, you just don't keep it, that's all. Send at once for full particulars.



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tenance of sturdy dense turf. Although an acid soil is desirable as an aid to further suppression of clover seed and weeds, it should not develop to the point where the turf grasses suffer, for weeds flourish in thin turf areas devoid of grass.

Fertilization has become one of the most important factors in golf turf management. It is the surest method of improving poor turf, but it is folly to expect a single application to immediately transform such grass into dense sod. While courage may be required to embark upon a definite program, the reward is desirable coverage in reasonable time for grasses spread by means of underground rhizomes or surface runners in the presence of moisture and ample plant food. Regular feeding of good turf is equally important to prevent deterioration and subsequent weed infestation.

The success of any program depends upon selection of a suitable fertilizer, uniform application at the proper season, using rates sufficient to satisfy soil deficiencies without unduly forcing rapid growth. Besides being familiar with the properties of the various classes of fertilizers, intelligent selection of the right fertilizer requires a thorough knowledge of turf nutrient requirements, an understanding of the soil as a source of plant food.

Of the 80 odd known chemical elements, grasses use 10 in appreciable quantities and of these seven are obtained from the soil: iron, sulphur, magnesium, calcium, nitrogen, phosphorus, and potassium. Recent investigations indicate that minute amounts of certain rarer soil elements are also essential for growth. Ordinarily soil deficiencies are confined to one or more of the elements, nitrogen, phosphorus, and potassium.

Occasionally lack of soluble magnesium, calcium, and the rarer elements inhibit normal growth. Magnesium and calcium deficiencies are most apt to occur on strongly acid soils. Since too much acidity is detrimental to best growth, its correc-

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tion by the moderate use of lime eliminates these deficiencies, particularly if lime containing some magnesium is used. Deficiencies in the rare elements are confined to unusual soils, the barren sands of the Coastal Plains region, and soils of a highly calcareous nature, but are seldom found in the north.

Since nitrogen, phosphorus, and potassium are the three important fertilizer constituents, an understanding of their functions, together with their occurrence and behavior in the soil, is most essential.

Nitrogen Is Key Element

Nitrogen is most important, and on established turf is the key to success. Besides being responsible for dark green color and active vegetative growth, it is the element which encourages grass to spread and thus form turf free from cuppy lies. Contrary to general belief, nitrogen favors a dense root structure, and is not the sole cause for shallow root systems. Over-watering, extremely tight and compact soil, excessive soil acidity, and on fairways too close cutting are more apt to be the cause.

Need for nitrogen is easily detected. Brown color, slow growth, and failure of the turf to spread are sure indications. Most infestation and serious clover invasion are also unmistakable signs of need for nitrogen.

The soil supply of nitrogen is found in the dark colored humus or organic matter, hence dark colored soils have more nitrogen than those of light color. This insoluble nitrogen is converted into usable forms by the soil micro-organisms. Even dark colored soils often respond to applications of nitrogen. In these cases the soil humus exists in forms which resist further decompositions by the soil organisms.

Aside from calcium, leaching losses are confined almost entirely to nitrogen, because nitrates, the ultimate product formed by soil bacteria, move freely in the soil water. Under certain conditions additional losses may result from de-nitrification. Greatest losses naturally occur in sandy soils. To minimize loss, regular nitrogen feeding in quantities just sufficient to satisfy the turf's demand is the sensible practice.

Phosphorus Hurries Root Growth

The element phosphorus is a necessary constituent of all living plant substance.

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From the standpoint of grass, its stimulating effect on root development is of greatest importance. Phosphorus stimulates rapid initial root development, and enables weaker seedlings to compete with healthier plants so a more uniform stand of grass is obtained.

The response from phosphorus applications is less marked on established turf, because the soil supply of available phosphorus is constantly augmented by decay of clippings. Fixation of applied soluble phosphorus near the surface is an added reason. Where results are obtained effects are most noticeable, with the approach of warmer mid-summer, in the ability of turf to withstand unfavorable temperatures.

Phosphorus occurs in the mineral soil fraction, and is most abundant in the finer particles. Hence loams and clay soils contain more phosphorus than sands. Soluble phosphates are precipitated in the soil so this element does not leach out in the drainage waters. Re-solution occurs to satisfy the turf's need for this element.

On fairways where soil deficiencies are acute, generous initial applications which need not be repeated for several years, rather than light yearly applications, may prove best. There is no danger of appreciable loss from leaching and deeper movement into the soil may occur.

The generous use of phosphates on new seedlings is sound practice, because the phosphorus can be worked into the deeper soil by mechanical means.

Potassium functions mainly as an aid in the formation and translocation of so-called carbohydrates—sugar, starch, and cellulose. Clovers have a high potassium requirement, so too generous use of potash should be avoided.

Potassium Usually on Hand

Like phosphorus, potassium exists in the mineral particles and is very abundant in the finer fraction. There are 20,000 to 40,000 pounds actual potash in the surface soil of heavy soils. These soils rarely respond to the use of potash, especially if clippings are not removed. Of the three fertilizer elements next to nitrogen, potassium is most abundant in clippings. Upon decay this potash is released for further use and unlike nitrogen, potassium does not leach readily. Any applied soluble potash is taken up and held by the silt and clay particles so applications sufficient for several years can be made on fairways without danger of loss.

The only fairway soils on which need for potassium should be questioned are the poorer sands, mucks, and peats.

Lime Not Always Bad

The belief that lime, because of its tendency to increase clover and weeds, should never be used on turf is no longer tenable and its judicious use is now recommended. The effects of lime are most noticeable in mid-summer in the ability of turf to withstand drought. Lime also tends to improve the structure of acid clay soils by promoting granulation and thus improves water-holding capacity, and tends to overcome localized drying of soil on greens.

The amount of lime required depends upon degree of soil acidity, kind of soil and variety of grass. Except for lime-loving Kentucky bluegrass, need for lime is probably confined to soils of moderate to strong acidity. The coarser textured sands and sandy loams require less lime than the fine textured loams, silts and clays of equal degree of acidity. Fescues and bents tolerate more acidity than Kentucky bluegrass, so they require less lime and its use should be confined to the more acid soils.

Yearly applications of lime are seldom needed. On fairways it is better practice to use lime every two to four years to minimize the danger of encouraging clover. In some districts the use of a material containing some magnesium may be advisable to eliminate any possibility of magnesium deficiency.

There are a large number of different fertilizer materials. They may contain one or more of the three important elements, and their plant food contents vary widely. The rate at which plant foods become available differs and the indirect effects of different fertilizers upon the soil are important. Fortunately they can be grouped into broad classes, which is an aid in the selection of the fertilizer which will produce desired results.

As the name implies, the organics are of plant or animal origin and include such materials as blood, bone, tankage, castor pomace, and natural manures. The nitrogen in its original form cannot be taken up by growing plants. The same processes which convert soil nitrogen into available form are responsible for decomposition of organic fertilizers. Some such as blood and tankage break down rapidly, so effects are not lasting. Others such as bone release nitrogen slowly and hence provide